



# The Easiest Way to Learn Ultrasonography®

## Case Legend

### Fundamentals - SonoSim® SkillBox - Case 1

Please examine the object(s) with sonography and determine its shape.

Point A	Normal virtual sphere
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### Fundamentals - SonoSim® SkillBox - Case 2

Please examine the object(s) with sonography and determine its shape.

Point A	Normal virtual cone
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### Fundamentals - SonoSim® SkillBox - Case 3

Please examine the object(s) with sonography and determine its shape.

Point A	Normal virtual tube
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### Fundamentals - SonoSim® SkillBox - Case 4

Please examine the object(s) with sonography and determine its shape.

Point A	Two normal virtual tubes
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### Fundamentals - SonoSim® SkillBox - Case 5

Please examine the object(s) with sonography and determine its shape.

Point A	Normal virtual needle
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### Fundamentals - SonoSim® SkillBox - Case 6

Please examine the object(s) with sonography and determine its shape.

Point A	Two normal virtual needles
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### Fundamentals - SonoSim® SkillBox - Case 7

Please examine the object(s) with sonography and determine its shape. Importantly, note the shape of the transducer array beam and how it translates into an ultrasound image.

Point A	Linear-array transducer; Longitudinal cylindrical object
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### Fundamentals - SonoSim® SkillBox - Case 8

Please examine the object(s) with sonography and determine its shape. Importantly, note the shape of the transducer array beam and how it translates into an ultrasound image.

Point A	Curvilinear-array transducer; Longitudinal cylindrical object
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## Fundamentals - SonoSim® SkillBox - Case 9

Please examine the object(s) with sonography and determine its shape. Importantly, note the shape of the transducer array beam and how it translates into an ultrasound image.

Point A	Phased-array transducer; Longitudinal cylindrical object
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## Fundamentals - SonoSim® SkillBox - Case 10

Please examine the object(s) with sonography and determine its shape. Importantly, please note the differing echogenicities.

Point A	Linear-array transducer; Three spheres of varying echogenicity; Anechoic sphere in upper left of ultrasound screen; Isoechoic sphere in lower-central segment of the ultrasound screen; Hyperechoic sphere in upper right of ultrasound screen
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## Fundamentals - Case Studies - Case 1

This 30-year-old male presents complaining of acute-onset right testicular pain and swelling.

Vitals: T=37C BP=150/90 mmHg HR=100 bpm RR=18 bpm.

Please use sonography to examine his left and right testicles for pathology.

Point A	Normal left testicle (positive Doppler signal)
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Point B	Right testicular torsion (no Doppler signal)
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## Fundamentals - Case Studies - Case 2

This 2-week-old male presents following a generalized seizure and altered mental status after falling off a bed.

Please use sonography to examine his brain for pathology.

Point A	Normal neonatal brain; Anterior aspect of anterior fontanelle view
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Point B	Normal neonatal brain; Posterior aspect of anterior fontanelle view
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## Fundamentals - Case Studies - Case 3

This 4-year-old patient presents with fever and altered mental status.

Please use sonography to identify relevant anatomic landmarks for image-guided lumbar puncture.

Point A	Lumbar spine; Pediatric patient; Lumbar puncture landmarks (L2 spinous process)
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Point B	Lumbar spine; Pediatric patient; Lumbar puncture landmarks (L3-L4 interspace)
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## Fundamentals - Case Studies - Case 4

This 40-year-old female is a model of normal anatomy.

Please use sonography to examine her pancreas.

Point A	Normal pancreas; Optimal view; Additional split-screen image: Abdominal CT
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Point B	Normal pancreas; Superior view; Additional split-screen image: Abdominal CT
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Point C	Normal pancreas; Right lateral view; Additional split-screen image: Abdominal CT
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## Fundamentals - Case Studies - Case 5

This 53-year-old female is a model of normal anatomy.

Please use sonography to examine her right and left breasts.

Point A	Normal right breast tissue; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point B	Normal right breast tissue of axillary tail; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point C	Normal right breast tissue; Left lateral view; Additional split-screen image: Chest CT (showing breast tissue)
Point D	Normal right breast tissue and nipple; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point E	Normal left breast tissue; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point F	Normal left breast tissue of axillary tail; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point G	Normal left breast tissue and nipple; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)

## Abdomen - Basic Adrenal Glands - Case 1

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine his right and left adrenal glands.

Point A	Normal RUQ; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal RUQ; Posterior view; Additional split-screen image: Abdominal CT
Point C	Normal LUQ; Optimal view; Additional split-screen image: Abdominal CT
Point D	Normal LUQ; Anterior view; Additional split-screen image: Abdominal CT

## Abdomen - Basic Adrenal Glands - Case 2

This 26-year-old female is a model of normal anatomy.

Please use sonography to examine her right and left adrenal glands.

Point A	Normal RUQ; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal LUQ; Optimal view; Additional split-screen image: Abdominal CT

## Abdomen - Basic Adrenal Glands - Case 3

This 21-year-old female is a model of normal anatomy.

Please use sonography to examine her right and left adrenal glands.

Point A	Normal RUQ; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal RUQ; Anterior view; Additional split-screen image: Abdominal CT

Point C	Normal LUQ; Optimal view; Additional split-screen image: Abdominal CT
Point D	Normal LUQ; Posterior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic Biliary Tree - Case 1

This 40-year-old female is a model of normal anatomy.

Please use sonography to examine her biliary tree.

Point A	Normal biliary tree; Optimal anterosuperior view; Additional split-screen image: Abdominal CT
Point B	Normal biliary tree; Optimal anterior view; Additional split-screen image: Abdominal CT
Point C	Normal biliary tree; Optimal inferior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic Biliary Tree - Case 2

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine his biliary tree.

Point A	Normal biliary tree; Optimal anterosuperior view; Additional split-screen image: Abdominal CT
Point B	Normal biliary tree; Optimal inferior view; Additional split-screen image: Abdominal CT
Point C	Normal biliary tree; Optimal anteroinferior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic Biliary Tree - Case 3

This 8-year-old female is a model of normal anatomy.

Please use sonography to examine her biliary tree.

Point A	Normal biliary tree; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal biliary tree; Optimal anteromedial view; Additional split-screen image: Abdominal CT
Point C	Normal biliary tree; Optimal anteroinferior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic GI Tract - Case 1

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his gastrointestinal tract.

Point A	Normal right lower quadrant; Optimal view
Point B	Normal hepatic flexure; Optimal view
Point C	Normal epigastric region; Optimal view
Point D	Normal splenic flexure; Optimal view
Point E	Normal left lower quadrant; Optimal view
Point F	Normal bladder-rectosigmoid region; Optimal view

Point G	Normal esophagus; Optimal view
<b>Abdomen - Basic GI Tract - Case 2</b>	
This 22-year-old female is a model of normal anatomy.	
Please use sonography to examine her gastrointestinal tract.	
Point A	Normal right lower quadrant; Optimal view
Point B	Normal hepatic flexure; Optimal view
Point C	Normal epigastric region; Optimal view; Collapsed IVC
Point D	Normal splenic flexure; Optimal view
Point E	Normal left lower quadrant; Optimal view
Point F	Normal bladder-rectosigmoid region; Optimal view
Point G	Normal esophagus; Optimal view
<b>Abdomen - Basic GI Tract - Case 3</b>	
This 29-year-old male is a model of normal anatomy.	
Please use sonography to examine his gastrointestinal tract.	
Point A	Normal right lower quadrant; Optimal view
Point B	Normal hepatic flexure; Optimal view
Point C	Normal epigastric region; Optimal view
Point D	Normal splenic flexure; Optimal view
Point E	Normal left lower quadrant; Optimal view
Point F	Normal bladder-rectosigmoid region; Optimal view
Point G	Normal esophagus; Optimal view

<b>Abdomen - Basic Liver - Case 1</b>	
This 34-year-old male is a model of normal anatomy.	
Please use sonography to examine his liver.	
Point A	Normal liver; Optimal lateral view; Additional split-screen image: Abdominal CT
Point B	Normal liver; Optimal lateral view; Additional split-screen image: Abdominal CT
Point C	Normal liver; Optimal anterolateral view; Additional split-screen image: Abdominal CT
<b>Abdomen - Basic Liver - Case 2</b>	
This 40-year-old female is a model of normal anatomy.	
Please use sonography to examine her liver.	
Point A	Normal liver; Optimal lateral view; Additional split-screen image: Abdominal CT

Point B	Normal liver; Optimal anterior view; Additional split-screen image: Abdominal CT
<b>Abdomen - Basic Liver - Case 3</b>	
This 8-year-old female is a model of normal anatomy.	
Please use sonography to examine her liver.	
Point A	Normal liver; Optimal anterior view; Additional split-screen image: Abdominal CT
Point B	Normal liver; Optimal lateral view; Additional split-screen image: Abdominal CT
Point C	Normal liver; Optimal anterolateral view; Additional split-screen image: Abdominal CT

<b>Abdomen - Basic Pancreas - Case 1</b>	
This 40-year-old female is a model of normal anatomy.	
Please use sonography to examine her pancreas.	
Point A	Normal pancreas; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal pancreas; Superior view; Additional split-screen image: Abdominal CT
Point C	Normal pancreas; Right lateral view; Additional split-screen image: Abdominal CT

<b>Abdomen - Basic Pancreas - Case 2</b>	
This 28-year-old male is a model of normal anatomy.	
Please use sonography to examine his pancreas.	
Point A	Normal pancreas; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal pancreas; Left lateral view (slightly off midline); Additional split-screen image: Abdominal CT
Point C	Normal pancreas; Right lateral view; Additional split-screen image: Abdominal CT

<b>Abdomen - Basic Pancreas - Case 3</b>	
This 8-year-old female is a model of normal anatomy.	
Please use sonography to examine her pancreas.	
Point A	Normal pancreas; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal pancreas; Bowel gas artifact; Right lateral view (slightly off midline); Additional split-screen image: Abdominal CT
Point C	Normal pancreas; Bowel gas artifact; Right lateral view; Additional split-screen image: Abdominal CT

<b>Abdomen - Basic Renal - Case 1</b>	
This 30-year-old female is a model of normal anatomy.	
Please use sonography to examine her right and left kidneys.	

Point A	Normal right kidney; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal right kidney; Superior view; Additional split-screen image: Abdominal CT
Point C	Normal right kidney; Anterior view; Additional split-screen image: Abdominal CT
Point D	Normal right kidney; Inferior view; Additional split-screen image: Abdominal CT
Point E	Normal left kidney; Optimal view; Additional split-screen image: Abdominal CT
Point F	Normal left kidney; Superior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic Renal - Case 2

This 35-year-old male is a model of normal anatomy.

Please use sonography to examine his right and left kidneys.

Point A	Normal right kidney; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal right kidney; Anterior view; Additional split-screen image: Abdominal CT
Point C	Normal right kidney; Superior view; Additional split-screen image: Abdominal CT
Point D	Normal left kidney; Optimal view; Additional split-screen image: Abdominal CT
Point E	Normal left kidney; Superior view; Additional split-screen image: Abdominal CT
Point F	Normal left kidney; Posterior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic Renal - Case 3

This 7-year-old male is a model of normal anatomy.

Please use sonography to examine his right and left kidneys.

Point A	Normal right kidney; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal right kidney; Anterior view; Additional split-screen image: Abdominal CT
Point C	Normal right kidney; Anteroinferior view; Additional split-screen image: Abdominal CT
Point D	Normal left kidney; Optimal view; Additional split-screen image: Abdominal CT
Point E	Normal left kidney; Superoposterior view; Additional split-screen image: Abdominal CT
Point F	Normal left kidney; Posterior view; Additional split-screen image: Abdominal CT

### Abdomen - Basic Spleen - Case 1

This 29-year-old female is a model of normal anatomy.

Please use sonography to examine her spleen.

Point A	Normal spleen; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal spleen; Posterior view; Additional split-screen image: Abdominal CT
Point C	Normal spleen; Inferior view; Additional split-screen image: Abdominal CT
Point D	Normal spleen; Posteroinferior view; Additional split-screen image: Abdominal CT

## Abdomen - Basic Spleen - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his spleen.

Point A	Normal spleen; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal spleen; Inferior view; Additional split-screen image: Abdominal CT
Point C	Normal spleen; Posteroinferior view; Additional split-screen image: Abdominal CT
Point D	Normal spleen; Posterior view; Additional split-screen image: Abdominal CT

## Abdomen - Basic Spleen - Case 3

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine his spleen.

Point A	Normal spleen; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal spleen; Slightly posterior view; Additional split-screen image: Abdominal CT
Point C	Normal spleen; Slightly posteroinferior view; Additional split-screen image: Abdominal CT
Point D	Normal spleen; Inferior view; Additional split-screen image: Abdominal CT

## Abdomen - Core Intestinal/Biliary - Case 1

This 58-year-old female presents with two-days of right upper quadrant pain, nausea, and vomiting.

Please use sonography to examine her right upper quadrant.

Point A	Large gallstone in the fundus of the gallbladder; Small gallstone in the neck of the gallbladder; Maximal anterior gallbladder wall thickness approximately 5 mm; No pericholecystic fluid; Right renal cyst
Point B	Large gallstone in the fundus of the gallbladder; Small gallstone in the neck of the gallbladder; Maximal anterior gallbladder wall thickness approximately 5 mm; No pericholecystic fluid; Right renal cyst

## Abdomen - Core Intestinal/Biliary - Case 2

This 50-year-old female presents with 48 hours of nausea, vomiting, and progressive abdominal pain that localizes to her lower right abdominal quadrant.

Please use sonography to evaluate her abdomen.

Point A	Acute appendicitis
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## Abdomen - Core Intestinal/Biliary - Case 3

This 46-year-old female presents with right-sided abdominal pain and a WBC count=16,000.

Vitals: T=40C BP=100/60 mmHg HR=100 bpm RR=18 bpm.

Please use sonography to examine her right upper quadrant.



Point A	Acute calculous cholecystitis; Cholelithiasis (multiple gallstones, including a gallbladder neck stone); Maximal anterior gallbladder wall thickness approximately 7 mm; Positive pericholecystic fluid
Point B	Acute calculous cholecystitis; Cholelithiasis (multiple gallstones, including a gallbladder neck stone); Maximal anterior gallbladder wall thickness approximately 7 mm; Positive pericholecystic fluid

### Abdomen - Core Intestinal/Biliary - Case 4

This 71-year-old female presents with complaints of abdominal pain and distention.

Please use sonography to examine her abdomen.

Point A	Dilated loops of intestine; Duodenal obstruction with trace free fluid; Additional split-screen image: Abdominal CT
Point B	Dilated loops of intestine; Small bowel obstruction; Mild-to-moderate hydronephrosis; Additional split-screen image: Abdominal CT
Point C	Dilated loops of small intestine; Small bowel obstruction; Additional split-screen image: Abdominal CT

### Abdomen - Core Intestinal/Biliary - Case 5

This 19-year-old female presents with fever and right lower quadrant abdominal pain.

Please use sonography to examine her right lower quadrant.

Point A	Acute appendicitis
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### Abdomen - Core Intestinal/Biliary - Case 6

This 38-year-old male with a history of cystic fibrosis and history of bilateral lung transplantation, presents with right upper quadrant pain for 12 hours with vomiting.

Please use sonography to evaluate his right upper quadrant.

Point A	Acute cholecystitis; Multiple gallstones; Gallbladder wall thickening; Equivocal pericholecystic fluid
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### Abdomen - Core Intestinal/Biliary - Case 7

This 78-year-old female presents with abdominal pain that localizes to the right upper quadrant.

Please use sonography to evaluate her abdomen.

Point A	Ascites; Small bowel obstruction; Additional split-screen image: Abdominal CT
Point B	Ascites; Small bowel obstruction; Additional split-screen image: Abdominal CT
Point C	Gallbladder neck stone; Equivocal gallbladder wall thickening; Additional split-screen image: Abdominal CT

### Abdomen - Core Intestinal/Biliary - Case 8

This 57-year-old female with a prior history of abdominal surgeries presents complaining of diffuse abdominal pain.

Please use sonography to evaluate her abdomen.

Point A	Dilated loops of small bowel; Additional split-screen image: Abdominal CT
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### Abdomen - Core Intestinal/Biliary - Case 9

This 80-year-old female presents with abdominal pain and distension.

Please use sonography to examine her abdomen.

Point A	Ascites; Nephrocalcinosis; Renal calculus
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Point B	Ascites; Thickened gallbladder wall
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Point C	Multiple loops of floating bowel; Ascites
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### Abdomen - Core Intestinal/Biliary - Case 10

This is a 79-year-old female patient who presents with right upper quadrant pain with nausea and vomiting.

Please use sonography to evaluate her gallbladder.

Point A	Gallbladder wall thickening; Pericholecystic fluid; 3.5 cm gallstone; Dilated common bile duct
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### Abdomen - Core Intestinal/Biliary - Case 11

This obese 75-year-old female presents with diffuse lower abdominal discomfort for several days with no vomiting, diarrhea, or fevers.

Please use sonography to evaluate her gastrointestinal tract.

Point A	Large cystic structure superior to the bladder; Distended bladder; Bilateral hip replacements; Additional split-screen image: Abdominal/Pelvic CT
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Point B	Large cystic structure superior to the bladder; Distended bladder; Additional split-screen image: Abdominal/Pelvic CT
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Point C	Large cystic structure superior to the bladder; Distended bladder; Bilateral hip replacements; Additional split-screen image: Abdominal/Pelvic CT
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### Abdomen - Core Intestinal/Biliary - Case 12

This 58-year-old male presents with right upper and midepigastic pain.

Please use sonography to examine his right upper abdomen.

Point A	Cholelithiasis (subtle finding)
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Point B	Cholelithiasis (subtle finding)
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### Abdomen - Core Intestinal/Biliary - Case 13

This 29-year-old female presents with sudden onset right-sided abdominal pain.

Please use sonography to examine her right upper quadrant.

Point A	Normal gallbladder; Duodenal air mimicking gallbladder sludge/stones; Common bile duct; Additional split-screen image: Abdominal CT
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### Abdomen - Core Intestinal/Biliary - Case 14

This 58-year-old female presents with nausea, vomiting, and right upper quadrant abdominal pain.

Please use sonography to examine her right upper quadrant.

Point A	Normal pancreas; Hepatosteatorosis (mild fatty liver)
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Point B	Cholelithiasis; Hepatosteatorosis (mild fatty liver)
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### Abdomen - Core Intestinal/Biliary - Case 15

This 26-year-old female with no prior history of abdominal surgery presents with nausea, vomiting, and abdominal distention.

Please use sonography to evaluate her abdomen.

Point A

Dilated loops of small bowel; Additional split-screen image: Abdominal CT

### Abdomen - Core Intestinal/Biliary - Case 16

This 61-year-old female presents with a four-day history of upper abdominal pain, anorexia, and has RUQ pain on palpation.

Please evaluate her hepatobiliary system with sonography.

Point A

Gallbladder with sludge and thickened anterior wall; Possible small gallstones; Dilated common bile duct; Pericholecystic fluid; Hepatic cyst; Additional split-screen image: Abdominal CT

### Abdomen - Core Intestinal/Biliary - Case 17

This 19-year-old male presents with right lower quadrant pain and fever.

Please use sonography to examine his lower abdomen.

Point A

Dilated appendix with an appendicolith; Normal bowel superior to the inflamed appendix

### Abdomen - Core Intestinal/Biliary - Case 18

This 40-year-old female presents with right lower quadrant abdominal pain, with a history of appendectomy.

Please use sonography to evaluate her right lower quadrant.

Point A

Normal caliber small bowel; Bowel gas artifact; No free fluid; Additional split-screen image: Abdominal CT

### Abdomen - Core Intestinal/Biliary - Case 19

This 27-year-old female with history of chronic intestinal pseudo-obstruction presents with abdominal pain and distension.

Please use sonography to examine her abdomen.

Point A

Markedly dilated loops of small bowel consistent with small bowel obstruction; Free fluid

Point B

Markedly dilated loops of small bowel consistent with small bowel obstruction; Free fluid

### Abdomen - Core Intestinal/Biliary - Case 20

This 57-year-old female presents complaining of RUQ pain for 12 hours.

Please use sonography to evaluate her right upper quadrant.

Point A

Distended gallbladder with a 2 cm isolated gallstone within the gallbladder neck; Possible pericholecystic fluid

Point B

Distended gallbladder with a 2 cm isolated gallstone within the gallbladder neck; Gallbladder wall thickness 4 mm; CBD 6 mm; Pericholecystic fluid

Point C

Distended gallbladder with a 2 cm isolated gallstone within the gallbladder neck; Pericholecystic fluid

### Abdomen - Core Renal - Case 1

This 53-year-old male presents with a 4-hour history of right flank pain.

Please use sonography to assess his kidneys.

Point A	Right kidney; Mild hydronephrosis with hydroureter
Point B	Left kidney; Within normal limits; No hydronephrosis

### Abdomen - Core Renal - Case 2

This 42-year-old female with a history of polycystic kidney disease and liver resection presents complaining of flank and abdominal pain.

Please use sonography to examine her kidneys.

Point A	Right kidney; Polycystic kidney; Liver cysts
Point B	Left kidney; Polycystic kidney; Possible small intrarenal stones

### Abdomen - Core Renal - Case 3

This 5-year-old male presents with acute-onset right flank pain.

Please use sonography to examine his bladder and kidneys.

Point A	Normal right kidney; Pediatric
Point B	Normal bladder; Pediatric
Point C	Normal left kidney; Pediatric

### Abdomen - Core Renal - Case 4

This 56-year-old male presents with right flank and abdominal pain after ureteral stent placement.

Please use sonography to evaluate his kidneys and bladder.

Point A	Right kidney; No hydronephrosis; Possible small intrarenal stones
Point B	Bladder; Possible migrated ureteral stent
Point C	Left kidney; No hydronephrosis; Small intrarenal stones

### Abdomen - Core Renal - Case 5

This 9-year-old male with history of bladder reconstruction surgery presents with fever and urinary retention.

Please use sonography to examine his kidneys and his pre- and post-void bladder.

Point A	Right kidney; No hydronephrosis; Pediatric
Point B	Pre-void bladder; Large amount of urine seen at the site of the patient's appendicovesicostomy; Pediatric
Point C	Post-void bladder; Decreased amount of urine seen; Pediatric
Point D	Left kidney; Moderate hydronephrosis; Pediatric

### Abdomen - Core Renal - Case 6

This 71-year-old male with a history of bladder and prostate resection due to bladder carcinoma presents with decreased urine output through his urostomy.

Please use sonography to assess his kidneys and bladder for evidence of urinary retention.

Point A	Right kidney; Moderate hydronephrosis
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Point B	Urine in the bowel conduit; Residual post-operative fluid collection in the pelvis
Point C	Left kidney; Moderate hydronephrosis

### Abdomen - Core Renal - Case 7

This 76-year-old male with a history of renal cysts presents with abdominal pain, abrupt abdominal distention, and vomiting over several hours.

Please use sonography to evaluate his kidneys, bladder, and abdomen.

Point A	Right kidney; No hydronephrosis; Several renal cysts
Point B	Bladder; Possible thrombus or mass
Point C	Left kidney; Two very large renal cysts
Point D	Lower left abdomen; Very large left renal cyst
Point E	Lower left abdomen; Very large left renal cyst
Point F	Multiple loops of normal caliber bowel

### Abdomen - Core Renal - Case 8

This 38-year-old male presents with right upper quadrant and flank pain.

Please use sonography to examine his kidneys.

Point A	Right kidney; No hydronephrosis
Point B	Left kidney; Possible small intrarenal stones

### Abdomen - Core Renal - Case 9

This 84-year-old female presents with left-sided abdominal pain and hematuria.

Please use sonography to examine her left kidney.

Point A	Left kidney; Large renal cyst
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### Abdomen - Core Renal - Case 10

This 30-year-old female with a history of kidney stones and allergy to NSAIDs presents complaining of right flank pain and inability to void.

Please use sonography to examine her kidneys and bladder.

Point A	Right kidney; Moderate hydronephrosis with hydroureter; Multiple intrarenal stones; Additional split-screen image: Abdominal CT
Point B	Normal bladder; Additional split-screen image: Abdominal / pelvic CT
Point C	Left kidney; No hydronephrosis; Additional split-screen image: Abdominal CT

### Breast - Basic Breast - Case 1

This 53-year-old female is a model of normal anatomy.

Please use sonography to examine her right and left breasts.

Point A	Normal right breast tissue of axillary tail; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point B	Normal right breast tissue; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point C	Normal right breast tissue; Left lateral view; Additional split-screen image: Chest CT (showing breast tissue)
Point D	Normal right breast tissue and nipple; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point E	Normal left breast tissue; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point F	Normal left breast tissue of axillary tail; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point G	Normal left breast tissue and nipple; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)

### Breast - Basic Breast - Case 2

This 36-year-old female with breast implants is a model of normal anatomy.

Please use sonography to examine her right breast.

Point A	Normal right breast tissue; Normal breast implant; Optimal view; Additional split-screen image: Breast MRI
Point B	Normal right breast tissue of axillary tail; Normal breast implant; Optimal view; Additional split-screen image: Breast MRI
Point C	Normal right breast tissue and nipple; Normal breast implant; Optimal view; Additional split-screen image: Breast MRI

### Breast - Basic Breast - Case 3

This 29-year-old female is a model of normal anatomy.

Please use sonography to examine her right and left breasts.

Point A	Normal right breast tissue; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point B	Normal right breast tissue; Inferior view; Additional split-screen image: Chest CT (showing breast tissue)
Point C	Normal right breast tissue of axillary tail; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point D	Normal left breast tissue; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point E	Normal left breast tissue; Superior view; Additional split-screen image: Chest CT (showing breast tissue)
Point F	Normal left breast tissue of axillary tail; Optimal view; Additional split-screen image: Chest CT (showing breast tissue)
Point G	Normal left breast tissue; Inferior view; Additional split-screen image: Chest CT (showing breast tissue)

### Cardiac - Basic Heart - Case 1

This 38-year-old male is a model of normal anatomy.

Please use sonography to examine his heart.

Parasternal	Normal heart; Parasternal long and parasternal short views; Additional split-screen image: Chest CT
Apical	Normal heart; Apical view; Additional split-screen image: Chest CT
Subcostal	Normal heart; Subcostal view; Additional split-screen image: Chest CT

### Cardiac - Basic Heart - Case 2

This 40-year-old male is a model of normal anatomy.

Please use sonography to examine his heart.

Parasternal	Normal heart; Parasternal long and parasternal short views; Additional split-screen image: Chest CT
Apical	Normal heart; Apical view; Additional split-screen image: Chest CT
Subcostal	Normal heart; Subcostal view; Additional split-screen image: Chest CT

### Cardiac - Basic Heart - Case 3

This 6-year-old female is a model of normal anatomy.

Please use sonography to examine her heart.

Parasternal	Normal heart; Parasternal long and parasternal short views; Additional split-screen image: Chest CT
Apical	Normal heart; Apical view; Additional split-screen image: Chest CT
Subcostal	Normal heart; Subcostal view; Additional split-screen image: Chest CT

### Cardiac - Core Cardiology - Case 1

This 32-year-old male presents with chest pain, shortness of breath, and lightheadedness.

Please use sonography to examine his heart.

Parasternal	Large pericardial effusion; No definitive evidence of cardiac tamponade; Concentric LVH; Normal ejection fraction
Apical	Large pericardial effusion; No definitive evidence of cardiac tamponade; Dilated left and right atria; Concentric LVH; Normal ejection fraction
Subcostal	Large pericardial effusion; No definitive evidence of cardiac tamponade; Pacemaker wire noted in right side; Dilated IVC diameter greater than or equal to 2.1 cm; Respirophasic variation less than 50% collapse; Increased RAP

### Cardiac - Core Cardiology - Case 2

This 84-year-old male with history of renal failure presents with swelling of his lower extremities.

Please use sonography to examine his heart.

Parasternal	Mitral annular calcification; Dilated left ventricle; Segmental wall motion abnormalities; Decreased ejection fraction
Apical	Mitral annular calcification; Dilated left atria and ventricle; Segmental wall motion abnormalities; Decreased ejection fraction
Subcostal	Decreased ejection fraction; Limited view

### Cardiac - Core Cardiology - Case 3

This 16-year-old male presents with chief complaint of palpitations of 30 minutes duration.

Please use sonography to examine his heart.

Parasternal	Normal ejection fraction; Normal chamber dimensions; No pericardial effusion; Normal findings
Apical	Normal ejection fraction; Normal chamber dimensions; No pericardial effusion; Normal findings
Subcostal	Normal ejection fraction; Normal chamber dimensions; No pericardial effusion; Normal findings

### Cardiac - Core Cardiology - Case 4

This 86-year-old male patient presents with chest pain and hypotension.

Please use sonography to examine his heart.

Parasternal	Circumferential pericardial effusion; Mild end-diastolic right ventricular collapse; No definitive evidence of cardiac tamponade; Aortic valve calcification; Concentric LVH; Normal ejection fraction
Apical	Circumferential pericardial effusion; Swinging heart sign; No definitive evidence of cardiac tamponade; Normal ejection fraction
Subcostal	Circumferential pericardial effusion; Mild end-diastolic right ventricular collapse; No definitive evidence of cardiac tamponade; Pacemaker wire noted in right side
IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg

### Cardiac - Core Cardiology - Case 5

This 3-year-old female was found to have a systolic murmur on a routine physical exam.

Please use sonography to examine her heart.

Parasternal	Normal ejection fraction; Normal chamber dimensions; No septal wall defects; No pericardial effusion; Normal findings
Apical	Normal ejection fraction; Normal chamber dimensions; No septal wall defects; No pericardial effusion; Normal findings
Subcostal	Normal ejection fraction; Normal chamber dimensions; No septal wall defects; No pericardial effusion; Normal findings

### Cardiac - Core Cardiology - Case 6

This 70-year-old female presents with progressive shortness of breath.

Please use sonography to examine her heart.

Parasternal	Severely decreased ejection fraction; Dilated cardiomyopathy; Decreased RV function; Pulmonic regurgitation; Tricuspid regurgitation; Thickened mitral valve leaflets; Pleural effusion
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Apical	Severely decreased ejection fraction; Dilated cardiomyopathy; Pacemaker wire noted in right side; Thickened mitral valve leaflets
Subcostal	Severely decreased ejection fraction; Dilated cardiomyopathy; Decreased RV function; Pacemaker wire noted in right side; Trivial pericardial effusion; Pleural effusion

### Cardiac - Core Cardiology - Case 7

This 53-year-old female presents with shortness of breath and midsternal chest pain that is worse in the supine position.

Please use sonography to examine her heart.

Parasternal	Normal ejection fraction; Normal chamber dimensions; No pericardial effusion; Normal findings
Apical	Normal ejection fraction; Normal chamber dimensions; No pericardial effusion; Normal findings
Subcostal	Normal ejection fraction; Normal chamber dimensions; No pericardial effusion; Normal findings

### Cardiac - Core Cardiology - Case 8

This 56-year-old female with a history of appendiceal adenocarcinoma metastatic to the mediastinum presents with shortness of breath.

Please use sonography to examine her heart.

Parasternal	Hyperdynamic heart; Increased ejection fraction
Apical	Dilated right side; Decreased contraction of the right ventricular mid free wall with preserved contraction of right ventricular apex (McConnell sign); Increased left ventricular ejection fraction
Subcostal	Dilated right side; Limited view

### Cardiac - Core Cardiology - Case 9

This 62-year-old male with a history of a cardiomyopathy and an AICD presents with two AICD discharges in rapid succession.

Please use sonography to examine his heart.

Parasternal	Severely decreased ejection fraction; Dilated cardiomyopathy; Markedly dilated left ventricle; Aortic regurgitation; Mitral regurgitation
Apical	Severely decreased ejection fraction; Dilated cardiomyopathy; Markedly dilated left ventricle; Pacemaker wire noted in right side; Aortic regurgitation; Mitral regurgitation
Subcostal	Severely decreased ejection fraction; Dilated cardiomyopathy; Markedly dilated left ventricle; Pacemaker wire noted in right side; Pleural effusion

### Cardiac - Core Cardiology - Case 10

This 21-year-old female with a history of lupus and DVT presents with shortness of breath.

Please use sonography to examine her heart.

Parasternal	Decreased ejection fraction; Pericardial effusion; Pleural effusion
Apical	Decreased ejection fraction; Global hypokinesis of the left ventricle; Pericardial effusion
Subcostal	Decreased ejection fraction; Pericardial effusion; Pleural effusion
IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic variation less than or equal to 50%; Right atrial pressure 5 to 10 mmHg; Pericardial effusion

### Cardiac - Core Cardiology - Case 11

This 66-year-old male with a history of transient atrial fibrillation now presents with tachycardia and hypotension.

Please use sonography to examine his heart.

Parasternal	Circumferential pericardial effusion; No definitive evidence of cardiac tamponade; Concentric LVH; Normal ejection fraction
Apical	Large, circumferential pericardial effusion; No definitive evidence of cardiac tamponade; Normal ejection fraction
Subcostal	Large, circumferential pericardial effusion; No definitive evidence of cardiac tamponade
IVC	IVC diameter greater than 2.1 cm; Respirophasic variation less than or equal to 50%; Right atrial pressure 15 to 20 mmHg; Pericardial effusion; No definitive evidence of cardiac tamponade

### Cardiac - Core Cardiology - Case 12

This 85-year-old female presents with new-onset dyspnea.

Please use sonography to examine her heart.

Parasternal	Mild aortic regurgitation; Mild mitral regurgitation; Normal ejection fraction
Apical	Moderator band visualized in RV; Mitral aortic and tricuspid regurgitation; Normal ejection fraction
Subcostal	No abnormal findings; Normal ejection fraction; Limited image window quality

### Cardiac - Core Cardiology - Case 13

This 79-year-old female with a history of hypertension presents with sudden onset chest pain radiating to the back.

Please use sonography to examine her heart.

Parasternal	Dissection flap visualized in aortic root; Aortic regurgitation; Concentric LVH; Normal ejection fraction
Apical	Aortic regurgitation; Concentric LVH; Normal ejection fraction
Subcostal	No abnormal findings; Normal ejection fraction; No pericardial effusion
Suprasternal	Aortic dissection flap

### Cardiac - Core Cardiology - Case 14

This 59-year-old female with a history of metastatic breast carcinoma presents with shortness of breath.

Please use sonography to examine her heart.

Parasternal	Large, circumferential pericardial effusion; Pleural effusion; Swinging heart with complete RV collapse (evidence of cardiac tamponade)
Apical	Large, circumferential pericardial effusion; Swinging heart with complete RV collapse (evidence of cardiac tamponade)
Subcostal	Limited view of heart; Evidence of cardiac tamponade
IVC	IVC diameter greater than 2.1 cm; Respirophasic variation less than or equal to 50%; Right atrial pressure 15 to 20 mmHg; Findings consistent with cardiac tamponade

### Cardiac - Core Cardiology - Case 15

This 72-year-old female presents with shortness of breath and palpitations.

Please use sonography to examine her heart.

Parasternal	Mild mitral regurgitation; Normal ejection fraction; Small pericardial fat pad
Apical	Mild mitral regurgitation; Normal ejection fraction
Subcostal	Limited view; No pericardial effusion visualized

### Cardiac - Core Cardiology - Case 16

This 18-year-old male presents for routine physical examination.

Please use sonography to examine his heart.

Parasternal	Mild, eccentric aortic regurgitation; Normal ejection fraction
Apical	Normal ejection fraction
Subcostal	No pericardial effusion; Normal ejection fraction; Normal IVC
Suprasternal	No abnormal findings

### Cardiac - Core Cardiology - Case 17

This 66-year-old female with a history of right lung transplant presents with dyspnea.

Please use sonography to examine her heart.

Parasternal	Pleural effusion; Dilated left atrium; Mild LVH; Aortic calcification; Aortic and mitral regurgitation; Normal ejection fraction
Apical	Bi-atrial enlargement; Aortic and mitral regurgitation; Normal ejection fraction
Subcostal	Pleural effusion; Normal ejection fraction; IVC diameter less than or equal to 2.1 cm; Respirophasic variation greater than 50%; Right atrial pressure 0 to 5 mmHg

### Cardiac - Core Cardiology - Case 18

This 56-year-old female with a history of mediastinal tumor presents with dyspnea.

Please use sonography to examine her heart.

Parasternal	Extracardiac structure adjacent to left atrium (Mediastinal mass); Mitral regurgitation; Normal ejection fraction
Apical	Extracardiac structure adjacent to left atrium with impingement of chamber (Mediastinal mass); No pericardial effusion; Normal ejection fraction
Subcostal	Extracardiac structure adjacent to left atrium with impingement of chamber (Mediastinal mass); Normal ejection fraction

### Cardiac - Core Cardiology - Case 19

This 49-year-old male presents complaining of chest pain and weakness with a history of pre-existing cardiomyopathy.

Please use sonography to examine his heart.

Parasternal	Severely decreased biventricular contractility; Dilated cardiomyopathy
Apical	Multi-chamber dilatation; Mitral regurgitation; Tricuspid Regurgitation; Severely decreased biventricular contractility; Dilated cardiomyopathy
Subcostal	No pericardial effusion; Multi-chamber dilatation; Tricuspid and mitral regurgitation; Severely decreased biventricular contractility; Dilated cardiomyopathy

## Cardiac - Core Cardiology - Case 20

This 94-year-old male with a history of COPD presents with increasing chest pain and shortness of breath.

Please use sonography to examine his heart.

Parasternal	Small pericardial effusion; Concentric LVH; Aortic valve calcification; Mitral annular calcification; Mild mitral regurgitation; Mild tricuspid regurgitation; Normal ejection fraction
Apical	Small pericardial effusion; Dilated right atrium and ventricle; Moderate tricuspid regurgitation; Mild mitral and aortic regurgitation; Normal ejection fraction
Subcostal	Small pericardial effusion; Dilated right atrium and ventricle; Normal ejection fraction
IVC	IVC diameter greater than 2.1 cm; Respirophasic variation less than or equal to 50%; Right atrial pressure 15 to 20 mmHg

## Cardiac - Adv. FoCUS: Part I - Case 1

This 83-year-old female presents with chest pain, shortness of breath, and generalized weakness.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Trace-to-mild tricuspid regurgitation; Mildly elevated RVSP (45 mmHg); Mildly elevated mean PAP (29 mmHg) consistent with mild pulmonary hypertension; Pleural effusion
Apical	Trace-to-mild tricuspid regurgitation; Borderline elevated RVSP (39 mmHg); Mildly elevated mean PAP (26 mmHg)
Subcostal	Normal RAP (5 to 10 mmHg); Pleural effusion
Summary	Trace-to-mild tricuspid regurgitation; Mildly elevated PASP (45 mmHg); Normal RAP; Mild pulmonary hypertension

## Cardiac - Adv. FoCUS: Part I - Case 2

This 49-year-old male presents complaining of chest pain and weakness with a history of pre-existing cardiomyopathy.

Please evaluate his heart with cardiac ultrasound.

Parasternal	Severely reduced LVEF (<30%); High EPSS (>7 mm); Dilated left ventricle; Trace aortic regurgitation; Mild tricuspid regurgitation
Apical	Severely reduced LVEF (<30%); Dilated right and left atria and ventricles; Trace-to-mild mitral regurgitation
Subcostal	Severely reduced LVEF (<30%); Dilated right and left atria and ventricles; Mild-to-moderate tricuspid regurgitation
IVC	Dilated IVC (>20 mm) with minimal respirophasic collapse (<50%); Elevated RAP (>15 mmHg)
Summary	Severely decreased ejection fraction (20%); Increased RAP (>15 mmHg); Dilated IVC (>20 mm) with minimal respiratory variation; Evidence of cardiomyopathy

## Cardiac - Adv. FoCUS: Part I - Case 3

This 83-year-old female presents with gross hematuria, chest pain, and hypotension.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Severe aortic regurgitation
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Apical	Normal LVEF; Moderate mitral regurgitation; Severe tricuspid regurgitation; Severe aortic regurgitation
Subcostal	Dilated right atrium; Severe tricuspid regurgitation
IVC	Normal IVC with respirophasic variation; Low-to-normal RAP (5 to 10 mmHg)
Summary	Normal ejection fraction; Severe aortic regurgitation; Severe tricuspid regurgitation; Normal RAP; Multi-chamber dilatation; Chronic volume overload

### Cardiac - Adv. FoCUS: Part I - Case 4

This 80-year-old female with a history of heart disease presents with weakness and near syncope.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Normal LVEF; Paradoxical septal wall motion; Moderate tricuspid regurgitation
Apical	Dilated right side; Mild tricuspid regurgitation; Normal RVSP; Normal mean PAP; Right ventricular pacemaker wire
Subcostal	Right ventricular pacemaker wire
IVC	Dilated IVC (>20 mm) with minimal respirophasic collapse (<50%); Elevated RAP (15 mmHg)
Suprasternal	Normal-diameter proximal thoracic aorta
Summary	Normal ejection fraction; Mild-to-moderate tricuspid regurgitation; Dilated IVC (25 mm) with <50% collapse; Elevated RAP; No pulmonary hypertension

### Cardiac - Adv. FoCUS: Part I - Case 5

This 38-year-old male with a history of sickle cell disease presents with dyspnea on exertion, weakness, and syncope.

Please evaluate his heart with cardiac ultrasound.

Parasternal	Normal LVEF; Concentric left ventricular hypertrophy; Decreased EPSS; Moderate pericardial effusion
Apical	Concentric left ventricular hypertrophy; Right atrial systolic collapse; Moderate pericardial effusion
Subcostal	Right atrial systolic collapse; Low RAP (5 mmHg)
Suprasternal	Normal-diameter proximal thoracic aorta
Summary	Normal LVEF; Decreased EPSS; Concentric left ventricular hypertrophy; Small pericardial effusion; No right ventricle collapse; Moderate pericardial effusion

### Cardiac - Adv. FoCUS: Part I - Case 6

This 38-year-old female presents with syncope while playing in a softball game while running to first base.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Normal LVEF; Minimal tricuspid regurgitation; Difficult to precisely assess TR Vmax on spectral tracing due to limited spectral envelope
Apical	Normal cardiac output
Subcostal	Normal RAP (5 to 10 mmHg)
Summary	Structurally normal heart; Normal cardiac output

### Cardiac - Adv. FoCUS: Part I - Case 7

This 23-year-old male with recent viral illness presents with decreased exercise tolerance, weakness, and dyspnea on exertion.

Please evaluate his heart with cardiac ultrasound.

Parasternal	Trace-to-mild tricuspid regurgitation; No evidence of right heart strain
Apical	Mildly diminished cardiac output; Normal peak RVSP; No Pulmonary Hypertension
Subcostal	Low RAP (5 mmHg); Trace physiologic tricuspid regurgitation
Suprasternal	Normal-diameter proximal thoracic aorta
Summary	Normal-to-mildly reduced LVEF; Slightly reduced cardiac output; Trace tricuspid regurgitation; Normal RAP; Normal PASP

### Cardiac - Adv. FoCUS: Part I - Case 8

This 56-year-old female with a history of chemotherapy-induced cardiomyopathy presents with dyspnea on exertion, weakness, and chest pain.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Severely diminished LVEF; Moderate-to-severe tricuspid regurgitation; Elevated peak RVSP (50 to 54 mmHg); Elevated mean PAP (32 mmHg); Right ventricular pacemaker wire; Dilated cardiomyopathy
Apical	Severely diminished LVEF; Moderate-to-severe tricuspid regurgitation; Elevated peak RVSP (60 mmHg); Elevated mean PAP (39 mmHg); Right ventricular pacemaker wire; Dilated cardiomyopathy
Subcostal	Dilated IVC (>20 mm) with minimal respirophasic variation; Elevated RAP (15 mmHg)
Summary	Severely diminished LVEF; Moderate-severe tricuspid regurgitation; Mild to moderately elevated PASP (60 mmHg); Right ventricular pacemaker wire; Dilated cardiomyopathy

### Cardiac - Adv. FoCUS: Part I - Case 9

This 90-year-old female with a history of coronary artery disease who presents with chest pain and shortness of breath.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Normal LVEF; Concentric left ventricular hypertrophy; Thickened, calcified aortic valve with diminished excursion; Mild tricuspid regurgitation
Apical	Normal LVEF; Cardiac output (6.27 L/m); Concentric left ventricular hypertrophy; Thickened, calcified aortic valve with diminished excursion; Mild tricuspid regurgitation; Mild aortic regurgitation; Borderline elevated mean PAP (24 mmHg); Elevated peak RVSP (36 mmHg)
Subcostal	Low to normal RAP (5 to 10 mmHg)
Summary	Normal LVEF; Concentric left ventricular hypertrophy; Calcified aortic valve with diminished excursion; Minimally elevated PASP; Longstanding pressure overload

### Cardiac - Adv. FoCUS: Part I - Case 10

This 28-year-old female presents with dyspnea on exertion, weakness, and near syncope.

Please evaluate her heart with cardiac ultrasound.

Parasternal	Normal LVEF; Trace physiologic tricuspid regurgitation; Peak RVSP (20 mmHg)
Apical	Normal LVEF; Normal Cardiac Output (5.87 L/m); Physiologic tricuspid regurgitation; Normal PAP; Peak RVSP (24 mmHg)

Subcostal	Normal RAP (5 to 10 mmHg)
Summary	Normal LVEF; Normal RAP; Normal PASP; No abnormal findings

### Genitourinary - Basic Bladder - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his bladder.

Point A	Normal bladder; Optimal view; Additional split-screen image: Abdominal/Pelvic CT
Point B	Normal bladder; Left lateral view; Additional split-screen image: Abdominal/Pelvic CT
Point C	Normal bladder; Inferior view; Additional split-screen image: Abdominal/Pelvic CT
Point D	Normal bladder; Right lateral view; Additional split-screen image: Abdominal/Pelvic CT

### Genitourinary - Basic Bladder - Case 2

This 30-year-old female is a model of normal anatomy.

Please use sonography to examine her bladder.

Point A	Normal bladder; Optimal view; Additional split-screen image: Abdominal/Pelvic CT
Point B	Normal bladder; Left lateral view; Additional split-screen image: Abdominal/Pelvic CT
Point C	Normal bladder; Inferior view; Additional split-screen image: Abdominal/Pelvic CT
Point D	Normal bladder; Right lateral view; Additional split-screen image: Abdominal/Pelvic CT

### Genitourinary - Basic Bladder - Case 3

This 7-year-old male is a model of normal anatomy.

Please use sonography to examine his bladder.

Point A	Normal bladder; Optimal view; Additional split-screen image: Abdominal/Pelvic CT
Point B	Normal bladder; Left lateral view; Additional split-screen image: Abdominal/Pelvic CT
Point C	Normal bladder; Right superolateral view; Additional split-screen image: Abdominal/Pelvic CT
Point D	Normal bladder; Right lateral view; Additional split-screen image: Abdominal/Pelvic CT

### Genitourinary - Basic Prostate - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his prostate.

Point A	Normal prostate and bladder; Optimal superior view; Additional split-screen image: Prostate MRI
Point B	Normal prostate and bladder; Optimal inferior view; Additional split-screen image: Prostate MRI

### Genitourinary - Basic Prostate - Case 2

This 27-year-old male is a model of normal anatomy.

Please use sonography to examine his prostate.

Point A	Normal prostate and bladder; Optimal view 1; Additional split-screen image: Prostate MRI
Point B	Normal prostate and bladder; Optimal view 2; Additional split-screen image: Prostate MRI

### Genitourinary - Basic Prostate - Case 3

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine his prostate.

Point A	Normal prostate; Optimal view 1; Additional split-screen image: Prostate MRI
Point B	Normal prostate; Optimal view 2; Additional split-screen image: Prostate MRI

### Genitourinary - Basic Scrotum - Case 1

This 36-year-old male is a model of normal anatomy.

Please use sonography to examine his scrotum.

Point A	Normal right scrotum; Optimal view
Point B	Normal right scrotum; Optimal view
Point C	Normal left scrotum; Optimal view
Point D	Normal left scrotum; Optimal view

### Genitourinary - Basic Scrotum - Case 2

This 31-year-old male is a model of normal anatomy.

Please use sonography to examine his scrotum.

Point A	Normal right scrotum; Optimal mid view
Point B	Normal right scrotum; Optimal inferior view
Point C	Normal right inguinal region; Optimal view
Point D	Normal left scrotum; Optimal mid view
Point E	Normal left scrotum; Optimal inferior view
Point F	Normal left inguinal region; Optimal view
Point G	Normal scrotum; Optimal bilateral view

### Genitourinary - Basic Scrotum - Case 3

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his scrotum.

Point A	Normal right scrotum; Optimal superior view
Point B	Normal right scrotum; Optimal inferior view



Point C	Normal left scrotum; Optimal superior view
Point D	Normal left scrotum; Optimal mid view
Point E	Normal scrotum; Optimal bilateral view

### Genitourinary - Core Bladder - Case 1

This 20-year-old female presents with one day of progressive increased frequency of urination and dysuria.

Vitals: Vital signs are normal, no fever is noted.

Please examine her bladder with ultrasonography.

Point A	Normal bladder anatomy; Mildly distended bladder; Physiologic free fluid in posterior cul-de-sac
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### Genitourinary - Core Bladder - Case 2

This 9-year-old male presents with lower abdominal pain and fever.

Please assess his bladder volume to decide whether in-and-out catheterization is feasible.

Point A	Normal bladder; Moderately distended bladder; Pediatric patient
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### Genitourinary - Core Bladder - Case 3

This 74-year-old male presents with urinary retention for 6 hours.

Please examine his bladder with ultrasonography, prior to (point A) and following (point B) Foley catheter placement.

Point A	Urinary retention; Markedly distended bladder; Bladder diverticulum; Dilated right ureter
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Point B	Decompressed bladder following Foley catheter placement; Bladder diverticulum
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### Genitourinary - Core Bladder - Case 4

This 4-year-old female presents following blunt trauma to her abdomen.

Please assess her bladder volume to determine whether in-and-out catheterization is feasible.

Point A	Near-empty bladder (<15 ml); Pediatric patient
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### Genitourinary - Core Bladder - Case 5

This 71-year-old male with history of liver cirrhosis presents complaining of fevers and abdominal distention.

Vitals: T=38C BP=100/40 mmHg HR=86 bpm RR=16 bpm O2 sat=95% on room air.

Please examine his bladder with ultrasonography.

Point A	Normal bladder; Moderately distended bladder; Marked free fluid in pelvis (ascites)
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### Genitourinary - Core Bladder - Case 6

This 64-year-old male presents with complaints of mild suprapubic discomfort following a motor vehicle accident. Patient was a restrained driver, and airbags were deployed.

Please examine his bladder with ultrasonography.

Point A	Normal bladder; Minimally distended bladder; Prominent enlarged prostate gland
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### Genitourinary - Core Bladder - Case 7

This 21-year-old female presents with abrupt onset pelvic pain. Patient is approximately two weeks into her menstrual cycle.  
Please use sonography to evaluate her bladder and surrounding structures.

Point A	Mild amount of free fluid adjacent to bladder; Clinical diagnosis of Mittelschmerz (ruptured follicular ovarian cyst)
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### Genitourinary - Core Bladder - Case 8

This 63-year-old male with a history of prostate hypertrophy and chronic UTIs presents with diffuse abdominal and pelvic pain.  
Please use sonography to examine his bladder.

Point A	Bladder mass; Indwelling Foley catheter; Clinical diagnosis of complex cystic bladder mass
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### Genitourinary - Core Bladder - Case 9

This 45-year-old female presents to the ED following a single stab wound to the lower abdomen. Patient is complaining of diffuse lower abdominal discomfort.

Vitals: T=36C BP=124/70 mmHg HR=124 bpm RR=18 bpm O2 sat=94% on room air.

Please examine her bladder with ultrasonography.

Point A	Normal bladder; Moderate free fluid in pelvis (hemoperitoneum)
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### Genitourinary - Core Bladder - Case 10

This 40-year-old male presents with increased frequency of urination and difficulty voiding.

Please use sonography to evaluate his bladder.

Point A	Moderately distended bladder; Bladder volume measuring approximately 300 milliliters; Enlarged prostate gland
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### Head / Neck - Basic Thyroid - Case 1

This 27-year-old male is a model of normal anatomy.

Please use sonography to examine his thyroid.

Point A	Normal right thyroid; Optimal mid view; Additional split-screen image: Neck CT
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Point B	Normal isthmus of thyroid; Optimal midline view; Additional split-screen image: Neck CT
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Point C	Normal left thyroid; Optimal mid view; Additional split-screen image: Neck CT
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### Head / Neck - Basic Thyroid - Case 2

This 23-year-old female is a model of normal anatomy.

Please use sonography to examine her thyroid.

Point A	Normal right thyroid; Optimal mid view; Additional split-screen image: Neck CT
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Point B	Normal isthmus of thyroid; Optimal midline view; Additional split-screen image: Neck CT
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Point C	Normal left thyroid; Optimal mid view; Additional split-screen image: Neck CT
<b>Head / Neck - Basic Thyroid - Case 3</b>	
This 30-year-old female is a model of normal anatomy.	
Please use sonography to examine her thyroid.	
Point A	Normal right thyroid; Optimal mid view; Additional split-screen image: Neck CT
Point B	Normal isthmus of thyroid; Optimal midline view; Additional split-screen image: Neck CT
Point C	Normal left thyroid; Optimal mid view; Additional split-screen image: Neck CT

<b>Head / Neck - Basic Upper Airway - Case 1</b>	
This 23-year-old female is a model of normal anatomy.	
Please use sonography to examine her upper airway.	
Point A	Normal upper airway; Optimal superior view; Additional split-screen image: Neck CT
Point B	Normal upper airway; Optimal mid view; Additional split-screen image: Neck CT
Point C	Normal upper airway; Optimal inferior view; Additional split-screen image: Neck CT

<b>Head / Neck - Basic Upper Airway - Case 2</b>	
This 30-year-old female is a model of normal anatomy.	
Please use sonography to examine her upper airway.	
Point A	Normal upper airway; Optimal superior view; Additional split-screen image: Neck CT
Point B	Normal upper airway; Optimal inferior view; Additional split-screen image: Neck CT

<b>Head / Neck - Basic Upper Airway - Case 3</b>	
This 6-year-old male is a model of normal anatomy.	
Please use sonography to examine his upper airway.	
Point A	Normal upper airway; Optimal superior view
Point B	Normal upper airway; Optimal inferior view

<b>Head / Neck - Core Airway - Case 1</b>	
This is a 36-year-old male model of normal anatomy.	
Please use sonography to examine his upper airway.	
Point A	Normal upper airway; Inferior segment thyroid cartilage; Cricothyroid membrane; Cricoid cartilage
Point B	Normal airway; Mid-trachea; Tracheal rings seen in sagittal view with posterior acoustic shadowing; Thyroid lobes

## Head / Neck - Core Airway - Case 2

This 86-year-old male is brought in by emergency medical services intubated and in pulseless electrical activity.

Please use sonography to evaluate endotracheal tube positioning.

Point A	Endotracheal tube in esophagus; Normal variant right-sided esophagus; Suprasternal window
Point B	Endotracheal tube in esophagus; Normal variant right-sided esophagus; Trachea with ring-down artifact; Trachea paramedian plane
Point C	Esophageal intubation (limited view); Pleural sliding absent

## Head / Neck - Core Airway - Case 3

This 59-year-old male with history of orthotopic heart transplantation undergoes intubation following cardiac arrest. Weakly-palpable pulses are noted.

Please use sonography to confirm endotracheal tube placement and guide resuscitation.

Point A	Endotracheal intubation; Superior margin of thyroid cartilage
Point B	Left hemidiaphragm movement; Left anterior axillary line
Point C	Right hemidiaphragm movement; Right anterior axillary line
Point D	Parasternal window; Preserved global contractility; Moderate mitral regurgitation; Severe tricuspid regurgitation; Trace pericardial effusion

## Head / Neck - Core Airway - Case 4

This 19-year-old male trauma patient undergoes intubation for a severe head injury.

Please assess endotracheal tube positioning with sonography.

Point A	Superior margin of trachea window; Endotracheal tube correctly positioned
Point B	Normal left-lung pleural sliding; A-lines; Non-pathologic B-lines
Point C	Normal right-lung pleural sliding; Non-pathologic B-lines

## Head / Neck - Core Airway - Case 5

This 5-year-old female was intubated following a motor vehicle collision.

Please use sonography to examine her thorax and assess the position of the endotracheal tube.

Point A	Midaxillary line; Right hemidiaphragm; Normal movement
Point B	Midaxillary line; Left hemidiaphragm; Normal movement; Lung sliding; Rib shadowing
Point C	Right anterior chest; Normal pleural sliding; Non-pathologic B-line
Point D	Left anterior chest; Normal pleural sliding; Non-pathologic B-line

## Head / Neck - Core Airway - Case 6

This 37-year-old male presents complaining of anterior neck pain following blunt trauma to the neck.

Please use sonography to assess his airway.

Point A	Upper airway; Superior thyroid cartilage; Vocal cords
Point B	Upper airway; Junction of lower thyroid cartilage and trachea; Tracheal rings; Thyroid gland

## Head / Neck - Core Airway - Case 7

This 41-year-old male with morbid obesity presents with tongue and lip swelling following a bee sting.

Please use sonography to examine his airway.

Point A	Upper airway; Superior thyroid cartilage; Cricothyroid membrane (seen best in sagittal body plane view); Vocal cords
Point B	Upper airway; Upper trachea; Thyroid gland

## Head / Neck - Core Airway - Case 8

This 6-year-old male presents to the ED with a fever and sore throat.

Please use sonography to evaluate his airway.

Point A	Normal upper airway (cephalad view); Pediatric patient; Vocal cords; Thyroid cartilage-cricothyroid membrane-tracheal interface
Point B	Normal upper airway (inferior view); Pediatric patient; Upper trachea; Thyroid lobes; Carotid arteries

## Head / Neck - Core Airway - Case 9

This 23-year-old male presents with stridor.

Please use sonography to examine his larynx and paratracheal region for pathology.

Point A	Larynx; Thyroid cartilage (normal)
Point B	Proximal airway and paratracheal anatomy; Superior thyroid (normal)
Point C	Proximal airway and paratracheal anatomy; Mid-thyroid (normal)
Point D	Paratracheal region; Inferior thyroid (normal)

## Head / Neck - Core Airway - Case 10

This 74-year-old male with a history of end-stage liver disease presents in respiratory failure and is intubated.

Please use sonography to evaluate the position of his endotracheal tube.

Point A	Endotracheal tube positioned within the trachea; Thyroid-cricothyroid-proximal tracheal junction (proximal view)
Point B	Endotracheal tube positioned within the trachea; Cricothyroid membrane and proximal tracheal junction (distal view)
Point C	Normal lung sliding; Right anterior chest (2nd intercostal space); No pneumothorax
Point D	Normal lung sliding; Right anterior chest (4th intercostal space); No pneumothorax
Point E	Normal lung sliding; Right anterolateral chest (6th intercostal space); No pneumothorax; Pleural effusion; Pathologic B-lines

## Musculoskeletal - Basic MSK Intro - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his right shoulder.

Point A	Normal right acromioclavicular joint; Optimal view; Additional split-screen image: Right shoulder MRI
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### Musculoskeletal - Basic MSK Intro - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his right hand.

Point A	Normal proximal interphalangeal joint; Optimal view; Additional split-screen image: Right hand MRI
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### Musculoskeletal - Basic MSK Intro - Case 3

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine his right lower back.

Point A	Normal right erector spinae; Optimal view
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### Musculoskeletal - Basic MSK Intro - Case 4

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine his right elbow.

Point A	Normal right lateral epicondyle and radial head; Optimal view
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### Musculoskeletal - Basic MSK Ankle - Case 1

This 24-year-old female is a model of normal anatomy.

Please use sonography to examine her anterior ankle.

Point A	Normal right tibiotalar recess; Tibialis anterior tendon; Anterior fat pad
Point B	Normal right anterior ankle and extensor tendons; Tibialis anterior; Extensor digitorum longus; Extensor hallucis longus; Superior extensor retinaculum
Point C	Normal right anterior talofibular ligament; Lateral malleolus; Talus
Point D	Normal right talonavicular ligament; Talus; Navicular bone

### Musculoskeletal - Basic MSK Ankle - Case 2

This 24-year-old female is a model of normal anatomy.

Please use sonography to examine her lateral ankle.

Point A	Normal right peroneal longus and brevis tendons; Lateral malleolus; Extensor retinaculum
Point B	Normal right calcaneofibular ligament; Fibula; Calcaneus; Peroneal longus and brevis
Point C	Normal right anterior tibiofibular ligament; Lateral malleolus; Tibia

### Musculoskeletal - Basic MSK Ankle - Case 3

This 24-year-old female is a model of normal anatomy.

Please use sonography to examine her medial ankle.

Point A	Normal right medial ankle; Tibialis posterior; Flexor digitorum longus; Neurovascular structures
Point B	Normal right tarsal tunnel; Posterior tibial tendon; Neurovascular structures
Point C	Normal right flexor hallucis longus; Distal tibia; Posterior tibial tendon
Point D	Normal right deltoid ligaments; Tibionavicular ligament; Tibiocalcaneal ligament; Tibiotalar ligament

### Musculoskeletal - Basic MSK Ankle - Case 4

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his posterior ankle.

Point A	Normal left Achilles tendon; Kager's fat pad
Point B	Normal left distal Achilles tendon and insertion; Superior view; Calcaneus
Point C	Normal left distal Achilles tendon and insertion; Inferior view; Calcaneus

### Musculoskeletal - Basic MSK Elbow - Case 1

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his anterior elbow.

Point A	Normal left antecubital fossa; Humeral trochlea; Hyaline cartilage; Brachial artery; Median nerve; Brachioradialis and brachialis muscles
Point B	Normal left anterior joint recess; Capitellum; Articular cartilage; Radial nerve; Brachioradialis muscle
Point C	Normal left radial nerve; Lateral epicondyle; Posterior interosseous nerve branch
Point D	Normal left distal biceps tendon; Radial head and shaft; Brachioradialis; Radial tuberosity

### Musculoskeletal - Basic MSK Elbow - Case 2

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his lateral elbow.

Point A	Normal left lateral epicondyle; Radial head; Radial humeral joint space; Common extensor tendon
Point B	Normal left common extensor tendon; Lateral epicondyle; Radial head; Brachioradialis muscle
Point C	Normal left radiocapitellar joint; Capitellum; Articular cartilage; Radial head; Common extensor tendon; Brachioradialis muscle

### Musculoskeletal - Basic MSK Elbow - Case 3

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his medial elbow.

Point A	Normal left common flexor tendon; Medial (ulnar) collateral ligament; Medial epicondyle
Point B	Normal left ulnar collateral ligament; Medial epicondyle; Proximal ulna; Common flexor tendon

## Musculoskeletal - Basic MSK Elbow - Case 4

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his posterior elbow.

Point A	Normal right olecranon fossa; Olecranon process; Medial epicondyle; Distal triceps tendon
Point B	Normal right distal triceps tendon; Olecranon process; Olecranon fossa
Point C	Normal right cubital tunnel (posterior approach); Humero-ulnar joint; Ulnar nerve
Point D	Normal right cubital tunnel (medial approach); Medial epicondyle; Ulnar nerve

## Musculoskeletal - Basic MSK Foot - Case 1

This 27-year-old female is a model of normal anatomy.

Please use sonography to examine her right plantar foot.

Point A	Normal right metatarsophalangeal joint (third digit); Plantar view; Additional split-screen image: Right foot MRI
Point B	Normal plantar fascia; Calcaneus; Additional split-screen image: Right foot MRI

## Musculoskeletal - Basic MSK Foot - Case 2

This 24-year-old female is a model of normal anatomy.

Please use sonography to examine the joints of her left foot.

Point A	Normal left tarsometatarsal joint (first digit); Dorsal view; Additional split-screen image: Left foot MRI
Point B	Normal left metatarsophalangeal joint (fourth digit); Dorsal view; Additional split-screen image: Left foot MRI

## Musculoskeletal - Basic MSK Foot - Case 3

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the tissues of his left foot.

Point A	Normal dorsal aspect of left foot; Talonavicular joint; Extensor tendon; Additional split-screen image: Left foot MRI
Point B	Normal extensor hallucis longus tendon; Left metatarsophalangeal joint (first digit); Dorsal view; Additional split-screen image: Left foot MRI
Point C	Normal flexor hallucis longus tendon; Left interphalangeal joint (first digit); Plantar view; Additional split-screen image: Left foot MRI

## Musculoskeletal - Basic MSK Hand/Finger - Case 1

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his right thenar eminence and thumb.



Point A	Normal right volar hand; Flexor pollicis longus; Thenar eminence; Trapezium
Point B	Normal right radial collateral ligament at the metacarpophalangeal joint (first digit)
Point C	Normal right ulnar collateral ligament at the interphalangeal joint
Point D	Normal right radial collateral ligament at the interphalangeal joint; Nail bed (first digit)
Point E	Normal right ulnar collateral ligament at the metacarpophalangeal joint (first digit)

### Musculoskeletal - Basic MSK Hand/Finger - Case 2

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine his right hypothenar eminence and fifth digit.

Point A	Normal right hypothenar muscles; Fifth metacarpal
Point B	Normal right ulnar collateral ligament at the metacarpophalangeal joint (fifth digit); Hypothenar muscles
Point C	Normal right metacarpophalangeal joint (fifth digit); Flexor digitorum
Point D	Normal right radial collateral ligament at the metacarpophalangeal joint (fifth digit)

### Musculoskeletal - Basic MSK Hand/Finger - Case 3

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine the volar aspect of his right second digit.

Point A	Normal right volar aspect of the metacarpophalangeal joint (second digit); Flexor digitorum
Point B	Normal right volar aspect of the proximal interphalangeal joint (second digit); Flexor digitorum
Point C	Normal right volar aspect of the distal interphalangeal joint (second digit); Flexor digitorum

### Musculoskeletal - Basic MSK Hand/Finger - Case 4

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine the dorsal aspect of his right second digit.

Point A	Normal right dorsal aspect of the metacarpophalangeal joint (second digit); Extensor digitorum
Point B	Normal right dorsal aspect of the proximal interphalangeal joint (second digit); Extensor digitorum
Point C	Normal right dorsal aspect of the distal interphalangeal joint (second digit); Extensor digitorum; Nail bed

### Musculoskeletal - Basic MSK Hand/Finger - Case 5

This 25-year-old male is a model of normal anatomy.

Please use sonography to examine the volar neurovascular supply to his right hand.

Point A	Normal right volar hand; Neurovascular structures; Flexor digitorum; Thenar and hypothenar eminences; Metacarpal shafts
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### Musculoskeletal - Basic MSK Hip - Case 1

This 22-year-old male is a model of normal anatomy.

Please use sonography to examine his anterior hip.

Point A	Normal right femoral neurovascular bundle; Femoral artery, vein, and nerve; Pubic bone
Point B	Normal right femoroacetabular joint; Femoral head; Acetabulum; Iliopsoas tendon; Labrum
Point C	Normal right anterior joint recess; Femoral head and neck; Iliopsoas muscle
Point D	Normal right anterior superior iliac spine; Sartorius tendon; Tensor fasciae latae
Point E	Normal right rectus femoris tendon; Anterior inferior iliac spine

### Musculoskeletal - Basic MSK Hip - Case 2

This 22-year-old male is a model of normal anatomy.

Please use sonography to examine his medial hip.

Point A	Normal right adductor tendons; Adductor longus; Adductor brevis; Adductor magnus
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### Musculoskeletal - Basic MSK Hip - Case 3

This 22-year-old male is a model of normal anatomy.

Please use sonography to examine his lateral hip.

Point A	Normal right gluteus minimus muscle and tendon; Tensor fascia latae; Greater trochanter
Point B	Normal right anterolateral hip; Tensor fascia latae; Iliotibial band; Greater trochanter
Point C	Normal left gluteus maximus muscle

### Musculoskeletal - Basic MSK Hip - Case 4

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his posterior hip.

Point A	Normal left common hamstring attachment; Ischial tuberosity; Semimembranosus; Semitendinosus; Biceps femoris tendon
Point B	Normal left sciatic nerve; Ischial tuberosity; Gluteus maximus
Point C	Normal left sacroiliac joint; Sacrum; Ilium; Joint capsule

### Musculoskeletal - Basic MSK Knee - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his left anterior knee.

Point A	Normal left femoral trochlea; Articular cartilage; Quadriceps tendon
Point B	Normal left quadriceps tendon; Distal femur; Patella; Articular cartilage; Infrapatellar and suprapatellar fat pads; Suprapatella recess
Point C	Normal left patellar tendon (Superior window); Patella; Hoffa's fat pad
Point D	Normal left patellar tendon (Inferior window); Tibial tuberosity; Infrapatellar bursa

## Musculoskeletal - Basic MSK Knee - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his left medial knee.

Point A	Normal left knee
Point B	Normal left knee medial joint line; Medial meniscus posterior horn; Medial femoral condyle; Proximal tibia; Medial collateral ligament

## Musculoskeletal - Basic MSK Knee - Case 3

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his left lateral knee.

Point A	Normal left lateral knee; Iliotibial band; Gerdy's tubercle
Point B	Normal left lateral knee; Lateral femoral condyle; Lateral meniscus; Lateral collateral ligament

## Musculoskeletal - Basic MSK Knee - Case 4

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his left posterior knee.

Point A	Normal left posterior knee; Medial femoral condyle; Articular cartilage; Medial head of gastrocnemius muscle; Semitendinosus tendon
Point B	Normal left popliteal fossa; Popliteal vein and artery; Lateral and medial heads of gastrocnemius muscle
Point C	Normal left peroneal nerve; Fibular head; Popliteal vein and artery; Gastrocnemius muscle
Point D	Normal left biceps femoris tendon; Lateral femoral condyle; Fibular head

## Musculoskeletal - Basic MSK Shoulder - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his right shoulder.

Point A	Normal right biceps tendon
Point B	Normal right subscapularis tendon
Point C	Normal right supraspinatus
Point D	Normal right infraspinatus
Point E	Normal right teres minor
Point F	Normal right acromioclavicular joint

## Musculoskeletal - Basic MSK Shoulder - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his left shoulder.

Point A	Normal left biceps tendon
Point B	Normal left subscapularis tendon
Point C	Normal left supraspinatus
Point D	Normal left infraspinatus
Point E	Normal left teres minor
Point F	Normal left acromioclavicular joint

### Musculoskeletal - Basic MSK Shoulder - Case 3

This 24-year-old female is a model of normal anatomy.

Please use sonography to examine her left shoulder.

Point A	Normal left biceps tendon
Point B	Normal left subscapularis tendon
Point C	Normal left supraspinatus
Point D	Normal left infraspinatus
Point E	Normal left teres minor
Point F	Normal left acromioclavicular joint

### Musculoskeletal - Basic MSK Spine - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his cervical spine.

Point A	Normal cervical spine; Optimal view
Point B	Normal cervical spine; Left lateral view
Point C	Normal cervical spine; Right lateral view

### Musculoskeletal - Basic MSK Spine - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his thoracic spine.

Point A	Normal thoracic spine; Optimal view
Point B	Normal thoracic spine; Left lateral view
Point C	Normal thoracic spine; Right lateral view

### Musculoskeletal - Basic MSK Spine - Case 3

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his lumbar spine.

Point A	Normal lumbar spine; Optimal view
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Point B	Normal lumbar spine; Left lateral view
Point C	Normal lumbar spine; Right lateral view

### Musculoskeletal - Basic MSK Wrist - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the dorsal compartments of his left wrist.

Point A	Normal first dorsal compartment; Optimal view; Additional split-screen image: Left wrist MRI
Point B	Normal second and third dorsal compartments; Optimal view; Additional split-screen image: Left wrist MRI
Point C	Normal fourth and fifth dorsal compartments; Optimal view; Additional split-screen image: Left wrist MRI
Point D	Normal sixth dorsal compartment; Optimal view; Additional split-screen image: Left wrist MRI

### Musculoskeletal - Basic MSK Wrist - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the joints in his left wrist.

Point A	Normal left radioulnar joint; Optimal view; Additional split-screen image: Left wrist MRI
Point B	Normal left radiocarpal joint; Optimal view; Additional split-screen image: Left wrist MRI
Point C	Normal left scapholunate ligament; Optimal view; Additional split-screen image: Left wrist MRI

### Musculoskeletal - Basic MSK Wrist - Case 3

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the tissues of his right wrist.

Point A	Normal right carpal tunnel and median nerve; Optimal view; Additional split-screen image: Right wrist MRI
Point B	Normal right Guyon's canal; Optimal view; Additional split-screen image: Right wrist MRI
Point C	Normal right triangular fibrocartilage complex; Extensor carpi ulnaris tendon; Optimal view; Additional split-screen image: Right wrist MRI slice

### Musculoskeletal - Basic Soft Tissue - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the volar aspect of his left wrist, and note the textures of the surrounding tissues.

Point A	Normal left wrist; Normal tendons and median nerve; Optimal view; Additional split-screen image: Left wrist MRI
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### Musculoskeletal - Basic Soft Tissue - Case 2

This 28-year-old male is a model of normal anatomy.

Please use sonography to examine muscles and tendons in his left shoulder, and note the textures of the surrounding tissues.

Point A

Normal left humeral head, deltoid, and tendon; Lateral view; Additional split-screen image: Left shoulder MRI

### Musculoskeletal - Basic Soft Tissue - Case 3

This 23-year-old male is a model of normal anatomy.

Please use sonography to examine blood vessels in his left upper arm, and note the textures of the surrounding tissues.

Point A

Normal left basilic vein and nerve bundles; Optimal view

### Musculoskeletal - Basic Soft Tissue - Case 4

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine bone and tendon in his right shoulder, and note the textures of the surrounding tissues.

Point A

Normal right biceps tendon; Normal bone; Optimal view; Additional split-screen image: Right shoulder MRI

### Musculoskeletal - Core Musculoskeletal - Case 1

This 25-year-old male is serving as a normal upper arm model.

Please examine his left proximal arm and identify underlying anatomy in transverse and longitudinal views.

Point A

Normal left humerus

### Musculoskeletal - Core Musculoskeletal - Case 2

This 72-year-old female presents following a mechanical fall with severe pain and swelling in her left mid-femur region.

Please examine her femur with sonography.

Point A

Right mid-thigh (proximal window); Displaced mid-shaft femur fracture; Additional split-screen image: Right hip plain radiograph

Point B

Right mid-thigh (distal window); Displaced mid-shaft femur fracture unseen in this window; Additional split-screen image: Right hip plain radiograph

### Musculoskeletal - Core Musculoskeletal - Case 3

This 45-year-old male presents following a bicycle accident with trauma to his right proximal tibia. Tenderness and swelling is noted.

Please use sonography to evaluate his right proximal tibia for pathology.

Point A

Tibiofemoral joint space with associated right proximal tibia fracture (unseen in this window)

Point B

Right proximal tibial fracture (with moderate displacement)

### Musculoskeletal - Core Musculoskeletal - Case 4

This 46-year-old soccer player presents with severe progressive chronic right knee pain over many months.

Please examine his right medial joint space for pathology.

Point A	Right knee joint (medial aspect); Degenerative joint disease
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### Musculoskeletal - Core Musculoskeletal - Case 5

This 63-year-old female presents with pain, swelling, and warmth of her left knee following an intra-articular injection of cortisone two days prior.

Please examine the area of swelling along the left distal femur and knee with sonography.

Point A	Left knee effusion (proximal view); Septated fluid collection
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Point B	Left knee effusion (more distal view); Septated fluid collection
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Point C	Left knee effusion (most distal view); Septated fluid collection
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### Musculoskeletal - Core Musculoskeletal - Case 6

This 49-year-old male presents with right wrist pain and deformity following a motor vehicle accident.

Please use sonography to examine his distal radius.

Point A	Right distal radial fracture with moderate dorsal displacement of distal fragment (proximal view)
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Point B	Right distal radial fracture with moderate dorsal displacement of distal fragment (distal view)
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### Musculoskeletal - Core Musculoskeletal - Case 7

This 65-year-old male presents with distal ulnar pain following a wooden plank striking his lateral distal ulna.

Please use sonography to examine the area for pathology.

Point A	Left distal ulnar fracture with mild displacement of distal fragment (more lateral view)
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Point B	Left distal ulnar fracture with mild displacement of distal fragment (more medial view)
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### Musculoskeletal - Core Musculoskeletal - Case 8

This 45-year-old female presents with left leg pain following a fall while playing hockey.

Please use sonography to examine her tibia.

Point A	Left distal tibial fracture seen in ultrasound hands-on window; Additional split-screen image: Left distal tibia/fibula plain radiograph (with tibial and fibular fractures)
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### Musculoskeletal - Core Musculoskeletal - Case 9

This 64-year-old male presents with right distal fibular pain following a fall while walking his dog.

Please use sonography to evaluate his distal fibula.

Point A	Right distal fibula (proximal window); Right distal fibular fracture unseen in this window; Additional split-screen image: Right ankle plain radiograph (with distal fibular and medial malleolar fractures)
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Point B	Right distal fibular fracture seen in ultrasound window (distal window); Additional split-screen image: Right ankle plain radiograph (with distal fibular and medial malleolar fractures)
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### Musculoskeletal - Core Musculoskeletal - Case 10

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine his right shoulder.

Point A	Normal right biceps tendon; Additional split-screen image: Right shoulder MRI slice
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Point B	Normal right supraspinatus tendon; Additional split-screen image: Right shoulder MRI slice
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### Musculoskeletal - Core Soft Tissue - Case 1

This 23-year-old male with history of skin popping presents with redness and induration along his left anterior thigh.

Please use sonography to examine his right and left thighs for abscess and foreign body.

Point A	Normal right anterior thigh
Point B	Large left anterior thigh abscess

### Musculoskeletal - Core Soft Tissue - Case 2

This 18-year-old male with history of cardiac transplant, immunosuppressant use, and cystic acne presents with a 4-day history of posterior neck swelling and redness.

Please use sonography to examine the area.

Point A	Posterior neck abscess
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### Musculoskeletal - Core Soft Tissue - Case 3

This 24-year-old male presents following an injury to his nose during a basketball game. He is concerned he broke his nose.

Please evaluate his nasal bone with sonography.

Point A	Nasal bone fracture
Point B	Nasal bone fracture

### Musculoskeletal - Core Soft Tissue - Case 4

This 18-year-old male motor vehicle accident victim presents following direct head trauma resulting in a forehead contusion.

Please use sonography examine the outer table of his skull and overlying soft tissue for pathology (examine both left and right frontal skull regions).

Point A	Normal soft tissues of scalp (right frontal skull region)
Point B	Soft-tissue edema and likely hematoma (left frontal skull region)

### Musculoskeletal - Core Soft Tissue - Case 5

This 87-year-old male presents with progressive bilateral lower extremity edema over a two-week timeframe.

Please use sonography to evaluate the pretibial soft tissues of both his lower extremities for pathology.

Point A	Pretibial edema (right distal pretibial region)
Point B	Pretibial edema (left distal pretibial region)

### Musculoskeletal - Core Soft Tissue - Case 6

This 62-year-old male presents with an exophytic mass that has progressively enlarged over a period of several months.

Please use sonography to examine the soft tissues of his right lateral chest wall for pathology.

Point A	Right chest wall complex soft-tissue mass; Lymphoma
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### Musculoskeletal - Core Soft Tissue - Case 7

This 12-year-old female presents with a 2-day history of sore throat and right anterior neck pain.

Please use sonography to examine the soft tissue of the anterior neck.

Point A	Mild enlargement of right anterior cervical lymph nodes
Point B	Normal left anterior cervical lymph nodes

### Musculoskeletal - Core Soft Tissue - Case 8

This 56-year-old male on chronic anticoagulation presents with buttock pain and edema following a fall.

Please use sonography to assess his gluteal soft tissues for pathology.

Point A	Left gluteal normal soft tissue
Point B	Right gluteal soft-tissue hematoma

### Musculoskeletal - Core Soft Tissue - Case 9

This 66-year-old male presents with induration and redness along his sacral region, consistent with cellulitis.

Please use sonography to examine his presacral soft tissues.

Point A	Presacral soft-tissue cellulitis; Anechoic fluid collection (likely abscess) seen in Findings video, not within hands-on ultrasound window
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### Musculoskeletal - Core Soft Tissue - Case 10

This 14-month-old male presents with fever and an indurated red mass overlying his superior sternum.

Please use sonography to examine his suprasternal soft tissues.

Point A	Infected thyroglossal duct cyst
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### Obstetrics/Gynecology - Basic Female Pelvis - Case 1

This 23-year-old female is a model of normal anatomy.

Please use sonography to examine her pelvic region.

Point A	Retroverted uterus; Right lateral view
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### Obstetrics/Gynecology - Basic Female Pelvis - Case 2

This 29-year-old female is a model of normal anatomy.

Please use sonography to examine her pelvic region.

Point A	Normal uterus; Optimal view (superior); Additional split-screen image: Abdominal-pelvic CT
Point B	Normal uterus; Optimal view (inferior); Additional split-screen image: Abdominal-pelvic CT

### Obstetrics/Gynecology - Basic Female Pelvis - Case 3

This 8-year-old female is a model of normal anatomy.

Please use sonography to examine her pelvic region.

Point A	Normal pediatric uterus; Optimal view; Additional split-screen image: Abdominal-pelvic CT
Point B	Normal pediatric uterus; Right lateral view; Additional split-screen image: Abdominal-pelvic CT
Point C	Normal pediatric uterus; Left lateral view; Additional split-screen image: Abdominal-pelvic CT

### Obstetrics/Gynecology - Core OB-GYN - Case 1

This 38-year-old female with a positive pregnancy test presents with vaginal bleeding.

Please use sonography to examine her uterus.

Point A	Normal 13-week intrauterine pregnancy; Normal fetal heart rate noted
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### Obstetrics/Gynecology - Core OB-GYN - Case 2

This 25-year-old female with a known intrauterine pregnancy presents with vaginal bleeding, lower abdominal pain, and passage of products of conception.

Please use sonography to examine her uterus.

Point A	Retained products of conception and intrauterine blood clots (cephalad view); Trace free fluid in posterior cul-de-sac; Incomplete miscarriage
Point B	Retained products of conception and intrauterine blood clots (caudal view); Trace free fluid in posterior cul-de-sac; Incomplete miscarriage

### Obstetrics/Gynecology - Core OB-GYN - Case 3

This 34-year-old female with metrorrhagia presents with abdominal cramps and vaginal spotting.

Please use sonography to examine her uterus.

Point A	Twin live intrauterine pregnancies (cephalad view) Twin A measures 12w3d; Normal fetal heart rate noted Twin B measures 12w3d; Normal fetal heart rate noted
Point B	Twin live intrauterine pregnancies (caudal view) Twin A measures 12w3d; Normal fetal heart rate noted Twin B measures 12w3d; Normal fetal heart rate noted
Point C	Normal bladder

### Obstetrics/Gynecology - Core OB-GYN - Case 4

This 24-year-old non-pregnant female presents with abrupt pelvic pain.

Please use sonography to evaluate her pelvis.

Point A	Mild-to-Moderate free fluid in posterior cul-de-sac; Prominent right ovarian follicles; Nabothian cyst
Point B	Mild-to-Moderate free fluid in posterior cul-de-sac; Prominent right ovarian follicles; Nabothian cyst; Static image of a bladder jet is seen within the bladder

### Obstetrics/Gynecology - Core OB-GYN - Case 5

This 32-year-old female presents with vaginal bleeding. Her last normal menses was 12 weeks ago.

Please use sonography to examine her uterus.

Point A	CRL fetal biometry indicates a gestational age of 10 weeks; Amniotic sac and yolk sac are visible; Normal fetal heart rate noted
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### Obstetrics/Gynecology - Core OB-GYN - Case 6

This 36-year-old female presents with intermittent, severe pelvic pain.

Please use sonography to examine her uterus.

Point A	Large complex (heterochoic mass with internal septations) adjacent to the uterine fundus; Nongravid uterus (negative pregnancy test)
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### Obstetrics/Gynecology - Core OB-GYN - Case 7

This 31-year-old female with a missed menstrual period presents with vaginal spotting.

Please use sonography to examine her uterus.

Point A	Normal 10-week intrauterine pregnancy; Normal fetal heart rate noted
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### Obstetrics/Gynecology - Core OB-GYN - Case 8

This 38-year-old female presents to the ED with vaginal bleeding and abdominal cramps.

Please use sonography to examine her uterus.

Point A	Complex left adnexal cyst (midline view); Hydrosalpinx; Free pelvic fluid; Clinically diagnosed as ectopic pregnancy
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Point B	Complex left adnexal cyst (left paramedian view); Hydrosalpinx; Free pelvic fluid; Clinically diagnosed as ectopic pregnancy
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### Obstetrics/Gynecology - Core OB-GYN - Case 9

This 26-year-old female presents to the ED complaining of vaginal spotting with a positive pregnancy test.

Please use sonography to evaluate her pelvis.

Point A	Uterus didelphys with likely IUP; Free fluid in the anterior cul-de-sac
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### Obstetrics/Gynecology - Core OB-GYN - Case 10

This 22-year-old with first trimester pregnancy presents with vaginal bleeding.

Please use sonography to evaluate her uterus.

Point A	Likely IUP with visible yolk sac with fetal pole; Normal fetal cardiac activity; Fetal biometry reveals a CRL measurement consistent with a 7-week gestation
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### Obstetrics/Gynecology - Core OB-GYN - Case 11

This 25-year-old female presents with abdominal cramping and vaginal bleeding.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Nabothian cyst; Mild-to-moderate free fluid
Cervix	Nabothian cysts; Mild-to-moderate free fluid in posterior cul-de-sac
Uterine Body	Mid-position uterus; Nabothian cysts; Multiple follicles seen in both ovaries; Largest follicle seen in left ovary; Mild free fluid

### Obstetrics/Gynecology - Core OB-GYN - Case 12

This 30-year-old female presents with metrorrhagia and suprapubic discomfort.

Please use sonography to examine her pelvis.

Introitus	Normal introitus
Cervix	Retroverted uterus; Thickened hyperechoic endometrium (likely representing secretory phase of menstrual cycle)
Uterine Body	Retroverted uterus; Thickened endometrial stripe; One dominant follicle within right ovary; Left ovary contains a small cyst; Mild free fluid adjacent to right ovary

### Obstetrics/Gynecology - Core OB-GYN - Case 13

This 32-year-old female presents with a 7-week history of amenorrhea.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Collapsed bladder
Cervix	Trace fluid in cervical canal
Uterine Body	Normal anteverted uterus; Normal endometrial stripe; Multiple follicles seen in both ovaries; Large follicle in right ovary (suggestive of proliferative phase of menstrual cycle); Possible left adnexal/ovarian cyst; Possible Nabothian cyst

### Obstetrics/Gynecology - Core OB-GYN - Case 14

This 27-year-old female presents with a 4-month history of dysmenorrhea.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Normal uterus
Cervix	Normal cervix; Trace fluid in cervical canal
Uterine Body	Double endometrial lining at uterine fundus (suggestive of arcuate or partial-septate uterus); Multiple follicles seen in both ovaries

### Obstetrics/Gynecology - Core OB-GYN - Case 15

This 24-year-old female presents with pelvic cramping.

Please use sonography to examine her pelvis.

Introitus	Normal introitus
Cervix	Normal cervix; Several varices seen in right adnexa
Uterine Body	Normal uterus; Thin endometrial stripe; Several varices present; Multiple follicles seen in both ovaries

### Obstetrics/Gynecology - Core OB-GYN - Case 16

This 21-year-old female presents with vaginal bleeding.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Nabothian cysts; Mild free fluid in cul-de-sac
Cervix	Nabothian cysts; Mild-to-moderate free fluid in cul-de-sac; Possible varices seen in right adnexa
Uterine Body	Normal anteverted uterus; Nabothian cyst; Multiple follicles seen in both ovaries

### Obstetrics/Gynecology - Core OB-GYN - Case 17

This 24-year-old female presents with pelvic pain and vaginal bleeding.

Please use sonography to examine her pelvis.

Introitus	Difficult-to-visualize introitus; Partially filled bladder
Cervix	Possible fibroid with degenerative changes within lower uterine segment or cervix
Uterine Body	Large uterus; Multiple possible fibroids; Possible fibroid with degenerative changes within lower uterine segment or cervix; Normal right ovary

### Obstetrics/Gynecology - Core OB-GYN - Case 18

This 27-year-old female presents with pelvic discomfort.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Collapsed bladder
Cervix	Retroverted uterus; Normal right ovary; Free fluid in left adnexa
Uterine Body	Retroverted uterus; Thin endometrial stripe; Heterogeneous myometrium suggestive of adenomyosis; Normal ovaries; Mild free fluid in cul-de-sac

### Obstetrics/Gynecology - Core OB-GYN - Case 19

This 43-year-old female presents with abdominal and pelvic cramping.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Trace fluid in cervical canal
Cervix	Normal cervix; Trace fluid in cervical canal
Uterine Body	Normal uterus; Fluid in cervical canal; Right ovary with small follicle; Very clear endometrial stripe (suggestive of proliferative phase of menstrual cycle)

### Obstetrics/Gynecology - Core OB-GYN - Case 20

This 40-year-old female presents with menometrorrhagia.

Please use sonography to examine her pelvis.

Introitus	Normal introitus; Normal partially-filled bladder
Cervix	Normal cervix; Mild-to-moderate free fluid in cul-de-sac; Left ovarian follicle/cyst with irregular shape (suggestive of ovulatory phase of menstrual cycle)
Uterine Body	Small endometrial calcification; Mild-to-moderate free fluid in cul-de-sac; Normal right ovary; Dominant follicle with thin septations in left ovary

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 1

This 34-year-old female presents with a three-day history of an uncharacteristically painful menstrual period.

Please evaluate her with sonography.

Suprapubic	Normal uterus; Limited evaluation due to inadequate bladder filling
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Transvaginal	Normal gestational sac out-of-range for dating; Normal yolk sac; Normal right ovary; Normal left ovary
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### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 2

This 29-year-old female presents with a two-day history of fever and right lower quadrant pain.

Please evaluate her with sonography.

Suprapubic	Normal 13-week IUP; Cephalic presentation; Anterior placenta; Full bladder; Right ovarian cyst seen in Findings video
Uterine Body	Normal 13-week IUP; Cephalic presentation; Anterior placenta; Full bladder; Right ovarian cyst seen in Findings video
Fundus	Normal 13-week IUP; Anterior placenta
Right Adnexa	Small simple right ovarian cyst
Left Adnexa	Normal left ovary
Transvaginal	Normal 13-week IUP; Normal fetal heart rate; Normal yolk sac; Simple right ovarian cyst

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 3

This 28-year-old G3P2 female presents with a one-day history of pelvic pain and vaginal bleeding.

Please evaluate her with sonography.

Suprapubic	Normal 10-week IUP; Breech presentation; Posterior placenta; Dominant follicle in right ovary, likely degenerating corpus luteum
Uterine Body	Normal 10-week IUP; Normal amnion; Normal yolk sac; Probable degenerating corpus luteum in right ovary
Fundus	Normal 10-week IUP; Posterior placenta; Normal amnion
Right Adnexa	Normal 10-week IUP; Probable degenerating corpus luteum in right ovary
Left Adnexa	Normal left ovary
Transvaginal	Normal 10-week IUP; Normal fetal heart rate; Posterior placenta; Normal amnion; Extra-amniotic yolk sac; Probable degenerating corpus luteum in right ovary; Normal left ovary

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 4

This 25-year-old G1P0 female presents with a three-day history of vaginal bleeding.

Please evaluate her with sonography.

Suprapubic	Normal 8-week IUP; Normal yolk sac
Uterine Body	Normal 8-week IUP; Normal yolk sac
Fundus	Normal 8-week IUP; Posterior placenta; Normal yolk sac
Right Adnexa	Normal right ovary posterior to uterus
Left Adnexa	Normal left ovary posterior to uterus
Transvaginal	Normal 8-week IUP; Normal fetal heart rate; Normal amnion; Extra-amniotic yolk sac; Possible corpus luteum cyst in right ovary; Normal left ovary; Trace free fluid in posterior cul-de-sac

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 5

This 33-year-old female presents with a two-week history of recurrent nausea and vomiting and amenorrhea.

Please evaluate her with sonography.

Suprapubic	Partial view of gestational sac; Normal bladder
Uterine Body	Normal 13-week IUP; Anterior placenta
Fundus	Normal 13-week IUP
Right Adnexa	Normal right ovary
Left Adnexa	Normal left ovary
Transvaginal	Normal 13-week IUP; Normal fetal heart rate; Anterior placenta; Normal right ovary; Normal left ovary

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 6

This 30-year-old G2P1 female presents with a three-day history of pelvic pain.

Please evaluate her with sonography.

Suprapubic	Normal 9-week IUP; Normal yolk sac
Uterine Body	Normal 9-week IUP; Normal fetal heart rate; Normal amnion; Normal yolk sac
Fundus	Normal 9-week IUP; Normal amnion; Normal yolk sac
Right Adnexa	Normal right ovary
Left Adnexa	Normal left ovary
Transvaginal	Normal 9-week IUP; Normal fetal heart rate; Normal amnion; Normal yolk sac; Normal right ovary; Normal left ovary

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 7

This 36-year-old female presents with a three-day history of pelvic pain.

Please evaluate her with sonography.

Suprapubic	Limited evaluation of uterus due to inadequate bladder filling
Uterine Body	Normal uterus
Fundus	Normal uterus
Right Adnexa	Limited transabdominal imaging of right ovary
Left Adnexa	Limited transabdominal imaging of left ovary
Transvaginal	Possible myoma; Normal 5-week IUP; Normal gestational sac; Normal yolk sac; Corpus luteum cyst in left ovary seen in Findings video; Trace free fluid in posterior cul-de-sac

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 8

This 30-year-old female presents with a one-day history of vaginal bleeding.

Please evaluate her with sonography.

Suprapubic	Normal 7-week IUP in left horn of bicornuate uterus
Uterine Body	Normal 7-week IUP in left horn of bicornuate uterus; Thickened endometrium in right uterine horn

Fundus	Normal 7-week IUP in left horn of bicornuate uterus; Thickened endometrium in right uterine horn
Right Adnexa	Limited transabdominal imaging of right ovary
Left Adnexa	Probable degenerating corpus luteum in left ovary
Transvaginal	Bicornuate uterus; Normal 7-week pregnancy in left uterine horn; Normal fetal heart rate; Normal right ovary; Probable degenerating corpus luteum in left ovary

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 9

This 26-year-old female presents with a history of a positive pregnancy test, abdominal cramping, and recurrent near-syncope events over the past 24 hours.

Please evaluate her with sonography.

Suprapubic	Limited evaluation of uterus due to inadequate bladder filling
Uterine Body	Limited evaluation of uterus due to inadequate bladder filling; Nabothian cyst
Fundus	Limited evaluation of uterus due to inadequate bladder filling
Right Adnexa	Normal right ovary
Left Adnexa	Normal left ovary
Transvaginal	Retroverted uterus; Trilaminar endometrium; Pregnancy of Unknown Location; Normal right and left ovaries; Small amount of free fluid in posterior cul-de-sac

### Obstetrics/Gynecology - Adv. OB 1st Trimester Pregnancy - Case 10

This 31-year-old female with a history of a first-trimester pregnancy presents following a mechanical fall and complains of abdominal pain.

Please evaluate her with sonography.

Suprapubic	Partially visualized intrauterine gestational sac
Uterine Body	Normal 10-week IUP
Fundus	Normal 10-week IUP
Right Adnexa	Normal 10-week IUP; Normal right ovary
Left Adnexa	Normal 10-week IUP; Normal left ovary
Transvaginal	Normal 10-week IUP; Normal fetal heart rate; Normal amnion; Normal yolk sac; Umbilical herniation; Normal right and left ovaries

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 1

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Fetal head showing cavum septi pellucidi, third ventricle, and thalami; Normal 25-week IUP
Infraumbilical	AC measurement at level of stomach, intrahepatic umbilical vein and portal sinus; Normal four-chamber view of fetal heart; Normal 25-week IUP



Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 25-week IUP
Summary	BPD measures 6.29 cm with a 25w3d gestational age; HC measures 24.53 cm with a 26w5d gestational age; AC measures 22.57 cm with a 27w0d gestational age; FL measures 4.98 cm with a 26w6d gestational age

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 2

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Limited landmarks, no definitive visualization of falx cerebri, cavum septi pellucidi, third ventricle, and thalami; Normal 32-week IUP
Infraumbilical	AC measurement at level of stomach, intrahepatic umbilical vein and portal sinus; Normal four-chamber view of fetal heart; Normal 32-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 32-week IUP
Summary	BPD measures 8.12 cm with a 32w4d gestational age; HC measures 29.07 cm with a 32w0d gestational age; AC measures 28.28 cm with a 32w2d gestational age; FL measures 6.59 cm with a 34w0d gestational age

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 3

Suprapubic	Breech presentation
Lower Uterus	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 18-week IUP
Infraumbilical	AC measurement (limited view) taken at level of stomach; intrahepatic umbilical vein and portal sinus not visualized; Normal four-chamber view of fetal heart; Normal 18-week IUP
Supraumbilical	BPD measurement; HC measurement; Limited visualization of falx cerebri, cavum septi pellucidi, third ventricle, and thalami; Normal 18-week IUP
Summary	BPD measures 4.04 cm with a 18w2d gestational age; HC measures 14.87 cm with a 18w0d gestational age; AC measures 13.11 cm with a 18w4d gestational age; FL measures 2.67 cm with a 18w1d gestational age

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 4

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Visualization of falx cerebri, cavum septi pellucidi, third ventricle, and thalami; Normal 22-week IUP
Infraumbilical	AC measurement at level of stomach and intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 22-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 22-week IUP
Summary	BPD measures 5.36 cm with a 22w2d gestational age; HC measures 20.18 cm with a 22w2d gestational age; AC measures 18.23 cm with a 23w1d gestational age; FL measures 4.07 cm with a 23w1d gestational age

**Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 5**

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Limited view of falx cerebri, cavum septi pellucidi, third ventricle, and thalami; Normal 35-week IUP
Infraumbilical	AC measurement at level of stomach and intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 35-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 35-week IUP
Summary	BPD measures 8.86 cm with a 35w6d gestational age; HC measures 32.21 cm with a 36w3d gestational age; AC measures 29.99 cm with a 34w0d gestational age; FL measures 6.98 cm with a 35w6d gestational age

**Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 6**

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Visualization of cavum septi pellucidi, third ventricle, and thalami; Normal 30-week IUP
Infraumbilical	AC measurement at level of stomach and intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 30-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measurement estimates 28-week IUP
Summary	BPD measures 7.97 cm with a 32w0d gestational age; HC measures 27.90 cm with a 30w4d gestational age; AC measures 27.89 cm with a 32w0d gestational age; FL measures 5.41 cm with a 28w4d gestational age

**Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 7**

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Visualization of cavum septi pellucidi, third ventricle, and thalami; Normal 32-week IUP
Infraumbilical	AC measurement at level of stomach and intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 32-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 32-week IUP
Summary	BPD measures 8.33 cm with a 33w4d gestational age; HC measures 30.09 cm with a 33w3d gestational age; AC measures 28.38 cm with a 32w3d gestational age; FL measures 6.27 cm with a 32w3d gestational age

**Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 8**

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Limited visualization of cavum septi pellucidi, third ventricle, and thalami; Normal 21-week IUP

Infraumbilical	AC measurement at level of stomach with limited concurrent visualization of intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 21-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measurement estimates a 23-week gestational age
Summary	BPD measures 5.06 cm with a 21w2d gestational age; HC measures 19.16 cm with a 21w3d gestational age; AC measures 17.94 cm with a 22w6d gestational age; FL measures 4.01 cm with a 23w0d gestational age

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 9

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Visualization of falx cerebri, third ventricle, and thalami; Normal 31-week IUP
Infraumbilical	AC measurement at level of stomach with limited concurrent visualization of intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 31-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 31-week IUP
Summary	BPD measures 8.01 cm with a 32w1d gestational age; HC measures 28.44 cm with a 31w2d gestational age; AC measures 27.81 cm with a 31w6d gestational age; FL measures 5.91 cm with a 30w6d gestational age

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part I - Case 10

Suprapubic	Cephalic presentation
Lower Uterus	BPD measurement; HC measurement; Visualization of falx cerebri, third ventricle, and thalami; Normal 19-week IUP
Infraumbilical	AC measurement at level of stomach with limited concurrent visualization of intrahepatic umbilical vein; Normal four-chamber view of fetal heart; Normal 19-week IUP
Supraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; Normal 19-week IUP
Summary	BPD measures 4.45 cm with a 19w3d gestational age; HC measures 16.67 cm with a 19w2d gestational age; AC measures 14.73 cm with a 20w0d gestational age; FL measures 2.99 cm with a 19w2d gestational age

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 1

This 34-year-old female with Hashimoto's thyroiditis presents for a routine sonographic assessment.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements at the level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.86 cm with a 35w6d gestational age; HC measures 31.96 cm with a 36w0d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; Intrahepatic umbilical cord varix; AC measures 29.35 cm with a 33w2d gestational age; Normal four-chamber view of fetal heart

Infraumbilical	FL measurement taken from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.63 cm with a 34w1d gestational age
Supraumbilical	Placental attachment at anterior uterine fundus
Para Ut RUQ	Amniotic fluid pocket measures 4.57 cm
Para Ut LUQ	Amniotic fluid pocket measures 3.36 cm
Para Ut LLQ	Amniotic fluid pocket measures 4.21 cm
Para Ut RLQ	Amniotic fluid pocket measures 5.27 cm
Summary	This 34-year-old female G3P2 with a history of Hashimoto's thyroiditis presents in her estimated 36th week of pregnancy. The fetus demonstrates an intra-abdominal umbilical vein varix measuring 0.83 cm. This finding can be associated with fetal anomalies and can cause fetal complications like hydrops fetalis. The fetus presents cephalic and is measuring 34 weeks with fetal biometry, revealing a two-week discrepancy from menstrual age. Normal amniotic fluid index at 17.41 cm; Normal fetal heart rate is demonstrated. The placenta is normal and anterior-fundal. The umbilical vein varix appears to be an isolated finding which favors a good prognosis.

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 2

This 30-year-old female presents for sonographic assessment due to an elevated maternal alpha-fetoprotein (AFP) level measured during routine prenatal screening.

Suprapubic	Fetal limbs visualized; Breech presentation; FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.21 cm with a 20w0d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 14.76 cm with a 20w0d gestational age; Normal four-chamber view of fetal heart
Infraumbilical	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.46 cm with a 19w4d gestational age; HC measures 16.73 cm with a 19w3d gestational age
Para Ut RMQ	Placental attachment at anterior right uterine body
Para Ut RUQ	Amniotic fluid pocket measures 2.82 cm
Para Ut LUQ	Amniotic fluid pocket measures 4.37 cm
Para Ut LLQ	Amniotic fluid pocket measures 4.17 cm
Para Ut RLQ	Amniotic fluid pocket measures 2.54 cm
Summary	This 30-year-old female G2P1 presents with an elevated maternal alpha-fetoprotein (AFP) level during her second trimester triple marker screening. The fetus displays a breech presentation and measures approximately 19 weeks. Normal amniotic fluid at 13.9 cm; Normal growth and fetal heart rate are demonstrated. The placenta is normal and located anterior right lateral. Elevated AFP markers have been associated with neural tube defects and other fetal anomalies. Fetal distress and demise will elevate the AFP. Multiple gestations and an underestimation of gestational age will also show high AFP markers. No obvious signs for the elevated alpha-fetoprotein were identified during the ultrasound examination.

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 3

This 37-year-old female presents for sonographic assessment due to a suspected fetal anomaly.

Suprapubic	Fetal limbs visualized; Breech presentation; FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.61 cm with a 21w3d gestational age
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Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and limited view of intrahepatic segment of umbilical vein at portal sinus; AC measures 17.0 cm with a 22w0d gestational age; Normal four-chamber view of fetal heart
Infraumbilical Lt	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.94 cm with a 21w0d gestational age; HC measures 18.61 cm with a 21w0d gestational age
Infraumbilical Rt	Placental attachment at anterior uterine body
Para Ut RUQ	Amniotic fluid pocket measures 4.58 cm
Para Ut LUQ	Amniotic fluid pocket measures 4.73 cm
Para Ut LLQ	Amniotic fluid pocket measures 2.22 cm
Para Ut RLQ	Amniotic fluid pocket measures 4.33 cm
Summary	This 37-year-old female G3P1 presents in her second trimester of pregnancy for screening for a possible fetal anomaly due to advanced maternal age. The fetus presents in a breech orientation and measures approximately 20 weeks. Normal amniotic fluid at 15.86 cm; Normal growth and fetal heart rate are demonstrated. The placenta is normal in appearance and located along the anterior body of the uterus.

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 4

This 38-year-old female presents for sonographic assessment due to gestational diabetes and a fundal size measuring greater than gestational age.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements at level of fetal brain showing a limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 9.44 cm with a 38w3d gestational age; HC measures 33.93 cm with a 39w0d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and a limited view of the intrahepatic segment of umbilical vein at portal sinus; AC measures 34.34 cm with a 38w2d gestational age; Normal four-chamber view of fetal heart
Infraumbilical	FL measurement with a limited view from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 7.53 cm with a 38w4d gestational age
Para Ut LMQ	Placental attachment at anterior left lateral uterine body
Para Ut RUQ	Amniotic fluid pocket measures 4.77 cm
Para Ut LUQ	Amniotic fluid pocket measures 4.82 cm
Para Ut LLQ	Amniotic fluid pocket measures 2.57 cm
Para Ut RLQ	Amniotic fluid pocket measures 3.70 cm
Summary	This 38-year-old female G1P0 with maternal gestational diabetes presents for sonographic assessment due to gestational diabetes and a fundal size measuring greater than gestational age. Fetal biometry estimates a 38-week gestation, revealing a two-week discrepancy versus menstrual age. Fetal cardiac activity is normal. AFI is measured at 15.86 cm and is within normal limits. The placenta is seen left lateral anterior uterine body with several calcifications. Fetus presents in a cephalic orientation.

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 5

This 25-year-old female presents for sonographic assessment following fetoscopic laser photocoagulation of confirmed Twin-Twin Transfusion Syndrome IV.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements of Twin A at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 7.72 cm with a 31w0d gestational age; HC measures 27.53 cm with a 30w1d gestational age
Lower Uterus Lt	AC measurement of Twin A at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 25.26 cm with a 29w3d gestational age; Normal four-chamber view of fetal heart
Infraumbilical Lt	FL measurement of Twin A from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 4.72 cm with a 25w5d gestational age
Lower Uterus Rt	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements of Twin B at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 7.55 cm with a 30w2d gestational age; HC measures 27.04 cm with a 29w3d gestational age
Infraumbilical Rt	AC measurement of Twin B at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 25.62 cm with a 29w6d gestational age; Fetal heart shows biventricular hypertrophy and cardiomegaly
Para Ut RUQ	FL measurement of Twin B from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 5.14 cm with a 27w3d gestational age
Supraumbilical	Placental attachment at anterior midline uterine body; Thin separating membrane visualized
Para Ut LLQ	Twin A MVP measures 4.80 cm
Para Ut RMQ	Twin B MVP measures 4.52 cm
Summary	This 25-year-old female G3P1 presents status post fetoscopic laser photocoagulation of confirmed Twin-Twin Transfusion Syndrome IV. Twin A seen maternal left is the ex-donor and twin B seen maternal right is the ex-recipient. After the procedure the twins are positive for TAPS or twin anemia-polycythemia sequence. Twin B developed biventricular hypertrophy with poor contractility. Twin A and Twin B show a cephalic presentation; A single anterior placenta with a thin separating membrane consistent with a monochorionic-diamniotic gestation. Fluid levels now appear balanced, with Twin A MVP measuring 4.80 cm and Twin B MVP measuring 4.52 cm. Growth is now steady with both twins measuring approximately 30 weeks gestation.

## Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 6

This 31-year-old female presents for sonographic assessment due to an elevated triple marker screening result.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.89 cm with a 20w6d gestational age; HC measures 17.93 cm with a 20w3d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and a limited view of the umbilical vein; AC measures 15.83 cm with a 21w0d gestational age; Normal four-chamber view of fetal heart
Infraumbilical Rt	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.33 cm with a 20w3d gestational age
Infraumbilical Lt	Placental attachment at anterior midline uterine body
Para Ut RUQ	Amniotic fluid pocket measures 4.24 cm
Para Ut LUQ	Amniotic fluid pocket measures 3.72 cm
Para Ut LLQ	Amniotic fluid pocket measures 3.36 cm
Para Ut RLQ	Amniotic fluid pocket measures 4.09 cm
Summary	This 31-year-old female G3P1 presents with elevated HCG levels in her second trimester triple marker screenings. The fetus presents in a cephalic orientation and measures approximately 21 weeks. Normal amniotic fluid at 15.41 cm; Normal growth and fetal heart rate are demonstrated.

The placenta is normal and seen anterior. Elevated HCG levels raise concern for fetal chromosomal and structural anomalies. It has also be associated with adverse pregnancy outcomes such as preeclampsia, intrauterine growth restriction, preterm delivery and premature rupture of membranes.

## Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 7

This 34-year-old female presents for sonographic assessment of a twin pregnancy.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements for Twin A at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.98 cm with a 21w1d gestational age; HC measures 18.59 cm with a 21w0d gestational age
Lower Uterus Rt	AC measurement of Twin A at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 16.29 cm with a 21w3d gestational age; Normal four-chamber view of fetal heart
Para Ut RMQ	FL measurement of Twin A from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.26 cm with a 20w1d gestational age
Para Ut LUQ	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements of Twin B at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.75 cm with a 20w3d gestational age; HC measures 17.28 cm with a 19w6d gestational age
Para Ut LMQ	AC measurement of Twin B at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 15.12 cm with a 20w2d gestational age; Normal four-chamber view of fetal heart
Lower Uterus Lt	FL measurement of Twin B from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.35 cm with a 20w4d gestational age
Supraumbilical	Placental attachment at anterior midline uterine body; Thin separating membrane visualized
Para Ut RUQ	Twin A MVP measures 4.69 cm
Infraumbilical	Twin B MVP measures 4.91 cm
Summary	This 33-year-old female G3P1 presents in her second trimester of pregnancy with a monochorionic-diamniotic twin gestation. Twin A seen maternal right in a cephalic presentation; Twin B seen maternal left in a breech presentation. A single anterior placenta is seen with a thin separating membrane. Both twins show symmetrical and concordant growth with a 21 week gestational age. The MVP for Twin A measures 4.69 cm and the MVP for Twin B measures 4.91 cm. The fetal heart rates and cardiac morphologies are within normal limits. There is no evidence of Twin-Twin Transfusion Syndrome.

## Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 8

This 28-year-old female presents for sonographic assessment due to a suspected fetal anomaly.

Suprapubic	Fetal pelvis visualized; Breech presentation; FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.12 cm with a 19w5d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 16.66 cm with a 21w5d gestational age; Normal four-chamber view of fetal heart
Infraumbilical Rt	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.71 cm with a 20w1d gestational age; HC measures 17.17 cm with a 19w5d gestational age
Infraumbilical Lt	Placental attachment at posterior uterine body
Para Ut RUQ	Amniotic fluid pocket measures 3.58 cm

Para Ut LUQ	Amniotic fluid pocket measures 2.67 cm
Para Ut LLQ	Amniotic fluid pocket measures 5.20 cm
Para Ut RLQ	Amniotic fluid pocket measures 3.89 cm
Summary	This 28-year-old female G5P2 presents in her second trimester of pregnancy for a possible fetal anomaly. The fetus presents in breech orientation and measures approximately 21 weeks. Normal amniotic fluid measuring 15.34 cm. Normal growth and fetal heart rate are demonstrated. The placenta is posterior and low-lying measuring 1.3 cm from cervical os.

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 9

This 34-year-old female with a high risk pregnancy presents for sonographic assessment. She underwent IVF and a cervical cerclage during this pregnancy.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements at level of fetal brain with limited visibility of the cavum septi pellucidi; third ventricle, and thalami; BPD measures 7.61 cm with a 30w4d gestational age; HC measures 26.99 cm with a 29w3d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 25.54 cm with a 29w5d gestational age; Normal four-chamber view of fetal heart
Infraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 5.67 cm with a 29w5d gestational age
Supraumbilical	Placental attachment at anterior midline uterine body
Para Ut RUQ	Amniotic fluid pocket measures 3.98 cm
Para Ut LUQ	Amniotic fluid pocket measures 2.22 cm
Para Ut LLQ	Amniotic fluid pocket measures 1.33 cm
Para Ut RLQ	Amniotic fluid pocket measures 2.81 cm
Summary	This 34-year-old female G3P0 presents in her third trimester of pregnancy with a history of second-trimester demise and a prior ectopic pregnancy treated with methotrexate. The cervix was determined insufficient and a cerclage was placed. Prior examinations revealed lateral ventriculomegaly with the right ventricle measuring larger than the left. This pregnancy was conceived via IVF. Normal amniotic fluid measures at 10.34 cm; Normal growth with an estimated 30 week gestational age; Normal fetal heart rate demonstrated. Lateral ventricles appear within normal limits with the resolution of ventriculomegaly. Placenta is seen anterior mid uterine body with several calcifications.

### Obstetrics/Gynecology - Adv. OB 2nd & 3rd Trim Preg: Part II - Case 10

This 26-year-old female presents for sonographic assessment due to a fundal height discrepancy with estimated gestational age.

Suprapubic	Fetal cranium visualized; Cephalic presentation; BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 9.37 cm with a 38w1d gestational age; HC measures 33.83 cm with a 38w6d gestational age
Lower Uterus	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 32.15 cm with a 36w0d gestational age; Normal four-chamber view of fetal heart
Infraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 7.27 cm with a 37w2d gestational age
Supraumbilical	Placental attachment at posterior uterine fundus



Para Ut RUQ	Amniotic fluid pocket measures 3.50 cm
Para Ut LUQ	Amniotic fluid pocket measures 1.43 cm
Para Ut LLQ	Amniotic fluid pocket measures 1.39 cm
Para Ut RLQ	Amniotic fluid pocket measures 4.72 cm
Summary	This 26-year-old female G1P0 presents for evaluation of possible discordance between fundal height versus estimated gestational age. Fetal biometry reveals minimal discordance as fetal biometry gestational age estimates range between 37 weeks and 38 weeks, which matches her estimated gestational age, based on dates. Normal amniotic fluid at 11.04 cm; Normal fetal heart rate is demonstrated. Placenta is seen posterior right lateral fundal with several calcifications.

### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 1

This 24-year-old female presents with dysmenorrhea and has been menstruating for two days.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, moderately distended bladder
Upper Uterine Segment	Normal anteverted uterus with thin endometrial echo, suggestive of menstruation
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with thin endometrial echo, suggestive of menstruation; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 2

This 33-year-old female presents with acute pelvic pain.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, distended bladder
Upper Uterine Segment	Normal anteflexed uterus with endometrial echo, suggestive of mid-proliferative phase; Trace free fluid in posterior cul-de-sac
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteflexed uterus with endometrial echo, suggestive of mid-proliferative phase; Normal right ovary and adnexa; Left resolving corpus-luteal cyst measuring 1.4 cm; Free fluid in posterior cul-de-sac

### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 3

This 26-year-old female presents with pelvic pain after IUD placement.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, partially distended bladder
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Upper Uterine Segment	Normal retroflexed uterus with limited visualization of endometrial echo; Limited visualization of IUD
Right Adnexa	Right ovarian follicle measuring 2 cm; Normal right adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal retroflexed uterus with normal endometrial echo; Normal placement of hormonal IUD; Right ovarian follicle measuring 2 cm; Normal left ovary and adnexa; Trace free fluid in endometrial canal

#### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 4

This 21-year-old female presents for evaluation due to difficulty tolerating manual exam.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal retroflexed uterus with endometrial echo, suggestive of mid-proliferative phase
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal retroflexed uterus with endometrial echo, suggestive of mid-proliferative phase; Normal ovaries and adnexa

#### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 5

This 33-year-old female presents for pre-evaluation for IUD placement.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal bladder; Tampon seen in vaginal canal
Upper Uterine Segment	Normal anteflexed uterus with endometrial echo, suggestive of menstruation; Tampon seen in vaginal canal
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteflexed uterus with endometrial echo, suggestive of menstruation; Cesarean-section scars seen at uterine isthmus; Bright echogenic reflectors seen in endometrial echotexture; Normal ovaries and adnexa

#### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 6

This 35-year-old female presents for evaluation and is currently taking Clomid® for infertility.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteflexed uterus with a thickened endometrial echo, suggestive of secretory phase
Right Adnexa	Right ovarian follicle measuring 1.6 cm; Normal right adnexa
Left Adnexa	Left complex/hemorrhagic ovarian cyst measuring 3.2 cm; Normal adnexa

Transvaginal	Normal anteflexed uterus with a thickened endometrial echo, suggestive of secretory phase-postovulatory; Right ovarian follicle measuring 1.6 cm; Left complex/hemorrhagic ovarian cyst measuring 3.2 cm; Free fluid in posterior cul-de-sac
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### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 7

This 29-year-old female presents with pelvic pain status post cesarean section six weeks prior.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, distended bladder
Upper Uterine Segment	Normal uterus in midposition with irregular endometrial echo
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal uterus in midposition with irregular endometrial echo due to shadowing from cesarean-section scar and uterine position; Free fluid in posterior cul-de-sac; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 8

This 25-year-old female presents with abnormal heavy bleeding for ten days.

Please evaluate her pelvis with sonography using a transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, distended bladder
Upper Uterine Segment	Normal uterus with thin endometrial echo
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with thin endometrial echo; Nabothian cysts; Free fluid in posterior cul-de-sac; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 9

This 30-year-old female presents with noted cervical motion discomfort during her manual exam.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, distended bladder
Upper Uterine Segment	Normal anteverted uterus with thickened endometrial echo; Trace fluid in posterior cul-de-sac
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with thick endometrial echo; Trace fluid in posterior cul-de-sac; Right ovarian corpus luteum; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Uterus - Case 10

This 24-year-old female presents with left-sided pelvic pain.

Please evaluate her pelvis with sonography using transabdominal and transvaginal scanning techniques.

Lower Uterine Segment	Normal lower uterine segment; Normal, distended bladder
Upper Uterine Segment	Normal retroflexed uterus with limited view of endometrial echo
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal retroflexed uterus with limited view of endometrial echo due to position of the uterus; Normal ovaries; Trace fluid in left adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 1

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Indentation of endometrial fundus, suggestive of arcuate Müllerian anomaly
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Anteverted uterus with arcuate Müllerian anomaly visualized; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 2

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal upper uterine segment; Unable to visualize endometrial echo complex
Right Adnexa	Limited visualization of right ovary and adnexa
Left Adnexa	Limited visualization of left ovary and adnexa
Transvaginal	Retroflexed uterus with subseptate Müllerian anomaly; Cesarean-section scar seen; Normal right ovary and adnexa; Left ovary shows an ovarian follicle measuring 1.6 cm; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 3

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Irregularity in endometrial fundus, suggestive of septate Müllerian anomaly
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Anteverted uterus with septate Müllerian anomaly visualized; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 4

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Bulbous uterine body with evidence of two endometrial cavities, suggestive of Müllerian anomaly
Right Adnexa	Normal right ovary with likely dominant ovarian follicle; Normal adnexa
Left Adnexa	Normal left ovary and adnexa

Transvaginal	Retroverted uterus with bicornuate Müllerian anomaly; Left uterine horn shows an endometrial polyp measuring 8 mm and an intramural posterior leiomyoma measuring 2 cm; Right ovary shows a dominant follicle measuring 2.2 cm; Normal right adnexa; Normal left ovary and adnexa
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### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 5

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Shadowing seen in uterine fundus; Limited visualization of IUD in endometrial canal
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Anteverted uterus with IUD seen in midsagittal endometrial canal; Normal endometrial echo; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 6

Lower Uterine Segment	Bright reflector in lower uterine segment, suggestive of misplaced IUD; Normal bladder
Upper Uterine Segment	Normal upper uterine segment; Unable to visualize IUD in endometrial canal
Right Adnexa	Limited visualization of right ovary and adnexa
Left Adnexa	Limited visualization of left ovary and adnexa
Transvaginal	Anteflexed uterus with IUD seen in cervical isthmus, consistent with a misplaced IUD; Trace fluid seen in endometrial canal; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 7

Lower Uterine Segment	Normal lower uterine segment; Decompressed bladder and surrounding bowel gas artifact resulting in poor image visualization
Upper Uterine Segment	Heterogenous upper uterine segment; Bright reflector seen in endometrial canal, suggestive of IUD
Right Adnexa	Limited visualization of right ovary and adnexa
Left Adnexa	Cystic structure seen in left adnexa, suggestive of dominant follicle
Transvaginal	Anteverted uterus with heterogenous echo texture seen on anterior portion of uterus, suggestive of adenomyosis; IUD seen in endometrial canal; Normal right ovary and adnexa; Left ovary shows dominant follicle measuring 2.5 cm; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 8

Lower Uterine Segment	Limited visualization of lower uterine segment; Partially filled bladder
Upper Uterine Segment	Limited visualization of upper uterine segment; Bulbous uterine body, suggestive of leiomyomas
Right Adnexa	Limited visualization of right ovary and adnexa
Left Adnexa	Limited visualization of left ovary and adnexa
Transvaginal	Anteverted uterus with multiple intramural leiomyomas, the largest measuring 3.7 cm (seen in uterine fundus); Limited visualization of endometrial echo due to leiomyomas; Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 9

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal upper uterine segment; Limited visualization of endometrial canal
Right Adnexa	Limited visualization of right ovary and adnexa
Left Adnexa	Limited visualization of left ovary and adnexa
Transvaginal	Retroverted uterus with a Mirena® IUD seen in midsagittal endometrial canal; Anterior intramural leiomyoma seen measuring 2.8 cm; Trace fluid seen surrounding the normal right ovary; Normal right adnexa; Prior history of left oophorectomy; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part I - Case 10

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal upper uterine segment; Bright reflector seen in endometrial canal, suggestive of IUD; Small posterior subserosal leiomyoma
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Anteverted uterus with posterior subserosal leiomyoma; Copper IUD seen in midsagittal endometrial canal; Right ovarian follicle suggestive of corpus luteum; Normal right adnexa; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part II - Case 1

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with limited visualization of endometrial echo
Right Adnexa	Normal right ovary with multiple follicles, including a dominant follicle; Normal right adnexa
Left Adnexa	Normal left ovary with multiple follicles; Normal left adnexa
Transvaginal	Normal anteverted uterus with endometrial echo measuring 9 mm; Normal ovaries with multiple follicles; Normal adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part II - Case 2

Lower Uterine Segment	Normal lower uterine segment; Normal, decompressed bladder
Upper Uterine Segment	Normal anteverted uterus with thin endometrial echo
Right Adnexa	Limited visualization of right ovary and adnexa due to overlying bowel gas artifact
Left Adnexa	Limited visualization of the left ovary and adnexa due to overlying bowel gas artifact
Transvaginal	Normal anteverted uterus with endometrial echo measuring 1 mm (normal postmenopausal thickness); Normal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part II - Case 3

Lower Uterine Segment	Normal lower uterine segment; Normal, decompressed bladder
Upper Uterine Segment	Enlarged uterus with multiple large leiomyomas; Normal endometrial echo

Right Adnexa	Normal right ovary with dominant follicle; Normal right adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Bulbous uterus due to multiple large leiomyomas; Likely endometrial polyp in endometrial canal; Right ovary shows a dominant follicle; Normal right adnexa; Limited visualization of left ovary and adnexa due to multiple leiomyomas

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part II - Case 4

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Bulbous anteverted uterus with multiple large leiomyomas; Fluid and adhesions seen in endometrial echo
Right Adnexa	Limited visualization of the right ovary and adnexa due to overlying leiomyomas
Left Adnexa	Limited visualization of left ovary and adnexa due to overlying leiomyomas
Transvaginal	Bulbous anteverted uterus with multiple large leiomyomas; Fluid and a thick adhesive band in endometrial canal; No visualization of the right ovary and adnexa due to overlying leiomyomas; Limited visualization of the left ovary and adnexa due to overlying leiomyomas

### Obstetrics/Gynecology - Adv. GYN Abnormal Uterus: Part II - Case 5

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with bright, irregular endometrial echo
Right Adnexa	Limited visualization of right ovary and adnexa due to overlying bowel gas artifact
Left Adnexa	Limited visualization of left ovary and adnexa due to overlying bowel gas artifact
Transvaginal	Normal anteverted uterus with bright reflectors in the endometrial canal, suggestive of retained products of conception; Trace fluid in posterior cul-de-sac; No visualization of right ovary; Normal right adnexa; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 1

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteflexed uterus with thickened endometrial echo, suggestive of uterine proliferative phase
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary with dominant follicle measuring 1.8 cm, suggestive of ovarian follicular phase; Normal left adnexa
Transvaginal	Normal anteflexed uterus with thickened, trilaminar endometrial echo, suggestive of uterine proliferative phase; Normal right ovary and adnexa; Normal left ovary with dominant follicle measuring 1.9 cm, suggestive of ovarian follicular phase; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 2

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Bulbous-appearing, anteflexed uterus; Limited visualization of endometrial echo

Right Adnexa	Limited visualization of right ovary, otherwise normal right adnexa
Left Adnexa	Limited visualization of left ovary, otherwise normal left adnexa
Transvaginal	Bulbous-appearing, anteverted uterus with several calcified leiomyomas; Limited visualization of endometrial echo; Normal postmenopausal ovaries and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 3

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with thin endometrial echo, suggestive of uterine menstrual phase
Right Adnexa	Normal right ovary with multiple follicles, suggestive of ovarian follicular phase; Normal right adnexa
Left Adnexa	Normal left ovary with multiple follicles, suggestive of ovarian follicular phase; Normal left adnexa
Transvaginal	Normal anteverted uterus with thin endometrial echo, suggestive of uterine menstrual phase; Normal ovaries with multiple follicles, suggestive of ovarian follicular phase; Normal adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 4

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with moderately thickened endometrial echo, suggestive of uterine proliferative phase
Right Adnexa	Right ovary not visualized, otherwise normal right adnexa
Left Adnexa	Left ovary not visualized, otherwise normal left adnexa
Transvaginal	Normal anteverted uterus with moderately thickened endometrial echo, suggestive of uterine proliferative phase; Normal ovaries with multiple follicles, suggestive of preovulatory ovarian follicular phase; Normal adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 5

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with moderately thickened endometrial echo, suggestive of uterine proliferative phase
Right Adnexa	Normal right ovary with multiple follicles, suggestive of ovarian follicular phase; Normal right adnexa
Left Adnexa	Left ovary not visualized, otherwise normal left adnexa
Transvaginal	Normal anteverted uterus with moderately thickened endometrial echo with a trilaminar appearance, suggestive of uterine proliferative phase; Normal ovaries with multiple follicles, suggestive of preovulatory ovarian follicular phase; Normal adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 6

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with moderately thickened endometrial echo, suggestive of uterine proliferative phase
Right Adnexa	Right ovary not visualized, otherwise normal right adnexa



Left Adnexa	Normal left ovary with dominant follicle measuring 2.1 cm, suggestive of preovulatory ovarian follicular phase; Normal left adnexa
Transvaginal	Normal anteverted uterus with moderately thickened endometrial echo, suggestive of uterine proliferative phase; Normal right ovary and adnexa; Normal left ovary with dominant follicle measuring 2.1 cm, suggestive of preovulatory ovarian follicular phase; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 7

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with IUD seen in endometrial echo; Difficult to assess uterine phase
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary with follicles, suggestive of ovarian preovulatory follicular phase; Normal left adnexa
Transvaginal	Normal anteverted uterus with IUD seen in midsagittal endometrial echo, suggestive of early uterine proliferative phase; Normal right ovary and adnexa; Normal left ovary with dominant follicle measuring 1.89 cm, suggestive of preovulatory ovarian follicular phase; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 8

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with thick, uniformly hyperechoic endometrial echo with loss of trilaminar appearance, suggestive of uterine secretory phase
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with thickened endometrial echo, suggestive of uterine secretory phase; Right ovary with corpus luteal cyst measuring 1.5 cm, suggestive of ovarian luteal phase; Normal right adnexa; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 9

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal uterus; Unable to evaluate uterine echo due to nondistended bladder
Right Adnexa	Limited visualization of right ovary, otherwise normal right adnexa
Left Adnexa	Limited visualization of left ovary, otherwise normal left adnexa
Transvaginal	Normal anteflexed uterus with mildly thickened trilaminar endometrial echo, suggestive of early uterine proliferative phase; Normal right ovary with multiple follicles, suggestive of ovarian follicular phase; Normal right adnexa; Normal left ovary with multiple follicles, suggestive of ovarian follicular phase; Incidental left ovary echogenic focus; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Normal Adnexa - Case 10

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteflexed uterus with IUD and a thin endometrial echo, suggestive of early uterine proliferative phase (note: it is difficult to assess the uterine phase due to hormonal IUD)
Right Adnexa	Normal right ovary and adnexa

Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteflexed uterus with IUD in midsagittal endometrial echo; Thin endometrial echo, suggestive of early uterine proliferative phase (note: it is difficult to assess the uterine phase due to hormonal IUD); Normal ovaries with multiple follicles, suggestive of ovarian follicular phase; Normal adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 1

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with trilaminar endometrial echo, suggestive of uterine proliferative phase
Right Adnexa	Normal right ovary with dominant follicle, suggestive of preovulatory follicular phase; Normal right adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with trilaminar endometrial echo, suggestive of uterine proliferative phase; Normal right ovary with dominant follicle measuring 2.6 cm, suggestive of preovulatory follicular phase; Normal right adnexa; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 2

Lower Uterine Segment	Normal lower uterine segment; Normal, mildly distended bladder
Upper Uterine Segment	Normal anteverted uterus with bright reflector seen in endometrial echo, suggestive of an IUD; Cystic structures seen in adnexa bilaterally
Right Adnexa	Right ovary with follicle; Normal right adnexa
Left Adnexa	Left ovary with simple ovarian cyst; Normal left adnexa
Transvaginal	Normal anteverted uterus with bright reflector seen in endometrial echo, suggestive of an IUD; Right ovary with follicle measuring 2.7 cm, with an internal septation noted; Normal right adnexa; Left ovary with simple ovarian cyst measuring 5.6 cm; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 3

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with uniform endometrial echo, suggestive of uterine secretory phase
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with uniform endometrial echo, suggestive of uterine secretory phase; Right ovary shows a crenulated ovarian corpus-luteal cyst measuring 1.7 cm, suggestive of the ovarian luteal phase; Normal right adnexa; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 4

Lower Uterine Segment	Normal lower uterine segment; Distended bladder
Upper Uterine Segment	Normal anteflexed uterus with uniform endometrial echo, suggestive of the uterine early proliferative phase; Cystic structure seen in right adnexa

Right Adnexa	Right ovary with dominant ovarian follicle, suggestive of the ovarian follicular phase; Normal right adnexa
Left Adnexa	Left ovary with cystic component (limited visualization)
Transvaginal	Normal anteflexed uterus with uniform endometrial echo, suggestive of the uterine early proliferative phase; Right ovary with dominant ovarian follicle measuring 2.7 cm, suggestive of the ovarian follicular phase; Normal right adnexa; Left ovary shows a heterogeneous cystic mass measuring 3.5 cm with a reticulated pattern and without internal color-flow Doppler seen, suggestive of a hemorrhagic cyst; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 5

Lower Uterine Segment	Limited visualization of lower uterine segment; Minimally distended bladder
Upper Uterine Segment	Enlarged, globular, anteverted uterus with overall heterogeneous echo texture; Anechoic cystic structure seen in left adnexa
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Left ovary with bilobed cystic masses, suggestive of hemorrhagic cysts; Normal left adnexa
Transvaginal	Anteverted uterus with multiple leiomyomas; Normal right ovary and adnexa; Left ovary with a complex solid/cystic mass measuring 7 cm and multiple cysts with a reticular pattern, suggestive of multiple hemorrhagic cysts; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 6

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with thickened, trilaminar endometrial echo, suggestive of the uterine secretory phase
Right Adnexa	Prominent right ovary with evidence of complex cystic structure; Normal right adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal anteverted uterus with thickened, trilaminar endometrial echo, suggestive of the uterine secretory phase; Right ovary shows a multiseptated hemorrhagic cystic structure measuring 2 cm; Normal right adnexa; Normal left ovary with 1.8 cm corpus luteum, suggestive of the ovarian luteal phase; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 7

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterine didelphys with two endometrial echoes
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Left ovary with a mixed cystic structure with ground-glass appearance; Normal left adnexa
Transvaginal	Anteverted uterine didelphys with two normal endometrial echoes; Normal right ovary and adnexa; Left ovary with a bilobed endometrioma measuring 2.26 cm; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 8

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteverted uterus with thin endometrial echo

Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Slightly globular anteverted uterus with thin endometrial echo; Right ovary with a mature cystic teratoma measuring 1.76 cm; Normal right adnexa; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 9

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Limited visualization of upper uterine segment
Right Adnexa	Limited visualization of right ovary; Normal right adnexa
Left Adnexa	Limited visualization of left ovary; Normal left adnexa
Transvaginal	Normal anteverted uterus with thin endometrial echo; Right ovary not visualized; Right hydrosalpinx; Normal left ovary and adnexa

### Obstetrics/Gynecology - Adv. GYN Nonmalignant Adnexa - Case 10

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal anteflexed uterus with normal, uniform endometrial echo, suggestive of uterine early proliferative phase; Cystic structure seen in right adnexa
Right Adnexa	Limited visualization of right ovary; Mixed cystic and solid structure seen in right adnexa
Left Adnexa	Limited visualization of left ovary; Cystic, tubular structure with incomplete septations seen in left adnexa
Transvaginal	Normal anteflexed uterus with normal, uniform endometrial echo, suggestive of uterine early proliferative phase; Right ovary with cyst measuring 2 cm; Right complex hydrosalpinx; Normal left ovary; Left complex hydrosalpinx

### Obstetrics/Gynecology - Adv. GYN Malignant Adnexa - Case 1

Lower Uterine Segment	Normal lower uterine segment; Normal bladder
Upper Uterine Segment	Normal retroflexed uterus with thickened endometrial echo; IUD seen in endometrial echo; Free fluid seen in posterior cul-de-sac
Right Adnexa	Normal right ovary and adnexa
Left Adnexa	Normal left ovary and adnexa
Transvaginal	Normal retroflexed uterus with thickened, trilaminar endometrial echo; IUD seen in endometrial echo; Free fluid seen in posterior cul-de-sac; Normal right ovary; Free fluid seen in right adnexa; Normal left ovary; Free fluid seen in left adnexa; Fimbriated distal segments of right and left fallopian tubes are seen

### Obstetrics/Gynecology - Adv. GYN Malignant Adnexa - Case 2

Lower Uterine Segment	Normal lower uterine segment; Normal decompressed bladder
Upper Uterine Segment	Normal anteflexed uterus with limited visualization of endometrial echo

Right Adnexa	Limited visualization of right ovary; Normal right adnexa
Left Adnexa	Limited visualization of left ovary; Limited visualization of possible echogenic mass in left adnexa
Transvaginal	Normal anteverted uterus with limited visualization of endometrial echo; Normal right ovary and adnexa; Left ovary contains complex cyst with prominent echogenic mass (Rokitansky nodule), suggestive of dermoid cyst (i.e., mature cystic teratoma); Trace free fluid in posterior cul-de-sac

### Obstetrics/Gynecology - Adv. GYN Malignant Adnexa - Case 3

Lower Uterine Segment	Normal lower uterine segment; Multiple leiomyomas noted in upper uterine segment
Upper Uterine Segment	Bulbous-appearing uterus with limited visualization of endometrial echo; Multiple leiomyomas
Right Adnexa	Normal right ovary with multiple follicles; Normal right adnexa
Left Adnexa	Limited visualization of left ovary and adnexa; No definitive adnexal mass noted
Transvaginal	Bulbous-appearing uterus with limited visualization of endometrial echo; Multiple large leiomyomas; Normal right ovary with multiple follicles; Normal right adnexa; Left ovarian complex cystic structure, suggestive of endometrioma; Normal left adnexa

### Obstetrics/Gynecology - Adv. GYN Malignant Adnexa - Case 4

Lower Uterine Segment	Normal lower uterine segment; Normal distended bladder
Upper Uterine Segment	Normal anteverted uterus with thickened endometrial echo; Trace free fluid in posterior cul-de-sac
Right Adnexa	Normal right ovary with multiple follicles; Normal right adnexa
Left Adnexa	Normal left ovary with dominant follicle; Complex left adnexal mass with multiple hyperechoic foci and acoustic shadowing
Transvaginal	Normal anteverted uterus with thickened endometrial echo; Trace free fluid in posterior cul-de-sac; Normal right ovary and adnexa; Complex left adnexal mass with "Venetian blinds" shadowing and multiple hyperechoic foci that display acoustic shadowing, consistent with pedunculated leiomyoma

### Obstetrics/Gynecology - Adv. GYN Malignant Adnexa - Case 5

Lower Uterine Segment	Normal lower uterine segment; Normal distended bladder
Upper Uterine Segment	Normal anteverted uterus with limited visualization of endometrial echo
Right Adnexa	Limited visualization of right ovary and adnexa; No definitive adnexal mass noted
Left Adnexa	Limited visualization of left ovary and adnexa
Transvaginal	Normal anteverted uterus with thin endometrial echo; Trace fluid seen in endometrial canal; Normal right ovary and adnexa; Left ovary shows solid mass, suggestive of ovarian fibroma; Normal left adnexa

### Ocular - Core Ocular - Case 1

This 22-year-old female with history of renal transplant presents to the ED with progressively worsening blurry vision.

Please use sonography to examine her eyes.

Point A	Right eye with papilledema
Point B	Left eye with papilledema
<b>Ocular - Core Ocular - Case 2</b>	
<p>This 65-year-old male presents with a metallic foreign body in his right eye due to an industrial explosion. Visual acuity is light perception only.</p> <p>Please use sonography to examine the posterior segment of his right eye in a transverse plane.</p>	
Point A	Metallic foreign body in right globe; Globe perforation with posterior segment hemorrhage/hematoma
<b>Ocular - Core Ocular - Case 3</b>	
<p>This 59-year-old male presents with abrupt onset decreased vision in his right eye x 48 hours.</p> <p>Please use sonography to evaluate his eye.</p>	
Point A	Right eye with retinal detachment
Point B	Vitreous hemorrhage of the left eye
<b>Ocular - Core Ocular - Case 4</b>	
<p>This 37-year-old female presents with blurry vision in her left eye over a two-day period accompanied by a generalized headache.</p> <p>Please use sonography to examine the posterior segments and optic nerves of both of her eyes for pathologic findings.</p>	
Point A	Normal right eye, with slight prominence of right optic disc
Point B	Pathologically enlarged left optic nerve sheath (6 mm); Mild prominence of left optic disc
<b>Ocular - Core Ocular - Case 5</b>	
<p>This 65-year-old male with history of paroxysmal atrial fibrillation presents with sudden onset visual deficit.</p> <p>Please use sonography to examine his left eye.</p>	
Point A	Left intraocular foreign body in posterior chamber
<b>Ocular - Core Ocular - Case 6</b>	
<p>This 52-year-old male with HIV presents with painless loss of vision in his left eye over one week.</p> <p>Please use sonography to evaluate the posterior segment of his left eye.</p>	
Point A	Dilated optic nerve sheath; Posterior segment hyperechoic material (inflammation vs. vitreal detachment)
<b>Ocular - Core Ocular - Case 7</b>	
<p>This 59-year-old female presents with floaters progressing to a visual field defect in her left eye over a one-week timeframe.</p> <p>Please use sonography to examine the posterior segment of her left eye in a transverse plane.</p>	
Point A	Retinal detachment; High-grade (left eye)
<b>Ocular - Core Ocular - Case 8</b>	
<p>This 61-year-old female presents with a two-hour history of left eye blurry vision and grey shade over eye. Visual acuities are OS=20/40 OD=20/20.</p>	

Please use sonography to evaluate her eyes.

Point A	Right eye hyperechoic debris possible vitreous hemorrhage
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Point B	Left eye vitreous detachment with hemorrhage
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### Ocular - Core Ocular - Case 9

This 23-year-old male presents with blurry vision after being hit with a softball.

Please use sonography to evaluate the posterior segment of his right eye for pathology.

Point A	Normal right eye (with sonographic posterior segment artifact)
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### Ocular - Core Ocular - Case 10

This 53-year-old male presents with progressive bilateral blurry vision for two months. Visual acuities are: OS=20/70 and OD=20/40.

Please use sonography to examine the posterior segments and optic nerves of both eyes for pathology.

Point A	Swollen optic disk and dilated optic nerve sheath (right eye)
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Point B	Swollen optic disk and dilated optic nerve sheath (left eye)
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### Procedures - Procedures SkillBox - Case 1

Please examine the structure inside the SonoSim(R) SkillBox and perform an ultrasound-guided aspiration of its fluid-filled lumen.

Point A	Medium-sized, cylindrical, fluid-filled structure
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### Procedures - Procedures SkillBox - Case 2

Please examine the structure inside the SonoSim(R) SkillBox and perform an ultrasound-guided aspiration of its fluid-filled lumen.

Point A	Medium-sized, cylindrical, S-shaped, fluid-filled structure
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### Procedures - Procedures SkillBox - Case 3

Please examine the structures inside the SonoSim(R) SkillBox and perform an ultrasound-guided aspiration of the fluid-filled lumen of the branched structure.

Point A	Medium-sized, cylindrical, Y-shaped (branched), fluid-filled structure (screen right); Medium-sized, cylindrical, S-shaped, fluid-filled structure (screen left)
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### Procedures - Procedures SkillBox - Case 4

Please examine the structures inside the SonoSim(R) SkillBox, use compression as an adjunctive tool, and perform ultrasound-guided aspiration of the structure that displays venous-like collapsibility.

Point A	Medium-sized, cylindrical, fluid-filled, collapsible structure (screen left); Medium-sized, cylindrical, fluid-filled, non-collapsible structure (screen right)
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### Procedures - Procedures SkillBox - Case 5

Please examine the structures within the SonoSim(R) SkillBox and perform ultrasound-guided aspiration from the shallower of the two fluid pockets.

Point A	Wave-shaped, solid structure containing a shallow fluid pocket (far-screen) and a deep fluid pocket (near-screen)
<b>Procedures - Procedures SkillBox - Case 6</b>	
Please examine the structures within the SonoSim(R) SkillBox and perform ultrasound-guided fluid aspiration from the structure measuring 1.5 cm in diameter.	
Point A	Four cylindrical, fluid-filled structures with approximate luminal diameters of (listed screen left to screen right) 2.5 cm, 1.5 cm, 2 cm, 0.75 cm
<b>Procedures - Procedures SkillBox - Case 7</b>	
Please examine the structures within the SonoSim(R) SkillBox and perform ultrasound-guided fluid aspiration from the structure that exhibits venous characteristics upon power Doppler interrogation.	
Point A	Medium-sized, cylindrical, fluid-filled structure exhibiting venous Doppler flow characteristics (near-field); Medium-sized, cylindrical, fluid-filled structure exhibiting arterial Doppler flow characteristics (far-field)
<b>Procedures - Procedures SkillBox - Case 8</b>	
Please examine the structures within the SonoSim(R) SkillBox and perform ultrasound-guided fluid aspiration from the structure that exhibits venous characteristics upon power Doppler interrogation.	
Point A	Four medium-sized, cylindrical, fluid-filled structures with varying power Doppler flow characteristics (from screen left to screen right): no flow, arterial flow, venous flow, arterial flow
<b>Procedures - Procedures SkillBox - Case 9</b>	
Please examine the spherical structure within the SonoSim(R) SkillBox and perform ultrasound-guided aspiration from the fluid collection within it.	
Point A	Large, spherical, hyperechoic structure containing an anechoic fluid collection around a moderately echogenic, spherical core
<b>Procedures - Procedures SkillBox - Case 10</b>	
Please examine the spherical structure within the SonoSim(R) SkillBox and perform ultrasound-guided aspiration from the dynamic fluid collection within it.	
Point A	Large, spherical, hyperechoic structure containing a dynamic, variably-sized, anechoic fluid collection around a moderately echogenic, pulsating, spherical core

<b>Procedures - Femoral Vein Access - Case 1</b>	
This 28-year-old male requires a central line.	
Please use sonography to guide placement of a central venous catheter into his left femoral vein.	
Survey Scan	Normal left common femoral vein with complete collapse during compression; Normal left common femoral artery; Normal left greater saphenous vein
Procedure Scan	Normal left common femoral vein and artery; Normal left greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform
<b>Procedures - Femoral Vein Access - Case 2</b>	
This 65-year-old female requires a central line.	



Please use sonography to guide placement of a central venous catheter into her right femoral vein.

Survey Scan

Normal left common femoral vein; Ultrasound window demonstrates incomplete collapse due to insufficient compression; Normal left common femoral artery; Normal left greater saphenous vein

Procedure Scan

Normal left common femoral vein and artery; Normal left greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform showing normal augmentation

### Procedures - Femoral Vein Access - Case 3

This 30-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left femoral vein.

Survey Scan

Normal left common femoral vein; Ultrasound window demonstrates incomplete collapse due to insufficient compression; Normal left common femoral artery; Normal left greater saphenous vein; Bifurcation of common femoral artery into femoral artery and profunda femoris artery

Procedure Scan

Normal left common femoral vein and artery; Normal left greater saphenous vein; Bifurcation of common femoral artery into femoral artery and profunda femoris artery; Normal color Doppler flow and normal pulsed-wave Doppler waveform showing normal augmentation

### Procedures - Femoral Vein Access - Case 4

This 24-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her right femoral vein.

Survey Scan

Normal right common femoral vein; Ultrasound window demonstrates incomplete collapse due to insufficient compression; Normal right common femoral artery; Normal right greater saphenous vein

Procedure Scan

Normal right common femoral vein and artery; Normal right greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform; Echogenic appearance in vessel due to temporary blood pooling during Valsalva maneuver; No evidence of a clot

### Procedures - Femoral Vein Access - Case 5

This 88-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his right femoral vein.

Survey Scan

Normal right common femoral vein with complete collapse during compression; Normal right common femoral artery; Normal profunda femoris artery; Normal right greater saphenous vein

Procedure Scan

Normal right common femoral vein and artery; Normal profunda femoris artery; Normal right greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform

### Procedures - Femoral Vein Access - Case 6

This 20-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her left femoral vein.

Survey Scan

Normal left common femoral vein with complete collapse during compression; Normal left common femoral artery; Normal left greater saphenous vein; Bifurcation of common femoral artery into femoral artery and profunda femoris artery

Procedure Scan

Normal left common femoral vein and artery; Normal profunda femoris artery; Normal left greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform showing normal augmentation

### Procedures - Femoral Vein Access - Case 7

This 32-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left femoral vein.

Survey Scan	Normal left common femoral vein with complete collapse during compression; Normal left common femoral artery; Normal left greater saphenous vein
Procedure Scan	Normal left common femoral vein dilated with Valsalva maneuver; Normal left common femoral artery; Normal left greater saphenous vein; Bifurcation of common femoral artery into femoral artery and profunda femoris artery; Normal color Doppler flow and normal pulsed-wave Doppler waveform; Normal Valsalva maneuver

### Procedures - Femoral Vein Access - Case 8

This 45-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her right femoral vein.

Survey Scan	Normal right common femoral vein; Ultrasound window demonstrates incomplete collapse due to insufficient compression; Normal right common femoral artery; Normal right greater saphenous vein; Bifurcation of common femoral artery into femoral artery and profunda femoris artery; Good example of averaging artifact in common femoral vein
Procedure Scan	Normal right common femoral vein and artery; Normal right greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform; Good example of averaging artifact in common femoral vein

### Procedures - Femoral Vein Access - Case 9

This 55-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her left femoral vein.

Survey Scan	Normal left common femoral vein; Ultrasound window demonstrates incomplete collapse due to insufficient compression; Normal left common femoral artery; Normal left greater saphenous vein
Procedure Scan	Normal left common femoral vein and artery; Normal left greater saphenous vein; Normal color Doppler flow and normal pulsed-wave Doppler waveform showing normal augmentation

### Procedures - Femoral Vein Access - Case 10

This 90-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her right femoral vein.

Survey Scan	Normal right common femoral vein with complete collapse during compression; Normal right common femoral artery; Normal right greater saphenous vein
Procedure Scan	Normal right common femoral vein and artery; Normal right greater saphenous vein; Bifurcation of common femoral artery into femoral artery and profunda femoris artery; Normal color Doppler flow and normal pulsed-wave Doppler waveform showing normal augmentation

### Procedures - Internal Jugular Vein Access - Case 1

This 42-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his right internal jugular vein.

Survey Scan	Normal right internal jugular vein; Ultrasound window demonstrates incomplete collapse at inferior portion due to transducer angle during compression; Echogenic appearance in vessel
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	due to temporary blood pooling during Valsalva maneuver; No evidence of a clot; Normal right common carotid artery
Procedure Scan	Normal right internal jugular vein with respirophasic variation; Normal right common carotid artery

### Procedures - Internal Jugular Vein Access - Case 2

This 55-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left internal jugular vein.

Survey Scan	Normal left internal jugular vein with complete collapse during compression; Normal left common carotid artery
Procedure Scan	Normal left internal jugular vein with respirophasic variation; Normal left common carotid artery

### Procedures - Internal Jugular Vein Access - Case 3

This 20-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his right internal jugular vein.

Survey Scan	Normal right internal jugular vein with complete collapse during compression; Normal right common carotid artery
Procedure Scan	Normal right internal jugular vein with respirophasic variation; Normal right common carotid artery

### Procedures - Internal Jugular Vein Access - Case 4

This 72-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left internal jugular vein.

Survey Scan	Normal dilated left internal jugular vein with complete collapse during compression; Echogenic appearance in vessel due to temporary blood pooling during Valsalva maneuver; No evidence of a clot; Normal left common carotid artery
Procedure Scan	Normal left internal jugular vein with respirophasic variation; Normal left common carotid artery

### Procedures - Internal Jugular Vein Access - Case 5

This 81-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her right internal jugular vein.

Survey Scan	Normal right internal jugular vein; Ultrasound window demonstrates incomplete collapse at inferior portion due to transducer angle during compression; Echogenic appearance in vessel due to temporary blood pooling during Valsalva maneuver; No evidence of a clot; Normal right common carotid artery
Procedure Scan	Normal right internal jugular vein dilated with Valsalva maneuver; Normal right carotid artery

### Procedures - Internal Jugular Vein Access - Case 6

This 68-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left internal jugular vein.

Survey Scan	Normal left internal jugular vein with complete collapse during compression; Normal left common carotid artery
Procedure Scan	Normal left internal jugular vein; Normal left common carotid artery

## Procedures - Internal Jugular Vein Access - Case 7

This 72-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her right internal jugular vein.

Survey Scan	Normal right internal jugular vein; Ultrasound window demonstrates incomplete collapse at inferior portion due to transducer angle during compression (superior to Procedure Scan); Echogenic appearance in vessel due to temporary blood pooling during Valsalva maneuver; No evidence of a clot; Normal right common carotid artery
Procedure Scan	Normal right internal jugular vein (inferior to Survey Scan); Normal right common carotid artery

## Procedures - Internal Jugular Vein Access - Case 8

This 42-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left internal jugular vein.

Survey Scan	Normal left internal jugular vein with complete collapse during compression (superior to Procedure Scan); Normal left common carotid artery
Procedure Scan	Normal left internal jugular vein (inferior to Survey Scan); Normal left common carotid artery

## Procedures - Internal Jugular Vein Access - Case 9

This 65-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his right internal jugular vein.

Survey Scan	Normal right internal jugular vein; Ultrasound window demonstrates incomplete collapse at inferior portion due to transducer angle during compression; Echogenic appearance in vessel due to temporary blood pooling during Valsalva maneuver; No evidence of a clot; Normal right common carotid artery
Procedure Scan	Normal right internal jugular vein dilated with Valsalva maneuver; Normal right common carotid artery

## Procedures - Internal Jugular Vein Access - Case 10

This 32-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her left internal jugular vein.

Survey Scan	Normal left internal jugular vein with complete collapse during compression; Normal left common carotid artery
Procedure Scan	Normal left internal jugular vein; Normal left common carotid artery

## Procedures - Peripheral Venous Access - Case 1

This 45-year-old male presents with fever and weakness.

Please use sonography coupled with graded compression to insert an IV catheter in his right antecubital region for IV fluid therapy.

Point A	Normal right median cubital vein; Right antecubital region
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## Procedures - Peripheral Venous Access - Case 2

This 34-year-old female presents with first-trimester vaginal bleeding.

Please use sonography to insert an IV catheter in her right mid-forearm to obtain blood for analysis.

Point A	Normal right median antebrachial vein; Right proximal forearm
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### Procedures - Peripheral Venous Access - Case 3

This 4-year-old female presents with pneumonia.

Please use sonography to insert an IV catheter along the dorsum of her right hand for IV antibiotic therapy.

Point A	Normal right superficial dorsal metacarpal veins; Dorsum of right hand; Pediatric patient
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### Procedures - Peripheral Venous Access - Case 4

This 40-year-old male presents with chest pain and hypotension.

Please use sonography to insert an IV catheter in his right upper arm for IV fluid therapy.

Point A	Normal right cephalic vein; Right upper arm
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### Procedures - Peripheral Venous Access - Case 5

This 60-year-old male presents with weakness after missing his dialysis session.

Please use sonography to insert an IV catheter in his left upper arm (opposite his right arm AV fistula) for his evaluation.

Point A	Normal left basilic vein; Left upper arm
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### Procedures - Peripheral Venous Access - Case 6

This 16-year-old female has pyelonephritis.

Please use sonography to insert an IV catheter along the dorsum of her right hand for IV antibiotic therapy.

Point A	Normal right distal cephalic vein; Right wrist (near anatomic snuffbox)
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### Procedures - Peripheral Venous Access - Case 7

This 21-year-old female presents with a diagnosis of PID.

Please use sonography to insert an IV catheter in her right arm for IV antibiotic therapy.

Point A	Normal right basilic vein; Normal right brachial artery and paired veins; Right upper arm
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### Procedures - Peripheral Venous Access - Case 8

This 25-year-old female presents with right-sided weakness.

Please use sonography to insert an IV catheter in the antecubital region of her right arm for contrast-enhanced neuroimaging.

Point A	Normal right cephalic vein; Normal right median cubital vein; Right arm (just proximal to antecubital region)
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### Procedures - Peripheral Venous Access - Case 9

This 23-year-old male presents with suspected appendicitis.

Please use sonography to insert an IV catheter along the radial aspect of his right wrist for IV antibiotic therapy.

Point A	Normal right distal cephalic vein; Distal radius and adjacent artery; Dorsum of distal right arm
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Point B	Normal right distal cephalic vein; Dorsum of right forearm (more proximal view)
<b>Procedures - Peripheral Venous Access - Case 10</b>	
This 18-year-old male presents with vomiting and diarrhea.	
Please use sonography to insert an IV catheter in his left antecubital region for antiemetic therapy.	
Point A	Normal right brachial artery and veins; Normal right basilic vein; Right antecubital region

<b>Procedures - Subclavian Vein Access - Case 1</b>	
This 24-year-old female requires a central line.	
Please use sonography to guide placement of a central venous catheter into her right subclavian vein using an infraclavicular approach.	
Procedure Scan	Normal right subclavian vein and artery (infraclavicular approach); Normal venous valves seen in subclavian vein; Normal axillary vein; Normal color Doppler flow and pulsed-wave Doppler waveform

<b>Procedures - Subclavian Vein Access - Case 2</b>	
This 28-year-old male requires a central line.	
Please use sonography to guide placement of a central venous catheter into his right subclavian vein using an infraclavicular approach.	
Procedure Scan	Normal right subclavian vein and artery (infraclavicular approach); Normal axillary artery and vein; Normal cephalic vein; Normal color Doppler flow and pulsed-wave Doppler waveform

<b>Procedures - Subclavian Vein Access - Case 3</b>	
This 82-year-old female requires a central line.	
Please use sonography to guide placement of a central venous catheter into her right subclavian vein using a supraclavicular approach.	
Procedure Scan	Normal right subclavian vein and artery (supraclavicular approach); Normal external jugular vein; Normal color Doppler flow and pulsed-wave Doppler waveform

<b>Procedures - Subclavian Vein Access - Case 4</b>	
This 55-year-old female requires a central line.	
Please use sonography to guide placement of a central venous catheter into her right subclavian vein using an infraclavicular approach.	
Procedure Scan	Normal right subclavian vein and artery (infraclavicular approach); Normal axillary vein; Large cephalic vein; Normal color Doppler flow and pulsed-wave Doppler waveform

<b>Procedures - Subclavian Vein Access - Case 5</b>	
This 42-year-old male requires a central line.	
Please use sonography to guide placement of a central venous catheter into his left subclavian vein using an infraclavicular approach.	
Procedure Scan	Normal left subclavian vein and artery (infraclavicular approach); Normal axillary vein; Large cephalic vein; Normal color Doppler flow and pulsed-wave Doppler waveform

## Procedures - Subclavian Vein Access - Case 6

This 68-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her left subclavian vein using a supraclavicular approach.

Procedure Scan

Normal left subclavian vein and artery (supraclavicular approach); Normal innominate vein; Normal color Doppler flow and pulsed-wave Doppler waveform

## Procedures - Subclavian Vein Access - Case 7

This 39-year-old female requires a central line.

Please use sonography to guide placement of a central venous catheter into her left subclavian vein using an infraclavicular approach.

Procedure Scan

Normal left subclavian vein and artery (infraclavicular approach); Large cephalic vein; Normal color Doppler flow and pulsed-wave Doppler waveform

## Procedures - Subclavian Vein Access - Case 8

This 31-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his right subclavian vein using a supraclavicular approach.

Procedure Scan

Normal right subclavian vein and artery (supraclavicular approach); Normal innominate vein; Normal external jugular vein; Normal color Doppler flow and pulsed-wave Doppler waveform

## Procedures - Subclavian Vein Access - Case 9

This 64-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his right subclavian vein using a supraclavicular approach.

Procedure Scan

Normal right subclavian vein and artery (supraclavicular approach); Large external jugular vein; Normal color Doppler flow and pulsed-wave Doppler waveform

## Procedures - Subclavian Vein Access - Case 10

This 33-year-old male requires a central line.

Please use sonography to guide placement of a central venous catheter into his left subclavian vein using an infraclavicular approach.

Procedure Scan

Normal left subclavian vein and artery (infraclavicular approach); Large external jugular vein; Normal color Doppler flow and pulsed-wave Doppler waveform

## Protocols - eFAST - Case 1

This 61-year-old male presents with complaints of chest pain and shortness of breath following a fall from a second-story balcony.

Vitals: T=37 C BP=120/64 mmHg HR=98 bpm RR=30 bpm O2 sat=95% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Prominent prostate gland with irregular surface contour and internal calcification; Small bladder diverticulum
LUQ	Normal LUQ window; No free fluid
Subcostal	Normal cardiac window; Normal ejection fraction
Right Chest	No evidence of lung sliding; Supportive of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Right-sided pneumothorax in Right Chest window (Lack of lung sliding, rib movement only; Suggestive M-mode findings); No evidence of intraperitoneal free fluid; Clinical diagnosis of isolated right-sided pneumothorax (Patient treated with small-caliber tube thoracostomy)

## Protocols - eFAST - Case 2

This 38-year-old male presents with a single stab wound just to the left of the sternum, below the level of the left nipple. Patient complains of weakness and localized chest pain at the site of the wound.

Vitals: T=36 C BP=94/p mmHg HR=134 bpm RR=24 bpm O2 sat=92% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; Incidental right renal punctate calcifications
Suprapubic	Normal pelvic window; Prominent left-sided paravesicular iliac vasculature
LUQ	Normal LUQ window; Poorly visualized left kidney; Incidental left renal stone
Subcostal	Large pericardial fluid collection; No sonographic evidence of pericardial tamponade
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Large acute pericardial effusion in subcostal window (Moderately dilated IVC showing mild collapse with inspiration; No definitive echocardiographic evidence of pericardial tamponade); No evidence of intraperitoneal fluid; Clinical diagnosis of hemodynamically significant acute pericardial effusion secondary to penetrating trauma (Patient transported to OR for emergent thoracotomy)

## Protocols - eFAST - Case 3

This 22-year-old male presents following a gunshot wound to the right flank. Patient complains of weakness, shortness of breath, and chest pain.

Vitals: T=36 C BP=100/54 mmHg HR=100 bpm RR=20 bpm O2 sat=92% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	No evidence of lung sliding; Supportive of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax



Summary	Right-sided pneumothorax in Right Chest window (Lack of lung sliding, rib movement only; Suggestive M-mode findings; Absent sliding-lung sign with power Doppler); No evidence of intraperitoneal free fluid; Clinical diagnosis of isolated right-sided pneumothorax (Patient treated with small-caliber tube thoracostomy)
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### Protocols - eFAST - Case 4

This 64-year-old female patient presents with complaints of left flank pain following a motor vehicle accident.

Vitals: T= 36 C BP= 94/50 mmHg HR= 114 bpm RR= 18 bpm O2 sat=97% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid; Perinephric fat pad; Additional split-screen image: Abdominal CT
Suprapubic	Normal pelvic window; No free fluid; Additional split-screen image: Abdominal-pelvic CT
LUQ	Suprasplenic hematoma vs. free fluid between diaphragm and superior aspect of spleen; Left kidney not visualized; Additional split-screen image: Abdominal CT
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Suprasplenic hematoma vs. free fluid in LUQ window; Splenic injury resulting from blunt trauma (Patient managed non-operatively with blood product transfusion)

### Protocols - eFAST - Case 5

This 25-year-old male presents following a rollover motor vehicle accident. Patient has a seatbelt sign across his chest and abdomen.

Vitals: T=37 C BP=148/88 mmHg HR=76 bpm RR=20 bpm O2 sat=99% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid; Additional split-screen image: Abdominal CT
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid; Additional split-screen image: Abdominal CT
Subcostal	Normal subcostal window; Normal ejection fraction; Findings video reveals collapsible IVC and possible hypovolemia; Ultrasound window does not reveal respirophasic variation as it was obtained during breath holding
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Narrow-diameter IVC with exaggerated respirophasic collapse in Subcostal Findings video (Not seen in Subcostal ultrasound window due to image acquisition protocol involving breath holding); No definitive evidence of intraperitoneal free fluid; Clinical diagnosis of mild hypovolemia without direct evidence of intraperitoneal hemorrhage (No evidence of intraperitoneal hemorrhage on follow-up CT imaging; Patient managed with observation and crystalloid infusion)

### Protocols - eFAST - Case 6

This 6-year-old male presents following a fall off of a second-story balcony.

Vitals: T=37 C BP=110/50 mmHg HR=110 bpm RR=24 bpm O2 sat=98% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Normal pediatric eFAST examination; No evidence of intraperitoneal injury or pneumothoraces; Clinical diagnosis of multiple contusions (Patient admitted for inpatient observation and serial abdominal examinations)

### Protocols - eFAST - Case 7

This 21-year-old male presents with complaints of chest pain and shortness of breath following a gunshot wound to the left chest.

Vitals: T=36 C BP=88/p mmHg HR=124 bpm RR=32 bpm O2 sat=91% on 100% non-rebreather face mask.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid; Perinephric fat pad
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Positive lung window; Left-sided hemothorax; Anechoic fluid collection; Pathologic B-line artifacts; No evidence of pneumothorax
Summary	Anechoic fluid collection and localized evidence of alveolar-interstitial fluid in Left Chest window (Localized multiple B-line artifacts; Lung sliding noted; No evidence of pneumothorax under site of transducer); Narrow and collapsible IVC in Subcostal window (Consistent with hypovolemia); No evidence of intraperitoneal free fluid; Clinical diagnosis of isolated left-sided hemothorax with pulmonary contusion and hemorrhagic shock secondary to penetrating trauma (Patient treated with tube thoracostomy and blood product transfusion)

### Protocols - eFAST - Case 8

This 48-year-old male, with a remote history of alcohol abuse, presents with complaints of left-sided chest pain and abdominal bloating following a fall onto his left side.

Vitals: T=36 C BP=140/62 mmHg HR=84 bpm RR=18 bpm O2 sat=98% on room air.

Please perform an eFAST exam.

RUQ	Positive RUQ window; Subdiaphragmatic free fluid
Suprapubic	Positive pelvic window; Free fluid in pelvis
LUQ	Abnormal LUQ window; Anechoic region within spleen
Subcostal	Normal subcostal window; Normal ejection fraction; Pleural effusion suggested; No pericardial effusion

Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Anechoic free fluid in RUQ and Suprapubic windows; Clinical diagnosis of moderate volume acute intraperitoneal hemorrhage; Splenic laceration identified resulting from blunt trauma; Suggestive of hemothorax (Patient managed non-operatively with blood product transfusion)

### Protocols - eFAST - Case 9

This 19-year-old female, with a history of idiopathic renal failure, presents with abdominal guarding following a motor vehicle accident. Patient complains of diffuse abdominal pain.

Vitals: T=37 C BP=90/p mmHg HR=99 bpm RR=22 bpm O2 sat=96% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid; Atretic right kidney
Suprapubic	Positive pelvic window; Free fluid visible; Inflated Foley catheter within a decompressed bladder
LUQ	Positive LUQ window; Free fluid within suprasplenic and splenorenal spaces; Left-sided pleural effusion; Atretic left kidney
Subcostal	Normal subcostal window; Normal ejection fraction; Mildly-narrowed IVC luminal diameter
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Bilateral atretic kidneys in LUQ and RUQ windows consistent with chronic renal insufficiency; Anechoic free fluid in Suprapubic and LUQ windows; Mild narrowing of IVC in Subcostal window; Clinical diagnosis of acute intraperitoneal hemorrhage secondary to blunt trauma (Patient underwent emergent exploratory laparotomy due to diffuse tenderness, hypotension, and intraperitoneal fluid collection following acute blunt traumatic injury)

### Protocols - eFAST - Case 10

This 51-year-old homeless and intoxicated male presents following an assault by multiple assailants. Patient complains of diffuse abdominal pain, chest pain, and dyspnea.

Vitals: T=37 C BP=96/44 mmHg HR=110 bpm RR=22 bpm O2 sat=96% on room air.

Please perform an eFAST exam.

RUQ	Positive RUQ window; Large amount of anechoic free fluid
Suprapubic	Positive pelvic window; Anechoic free fluid surrounding bladder
LUQ	Positive LUQ window; Small amount of anechoic free fluid; Splenomegaly
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Markedly positive eFAST examination (Evidence of large-volume intraperitoneal fluid collection with anechoic free fluid noted in RUQ, Suprapubic, and LUQ windows); Splenomegaly in LUQ window; Thickened gallbladder wall; Small-sized liver with irregular margins and coarse echotexture suggestive of liver cirrhosis; Patient admitted to monitored inpatient bed and ultimately received a clinical diagnosis of end-stage liver disease and ascites (Based on suggestive sonographic features, CT imaging with Hounsfield unit analysis suggestive of ascites)

rather than blood, stable serial hemoglobin values, and normalization of vital signs during inpatient course)

### Protocols - FAST - Case 1

This 24-year-old female presents following a motor vehicle accident. The patient was a restrained driver involved in a single-car rollover, complaining of left flank pain.

Vitals: T=37C BP=120/84 mmHg HR=73 bpm RR=18 bpm O2 sat=98% on room air.

Please perform a FAST scan.

RUQ	Normal RUQ (Morison's pouch)
Pelvic	Normal bladder; Female
LUQ	Normal LUQ (splenorenal view)
Cardiac	Normal heart (subcostal view)

### Protocols - FAST - Case 2

This 15-year-old female presents following an automobile-versus-bicycle accident. The patient was struck along the right side of her body while riding her bicycle and is complaining of right-sided abdominopelvic pain.

Vitals: T=37C BP=100/40 mmHg HR=84 bpm RR=20 bpm.

Please perform a FAST scan.

RUQ	Moderate free fluid in RUQ (Morison's pouch); Hemoperitoneum
Pelvic	Moderate free fluid in pelvis (hemoperitoneum); Normal bladder
LUQ	Normal LUQ (splenorenal view)
Cardiac	Normal heart (subcostal view)

### Protocols - FAST - Case 3

This 38-year-old male presents following a gunshot wound to the upper abdomen. The patient reports moderate-grade, diffuse abdominal discomfort.

Vitals: T=37C BP=100/p HR=64 bpm RR=18 bpm O2 sat=98% on room air.

Please perform a FAST scan.

RUQ	Normal RUQ (Morison's pouch)
Pelvic	Normal bladder; Male
LUQ	Free fluid in splenorenal interface (subtle finding)
Cardiac	Normal heart (subcostal view)

### Protocols - FAST - Case 4

This 44-year-old female presents with marked hypotension and altered mental status following a motorcycle accident. The patient is unable to provide an accurate history due to depressed mentation.

Vitals: T=36C BP=70/p HR=140 bpm RR=14 bpm O2 sat=100% on room air.

Please perform a FAST scan.

RUQ	Abnormal RUQ (Morison's pouch); Hemoperitoneum
Pelvic	Moderate free fluid in pelvis (hemoperitoneum); Normal bladder; Female
LUQ	Abnormal LUQ; Subdiaphragmatic fluid (moderate)
Cardiac	Normal heart; Marked tachycardia (subcostal view)

### Protocols - FAST - Case 5

This 53-year-old male presents complaining of multiple stab wounds to the upper abdomen. Patient reports diffuse abdominal pain.

Vitals: T=36C BP=90/p HR=122 bpm RR=22 bpm O2 sat=94% on room air.

Please perform a FAST scan.

RUQ	Abnormal RUQ (Morison's pouch); Hemoperitoneum
Pelvic	Bladder not visualized; Free fluid in pelvis mimicking normal bladder
LUQ	Abnormal LUQ; Splenorenal interface free fluid; Hemoperitoneum
Cardiac	Normal heart; Moderate tachycardia (subcostal view)

### Protocols - FAST - Case 6

This 22-year-old female presents complaining of lower abdominal pain following a motor vehicle accident. The patient was a rear-seat passenger, wearing a lap belt only, and is complaining of lower abdominal pain.

Vitals: T=37C BP=140/90 mmHg HR=120 bpm RR=18 bpm.

Please perform a FAST scan.

RUQ	Normal RUQ (Morison's pouch); Normal IVC
Pelvic	Abnormal pelvic view; Free fluid in pelvis (marked); Normal bowel wall
LUQ	Normal LUQ (splenorenal view)
Cardiac	Normal heart; Moderate tachycardia (subcostal view)

### Protocols - FAST - Case 7

This 41-year-old male with end-stage liver disease presents following a fall off a 10-foot ladder. The patient has a fever but denies abdominal discomfort.

Vitals: T=39C BP=92/44 mmHg HR=68 bpm RR=18 bpm O2 sat=95% on room air.

Please perform a FAST scan.

RUQ	Abnormal RUQ (Morison's pouch); Hemoperitoneum
Pelvic	Abnormal pelvic view (marked free fluid); Male; Normal bowel wall
LUQ	Abnormal LUQ; Free fluid in LUQ; Normal stomach visualized
Cardiac	Normal heart (subcostal view)

### Protocols - FAST - Case 8

This 20-year-old female with a 16-week IUP and a history of splenomegaly presents following an assault by multiple assailants. The patient was struck and kicked repeatedly along her abdomen and chest and complains of abdominal pain.

Vitals: T=37C BP=130/83 mmHg HR=70 bpm RR=22 bpm.

Please perform a FAST scan.

RUQ	Normal RUQ (Morison's pouch); Normal inferior vena cava
Pelvic	Compressed bladder (due to gravid uterus); Female; 16-week IUP with no free fluid in the pelvis
LUQ	Splenomegaly; Positive free fluid in LUQ
Cardiac	Normal heart (subcostal view)

### Protocols - FAST - Case 9

This 2-year-old female was restrained with a lap belt only and involved in a motor vehicle accident.

Vitals: T=36C BP=94/p HR=99 bpm RR=24 bpm O2 sat=96% on room air.

Please perform a FAST scan.

RUQ	Normal RUQ (Morison's pouch); Pediatric patient (2-year-old)
Pelvic	Normal bladder; Pediatric patient (2-year-old)
LUQ	Normal LUQ (splenorenal view); Pediatric patient (2-year-old)
Cardiac	Normal heart (subcostal view)

### Protocols - FAST - Case 10

This 64-year-old female presents with hypotension following a motor vehicle collision.

Vitals: T=37C BP=87/p HR=57 bpm RR=26 bpm O2 sat=95% on room air.

Please perform a FAST scan.

RUQ	Moderate fluid in subdiaphragmatic space; Hemothorax
Pelvic	Marked free fluid in the pelvis; Hemoperitoneum
LUQ	Moderate fluid in subdiaphragmatic and splenorenal space; Possible left-sided hemothorax
Cardiac	Normal heart (subcostal view)

### Protocols - RUSH - Case 1

This 65-year-old male presents with acute-onset abdominal and back pain. Patient's abdomen is tense and distended.

Vitals: T=36 C BP=60/p mmHg HR=94 bpm RR=15 bpm.

Please perform the RUSH protocol scan.

RUQ	Positive RUQ window; Anechoic free fluid
Suprapubic	Positive pelvic window; Moderately distended bladder; Marked free fluid in the pelvis
LUQ	Positive LUQ window; Anechoic free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg

Mid-Aorta	Abdominal aortic aneurysm (10 cm) with mural thrombus; Highly reflective linear echo with mural thrombus suggestive of GORE-TEX® graft
Parasternal	Normal LV ejection fraction; Mild left-ventricular hypertrophy; No evidence of right heart strain
Apical	Normal LV ejection fraction; No evidence of right heart strain
Subcostal	Normal LV ejection fraction; Normal chamber sizes; No evidence of right heart strain
Right Chest	Normal lung sliding and comet-tail artifact; No pneumothorax
Left Chest	Normal lung sliding and comet-tail artifact; No pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral vein; No evidence of deep venous thrombosis
Summary	Diffuse, large-volume, anechoic fluid collections in RUQ, Suprapubic, and LUQ windows; Abdominal aortic aneurysm (10 cm) with mural thrombus and highly reflective linear echo suggestive of GORE-TEX® graft; Clinical diagnosis of ruptured abdominal aortic aneurysm with intraperitoneal extravasation (Patient treated with blood product transfusion and emergent operative intervention)

## Protocols - RUSH - Case 2

This 40-year-old female, with a history of metastatic carcinoma, presents with fever, weakness, and dyspnea.

Vitals: T=39 C BP=70/p mmHg HR=76 bpm RR=28 bpm O2 sat=93% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with less than 50% collapse; Right atrial pressure 5 to 10 mmHg
Mid-Aorta	Normal aorta; Plethoric distal IVC
Parasternal	Pericardial effusion (moderate-size); No evidence of cardiac tamponade
Apical	Pericardial effusion; Mild heart swinging; No definitive evidence of cardiac tamponade
Subcostal	Pericardial effusion (moderate-size); No evidence of cardiac tamponade
Right Chest	Normal lung sliding; No pneumothorax
Left Chest	Normal lung sliding; No pneumothorax; Focal comet-tail artifacts
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Moderate-sized IVC with mild respirophasic collapse in Proximal IVC window; Moderate-to-large-sized pericardial effusion; No definitive echocardiographic evidence of tamponade (dilated IVC, equivocal swinging heart sign, no right ventricular end-diastolic collapse or paradoxical wall motion); Localized B-lines in left lung (Focal lung consolidation); No evidence of free fluid within intraperitoneal cavity; Clinical diagnosis of septic shock due to left-sided pneumonia complicated by a symptomatic moderate-to-large-sized pericardial effusion (Patient treated with broad-spectrum intravenous antibiotics, crystalloid fluid resuscitation, and vasopressors and admitted to the ICU)

## Protocols - RUSH - Case 3

This 44-year-old female in her first trimester of pregnancy, with a pre-existing cardiomyopathy and cardiac pacemaker, presents with acute-onset shortness of breath.

Vitals: T=38 C BP=85/51 mmHg HR=95 bpm RR=32 bpm O2 sat=92% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Live first-trimester intrauterine pregnancy; No pelvic free fluid
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter greater than 2.1 cm with less than 50% collapse; Right atrial pressure 15 to 20 mmHg
Mid-Aorta	Normal aorta
Parasternal	Moderately depressed LV ejection fraction; Dilated right ventricle with decreased contractility
Apical	Moderately depressed LV ejection fraction; Dilated right ventricle with decreased contractility; Pacemaker wire in right atrium and ventricle
Subcostal	Moderately depressed LV ejection fraction; Pacemaker wire in right atrium and ventricle
Right Chest	Multiple B-lines; Alveolar interstitial syndrome
Left Chest	Occasional B-line (clinically diagnosed with cardiogenic pulmonary edema)
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis; Inguinal lymph node
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Normal first-trimester IUP; Dilated IVC (consistent with elevated right heart pressures or fluid overload state); Moderately depressed left-ventricular ejection fraction with cardiac pacemaker within RA and RV; Asymmetric B-lines (Right lung greater than left lung); No evidence of free fluid within intraperitoneal cavity; Clinical diagnosis of multifactorial hypotension due to decompensated non-ischemic cardiomyopathy, complicated by right-sided pneumonia and sepsis syndrome (Patient treated with broad-spectrum intravenous antibiotics, inotropic, and vasopressor support)

## Protocols - RUSH - Case 4

This 38-year-old male presents with altered mental status following a motorcycle accident.

Vitals: T=37 C BP=70/p mmHg HR=110 bpm RR=28 bpm O2 sat=92% on room air.

Please perform the RUSH protocol scan.

RUQ	Positive RUQ window; Marked free anechoic fluid
Suprapubic	Positive pelvic window; Marked anechoic free fluid in pelvis
LUQ	Positive LUQ window; Anechoic fluid in subdiaphragmatic space
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Distally collapsed IVC consistent with hypovolemia
Parasternal	Normal cardiac function; Tachycardic; No pericardial effusion



Apical	Normal cardiac function; Tachycardic; No pericardial effusion
Subcostal	Normal cardiac function; Tachycardic; No pericardial effusion; Proximal IVC imaged in held expiration minimizing respirophasic variation
Right Chest	Multiple B-lines; Alveolar interstitial syndrome; Trace pleural fluid; No pneumothorax
Left Chest	Lung pulse noted; No lung point seen; No lung sliding or comet-tail artifact, finding suggestive of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Large-volume anechoic free fluid in RUQ, Suprapubic, and LUQ windows; Narrow-diameter IVC; Multiple B-lines and trace anechoic pleural fluid accumulation in right lung; No lung sliding in left lung suggestive of pneumothorax; Clinical diagnosis of large-volume hemoperitoneum and hemorrhagic shock, complicated by a right-sided pulmonary contusion, possible hemothorax, and a left-sided pneumothorax (Patient managed with endotracheal intubation, massive blood product transfusion protocol, left-sided tube thoracostomy, and emergent exploratory laparotomy)

### Protocols - RUSH - Case 5

This 22-year-old female with Hodgkin's lymphoma, on chemotherapy, presents with lethargy and fever.

Vitals: T=40 C BP=84/p HR=74 bpm RR=32 bpm.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Echogenic debris along inferior bladder wall
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Collapsed distal IVC
Parasternal	Normal heart with hyperdynamic contractility; Normal ejection fraction; No pericardial effusion
Apical	Normal heart with hyperdynamic contractility; Normal ejection fraction; No pericardial effusion
Subcostal	Normal heart with hyperdynamic contractility; Normal ejection fraction; No pericardial effusion
Right Chest	Multiple groupings of B-lines suggestive of increased fluid content; No pneumothorax
Left Chest	Normal lung sliding; A-line; Several B-lines; No pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Narrow-diameter IVC; Exaggerated asymmetric B-lines (Right lung greater than left lung); Normal cardiac function with hyperdynamic contractility; No evidence of anechoic free fluid within abdominal cavity; Clinical diagnosis of sepsis syndrome and alveolar interstitial syndrome with right-lung pneumonia (Patient treated with supplemental oxygen, broad-spectrum intravenous antibiotics, crystalloid fluid resuscitation, vasopressor support, and ICU admission)

### Protocols - RUSH - Case 6

This 39-year-old male presents following a motorcycle accident. He was found alongside a roadway 16 hours after the accident, on a cold winter day.

Vitals: T=30 C BP=84/54 mmHg HR=48 bpm RR=20 bpm O2 sat=98% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid; Additional split-screen image: Abdominal CT
Suprapubic	Normal pelvic window; No free fluid; Decompressed bladder with indwelling Foley catheter
LUQ	Normal LUQ window; No free fluid; Additional split-screen image: Abdominal CT
Proximal IVC	IVC diameter less than or equal to 2.1 cm with less than 50% collapse; Right atrial pressure 5 to 10 mmHg
Mid-Aorta	Normal aorta; Normal caliber mid-IVC segment
Parasternal	No pericardial effusion; Mildly reduced ejection fraction
Apical	No pericardial effusion; Mildly reduced ejection fraction; Normal chamber sizes
Subcostal	No pericardial effusion; Mildly reduced ejection fraction; Normal chamber sizes
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Moderate-sized IVC with mild respirophasic collapse in Subcostal window; Mildly reduced LV ejection fraction in all cardiac windows; No evidence of intraperitoneal fluid or acute pneumothoraces; Clinical diagnosis of moderate hypothermia with secondary hypotension due to decreased myocardial contractility, cold diuresis, and peripheral vasoconstriction (Patient treated with active core rewarming, crystalloid fluid infusion, and passive external rewarming with ICU admission)

## Protocols - RUSH - Case 7

This 11-year-old male presents with vomiting and diarrhea for two days and progressive weakness.

Vitals: T=38.3 C BP=90/52 mmHg HR=130 bpm RR=20 bpm O2 sat=98% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Small bowel containing liquid contents posterior to bladder
LUQ	No free fluid in splenorenal window; Mild splenomegaly
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Flattened distal IVC
Parasternal	No pericardial effusion; Hyperdynamic heart with normal ejection fraction; Normal chamber sizes
Apical	No pericardial effusion; Hyperdynamic heart with normal ejection fraction; Normal chamber sizes
Subcostal	No pericardial effusion; Normal ejection fraction; Normal chamber sizes
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax

Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	IVC mildly narrowed in diameter with mild respirophasic collapse in Proximal IVC and Mid-Aorta windows; No evidence of intraperitoneal fluid or acute pneumothoraces; Clinical diagnosis of acute febrile illness with moderate hypovolemia due to insensible fluid loss (Patient treated in the ED with antipyretics and intravascular volume repletion with crystalloid solutions over a course of eight hours, with normalization of vital signs)

### Protocols - RUSH - Case 8

This 63-year-old male presents with dyspnea, hypotension, and seven days of bilateral lower-extremity swelling.

Vitals: T=39 C BP=84/54 mmHg HR=110 bpm RR=22 bpm O2 sat=93% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid; Additional split-screen image: Abdominal CT
Suprapubic	Abnormal pelvic window; No free fluid; Decompressed bladder with indwelling Foley catheter and adjacent echogenic mass (organized thrombus vs. solid tumor); Additional split-screen image: Abdominal-pelvic CT
LUQ	Normal LUQ window; No free fluid; Additional split-screen image: Abdominal CT
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta
Parasternal	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Apical	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Subcostal	Limited image window quality; Normal LV ejection fraction and chamber sizes
Right Chest	Normal lung sliding; B-lines; No evidence of pneumothorax
Left Chest	Normal lung sliding; B-lines; No evidence of pneumothorax
Right Groin	Right femoral vein DVT; Non-compressible femoral vein; Venous flow absent with color Doppler
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Summary	Echogenic mass in bladder (organized thrombus vs. solid tumor) noted in Suprapubic window; Evidence of right femoral vein DVT in Right Groin window; Borderline increased B-lines symmetrically in both lung windows; No evidence of intraperitoneal fluid or acute pneumothoraces; Normal cardiac function (without any evidence of right heart strain); Normal-diameter IVC; Clinical diagnosis of septic shock (Abnormal urinalysis suggestive of urosepsis complicated by bladder mass and right femoral vein DVT; No evidence of right heart strain, but pulmonary embolism not excluded; Increased B-lines bilaterally correlate with elevated BNP and attribute to mild-to-moderate non-cardiogenic pulmonary edema due to sepsis; Patient treated with broad-spectrum intravenous antibiotics, vasopressors, supplemental oxygen, and ICU admission, with presumptive diagnosis of septic shock; Fluid resuscitation performed in a graduated manner due to pulmonary edema, with greater emphasis placed on vasopressor support.

### Protocols - RUSH - Case 9

This 57-year-old male, with a history of end-stage liver disease, presents with two days of progressive, diffuse abdominal pain and new-onset hypotension.

Vitals: T=38 C BP=84/40 mmHg HR=120 bpm RR=24 bpm O2 sat=94% on room air.

Please perform the RUSH protocol scan.

RUQ	Positive RUQ window; Large amount of anechoic free fluid; Small-sized liver with irregular margins and coarse echotexture
Suprapubic	Positive pelvic window; Multiple areas of anechoic free fluid surrounding bladder
LUQ	Positive LUQ window; Moderate anechoic free fluid surrounding spleen
Proximal IVC	IVC poorly visualized; Unable to make clinical inference due to poor image quality
Mid-Aorta	Normal aorta; Flattened IVC with respirophasic collapse
Parasternal	Normal LV ejection fraction; Mild left-ventricular hypertrophy; No pericardial effusion
Apical	Normal LV ejection fraction; Normal chamber sizes; No pericardial effusion
Subcostal	Normal LV ejection fraction; No pericardial effusion
Right Chest	Normal lung sliding; No evidence of pneumothorax; A-line; Positive B-line; Clinical diagnosis of interstitial edema due to anasarca
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral vein; No evidence of deep venous thrombosis
Summary	Evidence of large-volume intraperitoneal fluid collection with anechoic free fluid noted in RUQ, Suprapubic, and LUQ windows; Flattened IVC with respirophasic collapse in Mid-Aorta window; Small-sized liver with irregular margins and coarse echotexture suggestive of liver cirrhosis; Patient admitted to ICU and ultimately received a clinical diagnosis of end-stage liver disease complicated by subacute bacterial peritonitis and septic shock (Patient successfully treated with broad-spectrum intravenous antibiotics and vasopressors)

## Protocols - RUSH - Case 10

This 31-year-old male with a history of severe autism and developmental delay presents with agitation, vomiting, and hypotension.

Vitals: T=38 C BP=84/40 mmHg HR=102 bpm RR=22 bpm O2 sat=98% on room air.

Please perform the RUSH protocol scan.

RUQ	Gallbladder wall thickening; Biliary sludge; Possible anechoic fluid collection surrounding gallbladder
Suprapubic	Normal pelvic window; No free fluid; Prominent prostate gland
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Collapsed distal IVC
Parasternal	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Apical	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Subcostal	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain

Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Left Groin	Normal femoral vein study; No evidence of deep venous thrombosis
Summary	Evidence of gallbladder wall thickening with biliary sludge; Possible anechoic fluid collection surrounding gallbladder consistent with sonographic evidence of acute cholecystitis; Tachycardic heart with normal wall motion; Evidence of diminished RAP based upon IVC diameter measuring less than or equal to 2.1 cm and greater than 50% respirophasic collapse; No evidence of free fluid or alternative acute pathologic conditions; Clinical diagnosis of biliary sepsis secondary to acute cholecystitis (Patient treated with empiric antibiotics and early goal-directed therapy, and surgical consultation was obtained for source control of infection (i.e., acute cholecystectomy))

### Pulmonary - Basic Lungs - Case 1

This 38-year-old male is a model of normal anatomy.

Please use sonography to examine his lungs.

Point A	Normal right lung; Optimal superior view
Point B	Normal right lung; Optimal inferior view
Point C	Normal left lung; Optimal superior view
Point D	Normal left lung; Optimal inferior view

### Pulmonary - Basic Lungs - Case 2

This 26-year-old male is a model of normal anatomy.

Please use sonography to examine his lungs.

Point A	Normal right lung; Optimal superior view
Point B	Normal right lung; Optimal inferior view
Point C	Normal left lung; Optimal superior view
Point D	Normal left lung; Optimal inferior view

### Pulmonary - Basic Lungs - Case 3

This 5-year-old female is a model of normal anatomy.

Please use sonography to examine her lungs.

Point A	Normal right lung; Optimal lateral view
Point B	Normal left lung; Optimal lateral view
Point C	Normal right lung; Optimal anterior view
Point D	Normal left lung; Optimal anterior view

### Pulmonary - Core Pulmonary - Case 1

This 16-year-old male presents following a fall complaining of pleuritic right-sided chest pain and shortness of breath.

Please use sonography to assess his chest for a pneumothorax.

Point A	Right anterior chest; Normal pleural sliding; Non-pathologic B-lines
Point B	Left anterior chest; Normal pleural sliding; Non-pathologic B-lines

### Pulmonary - Core Pulmonary - Case 2

This 80-year-old male with advanced dementia and lymphoma presents with shortness of breath.

Please use sonography to examine his lungs.

Point A	Right lung; Right anterior chest; Pleural sliding; Multiple densely-spaced pathologic B-lines; Thickened pleural interface
Point B	Left anterior chest; Pleural sliding with several B-lines; Thickened, irregular pleural lining

### Pulmonary - Core Pulmonary - Case 3

This 93-year-old female with a history of ovarian adenocarcinoma presents with progressive shortness of breath over the past week.

Please use sonography to examine her lungs.

Point A	Right midaxillary; Marked right-sided pleural effusion (likely exudative); Ascites; Micronodular liver with increased echotexture
Point B	Right anterior chest; Pleural sliding; Several B-lines; Trace pleural effusion
Point C	Left anterior chest; Pleural sliding; Multiple pathologic B-lines

### Pulmonary - Core Pulmonary - Case 4

This 5-year-old female with history of severe reactive airway disease presents with tachypnea and wheezing.

Please assess her lungs with sonography.

Point A	Right anterior chest; Scattered pathologic B-lines; Pleural sliding
Point B	Left anterior chest; Scattered pathologic B-lines; Pleural sliding

### Pulmonary - Core Pulmonary - Case 5

This 26-year-old male with history of Marfan's syndrome presents with right-sided chest pain.

Please use sonography to examine his right anterior chest.

Point A	Right anterior chest; No pleural sliding; No lung pulse; Clinical diagnosis of pneumothorax
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### Pulmonary - Core Pulmonary - Case 6

This 51-year-old male with history of thyroid cancer presents with shortness of breath, cough, and dyspnea.

Please use sonography to examine his lungs.

Point A	Right lung; Right anterior chest; Pleural sliding; Multiple pathologic B-lines; Lung consolidation; Focal pleural defect with underlying alveolar interstitial edema
Point B	Right lung; Right anterior chest; Pleural sliding; Multiple pathologic B-lines; Lung consolidation

Point C	Right lung; Right midaxillary; Pleural effusion; Lung consolidation
Point D	Left lung; Left anterior chest; Pleural sliding; Multiple pathologic B-lines; Alveolar interstitial edema
Point E	Left lung; Left midaxillary; Pleural effusion; Lung consolidation; Multiple lung adhesions

### Pulmonary - Core Pulmonary - Case 7

This 73-year-old female presents with shortness of breath and chest pain.

Please examine her chest with sonography for pathology.

Point A	Large right-sided pleural effusion; Ascites
Point B	Normal left chest and spleen; Trace pleural effusion (anechoic fluid collection seen along costophrenic angle)

### Pulmonary - Core Pulmonary - Case 8

This 87-year-old female with a history of congestive heart failure and recurrent pleural effusions presents with shortness of breath following a left-sided thoracentesis.

Please examine her chest with sonography for pathology.

Point A	Right lung; Right anterior chest (parasternal view); Multiple pathologic B-lines
Point B	Left lung; Left anterior chest (midclavicular view); Multiple pathologic B-lines
Point C	Left lung; Left posterior chest (midaxillary view); Multiple pathologic B-lines (maximal density)

### Pulmonary - Core Pulmonary - Case 9

This 6-year-old female presents with rhinorrhea, cough, and pleuritic chest pain.

Please examine her lungs with sonography.

Point A	Right lung; Right anterior chest (midclavicular view); Normal; Occasional B-line
Point B	Left lung; Left anterior chest (midclavicular view); Normal; Occasional B-line; Lung pulse evident in Findings video

### Pulmonary - Core Pulmonary - Case 10

This 60-year-old female with history of lymphoma presents with progressive shortness of breath.

Please use sonography to examine her chest.

Point A	Right apical lung; Right anterior chest (parasternal view); Multiple pathologic B-lines
Point B	Right apical lung; Right anterior chest (midclavicular view); Multiple pathologic B-lines
Point C	Right lower lung; Right lateral chest (anterior axillary view); Multiple pathologic B-lines
Point D	Right lower lung; Right posterior chest (posterior axillary view); Multiple pathologic B-lines; Pleural effusion
Point E	Left apical lung; Left anterior chest (parasternal view); Multiple pathologic B-lines
Point F	Left apical lung; Left anterior chest (midclavicular view); Multiple pathologic B-lines

### Vascular - Basic Aorta/IVC - Case 1

This 40-year-old female is a model of normal anatomy.

Please use sonography to examine her abdominal aorta and IVC.

Point A	Normal aorta and IVC; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal aorta and IVC; Right lateral view; Additional split-screen image: Abdominal CT
Point C	Normal aorta and IVC; Inferior view; Additional split-screen image: Abdominal CT

### Vascular - Basic Aorta/IVC - Case 2

This 30-year-old female is a model of normal anatomy.

Please use sonography to examine her abdominal aorta and IVC.

Point A	Normal aorta and IVC; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal aorta and IVC; Left lateral view; Additional split-screen image: Abdominal CT
Point C	Normal aorta and IVC; Inferior view; Additional split-screen image: Abdominal CT

### Vascular - Basic Aorta/IVC - Case 3

This 21-year-old female is a model of normal anatomy.

Please use sonography to examine her abdominal aorta and IVC.

Point A	Normal aorta and IVC; Optimal view; Additional split-screen image: Abdominal CT
Point B	Normal aorta and IVC; Optimal view; Additional split-screen image: Abdominal CT
Point C	Normal aorta and IVC; Inferior view; Additional split-screen image: Abdominal CT

### Vascular - Basic Arm-Arterial - Case 1

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the arteries of his right arm.

Point A	Normal right axillary artery; Optimal view
Point B	Normal right brachial artery; Optimal view
Point C	Normal right radial artery (forearm); Optimal view
Point D	Normal right radial artery (wrist); Optimal view

### Vascular - Basic Arm-Arterial - Case 2

This 21-year-old female is a model of normal anatomy.

Please use sonography to examine the arteries of her left arm.

Point A	Normal left axillary artery; Optimal view
Point B	Normal left brachial artery; Optimal view
Point C	Normal left radial artery (forearm); Optimal view



Point D	Normal left radial artery (wrist); Optimal view
<b>Vascular - Basic Arm-Arterial - Case 3</b>	
This 21-year-old female is a model of normal anatomy.	
Please use sonography to examine the arteries of her right arm.	
Point A	Normal right axillary artery; Optimal view
Point B	Normal right brachial artery; Optimal view
Point C	Normal right radial artery (forearm); Optimal view
Point D	Normal right radial artery (wrist); Optimal view

<b>Vascular - Basic Arm-Venous - Case 1</b>	
This 24-year-old male is a model of normal anatomy.	
Please use sonography to examine the veins of his right arm.	
Point A	Normal right axillary vein; Optimal view
Point B	Normal right basilic vein; Optimal view
Point C	Normal right brachial vein; Optimal view
Point D	Normal right radial vein (forearm); Optimal view
Point E	Normal right radial vein (wrist); Optimal view

<b>Vascular - Basic Arm-Venous - Case 2</b>	
This 21-year-old female is a model of normal anatomy.	
Please use sonography to examine the veins of her left arm.	
Point A	Normal left axillary vein; Optimal view
Point B	Normal left basilic vein; Optimal view
Point C	Normal left brachial vein; Optimal view
Point D	Normal left radial vein (forearm); Optimal view
Point E	Normal left radial vein (wrist); Optimal view

<b>Vascular - Basic Arm-Venous - Case 3</b>	
This 21-year-old female is a model of normal anatomy.	
Please use sonography to examine the veins of her right arm.	
Point A	Normal right axillary vein; Optimal view
Point B	Normal right basilic vein; Optimal view
Point C	Normal right brachial vein; Optimal view
Point D	Normal right radial vein (forearm); Optimal view

Point E	Normal right radial vein (wrist); Optimal view
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### Vascular - Basic Cerebrovascular - Case 1

This 26-year-old female is a model of normal anatomy.

Please use sonography to examine her right carotid artery and internal jugular vein.

Point A	Normal right internal jugular vein and carotid artery; Optimal view; Additional split-screen image: Cerebrovascular MRA
Point B	Normal right internal jugular vein and carotid artery; Inferior view; Additional split-screen image: Cerebrovascular MRA

### Vascular - Basic Cerebrovascular - Case 2

This 23-year-old female is a model of normal anatomy.

Please use sonography to examine her left carotid artery and internal jugular vein.

Point A	Normal left internal jugular vein and carotid artery; Optimal view; Additional split-screen image: Cerebrovascular MRA
Point B	Normal left internal jugular vein and carotid artery; Superior view; Additional split-screen image: Cerebrovascular MRA

### Vascular - Basic Cerebrovascular - Case 3

This 27-year-old male is a model of normal anatomy.

Please use sonography to examine his bilateral carotid arteries and internal jugular veins.

Point A	Normal right internal jugular vein and carotid artery; Optimal mid view; Additional split-screen image: Cerebrovascular MRA
Point B	Normal right internal jugular vein and carotid artery; Optimal inferior view; Additional split-screen image: Cerebrovascular MRA
Point C	Normal left internal jugular vein and carotid artery; Optimal mid view; Additional split-screen image: Cerebrovascular MRA
Point D	Normal left internal jugular vein and carotid artery; Optimal inferior view; Additional split-screen image: Cerebrovascular MRA

### Vascular - Basic Leg-Arterial - Case 1

This 29-year-old male is a model of normal anatomy.

Please use sonography to examine the arteries leading to his right lower extremity.

Point A	Normal distal aorta and common iliac arteries; Optimal view
Point B	Normal right common femoral artery; Optimal view
Point C	Normal right femoral artery; Optimal view
Point D	Normal right popliteal artery; Optimal view

Point E	Normal right posterior tibial artery; Optimal view
Point F	Normal right dorsalis pedis artery; Optimal view

### Vascular - Basic Leg-Arterial - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the arteries leading to his left lower extremity.

Point A	Normal distal aorta and left common iliac artery; Optimal view
Point B	Normal left common femoral artery; Optimal view
Point C	Normal left femoral artery; Optimal view
Point D	Normal left popliteal artery; Optimal view
Point E	Normal left posterior tibial artery; Optimal view
Point F	Normal left dorsalis pedis artery; Optimal view

### Vascular - Basic Leg-Arterial - Case 3

This 8-year-old female is a model of normal anatomy.

Please use sonography to examine the arteries leading to her right lower extremity.

Point A	Normal distal aorta and right common iliac artery; Optimal view
Point B	Normal right common femoral artery; Optimal view
Point C	Normal right femoral artery; Optimal view
Point D	Normal right popliteal artery; Optimal view
Point E	Normal right posterior tibial artery; Optimal view
Point F	Normal right dorsalis pedis artery; Optimal view

### Vascular - Basic Leg-Venous - Case 1

This 29-year-old male is a model of normal anatomy.

Please use sonography to examine the veins leading to his right lower extremity.

Point A	Normal IVC and right common iliac vein; Optimal view
Point B	Normal right common femoral vein; Optimal view
Point C	Normal right femoral vein; Optimal view
Point D	Normal right popliteal vein; Optimal view
Point E	Normal right posterior tibial vein; Optimal view
Point F	Normal right anterior tibial vein; Optimal view

### Vascular - Basic Leg-Venous - Case 2

This 24-year-old male is a model of normal anatomy.

Please use sonography to examine the veins leading to his left lower extremity.

Point A	Normal IVC and left common iliac vein; Optimal view
Point B	Normal left common femoral vein; Optimal view
Point C	Normal left femoral vein; Optimal view
Point D	Normal left popliteal vein; Optimal view
Point E	Normal left posterior tibial vein; Optimal view
Point F	Normal left anterior tibial vein; Optimal view

### Vascular - Basic Leg-Venous - Case 3

This 8-year-old female is a model of normal anatomy.

Please use sonography to examine the veins leading to her right lower extremity.

Point A	Normal IVC and right common iliac vein; Optimal view
Point B	Normal right common femoral vein; Optimal view
Point C	Normal right femoral vein; Optimal view
Point D	Normal right popliteal vein; Optimal view
Point E	Normal right posterior tibial vein; Optimal view
Point F	Normal right anterior tibial veins; Optimal view

### Vascular - Core Aorta/IVC - Case 1

This 26-year-old college student presents with near syncope and abrupt-onset generalized weakness.

Please use sonography to assess his intravascular volume by imaging his IVC.

Point A	Normal IVC; IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
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### Vascular - Core Aorta/IVC - Case 2

This 2-year-old female presents with tonic-clonic seizure activity and poor peripheral perfusion.

Please use sonography to assess her intravascular volume by examining her abdominal aorta and IVC.

Point A	Normal aorta and IVC; Pediatric patient (2-year-old)
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### Vascular - Core Aorta/IVC - Case 3

This 25 year-old-female presents with nausea and vomiting.

Please use sonography to assess her intravascular volume by examining her IVC.

Point A	Normal abdominal aorta; IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Clinical diagnosis of dehydration
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### Vascular - Core Aorta/IVC - Case 4

This 9-year-old female with a history of insulin-dependent diabetes mellitus presents with weakness and anorexia.

Please use sonography to evaluate her intravascular status.

Point A	Normal caliber IVC
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### Vascular - Core Aorta/IVC - Case 5

This 23-year-old male is a model of normal anatomy.

Please use sonography to identify the abdominal aorta's major branches and to examine anatomic relationships between the aorta and IVC.

Point A	Normal aorta (upper abdomen); Celiac (trunk) and superior mesenteric artery
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Point B	Normal aorta (mid-abdomen)
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### Vascular - Core Aorta/IVC - Case 6

This 65-year-old male presents with abdominal pain radiating to his left flank. His vital signs are normal.

Please use sonography to assess his abdominal aorta.

Point A	Aortic aneurysm (8 x 10 cm diameter)
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### Vascular - Core Aorta/IVC - Case 7

This 55-year-old male with a history of CHF presents with shortness of breath and orthopnea.

Please use sonography to examine his IVC and perform an intravascular volume assessment.

Point A	Normal aorta and dilated IVC; IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
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### Vascular - Core Aorta/IVC - Case 8

This 82-year-old male presents with a chief complaint of weakness and abdominal pain following an intravascular abdominal aortic aneurysm repair.

Please use sonography to assess his abdominal aorta.

Point A	Aortic aneurysm and mural thrombus (10 cm length x 8 cm anterior-posterior diameter); Highly reflective linear echoes with mural thrombus suggestive of two GORE-TEX® grafts (more proximal view); Additional split-screen image: Abdominal CT
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Point B	Aortic aneurysm and mural thrombus (10 cm length x 8 cm anterior-posterior diameter); Highly reflective linear echoes with mural thrombus suggestive of two GORE-TEX® grafts (more distal view); Additional split-screen image: Abdominal CT
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### Vascular - Core Aorta/IVC - Case 9

This 65-year-old male presents with progressive shortness of breath and lower extremity edema.

Please use sonography to assess his intravascular volume by imaging his IVC.

Point A	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg
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### Vascular - Core Aorta/IVC - Case 10

This 66-year-old male is referred to the ED by his internist for evaluation of a palpable abdominal mass.

Please use sonography to examine his abdomen.

Point A	Fusiform abdominal aortic aneurysm measuring 10 cm length x 4.5 cm anterior-posterior diameter (more proximal view)
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Point B	Distal aorta with normal caliber (more distal view)
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### SonoSim LiveScan® - Cardiac Resuscitation - Case 1

This 60-year-old male had a witnessed, non-traumatic cardiac arrest. Paramedics initiated chest compressions, placed an endotracheal tube, and established IV access. The patient was given epinephrine 1 mg IV push, two minutes ago, after the last pulse check.

Vitals: T=37 C BP undetectable HR=100 with compressions bpm RR=15 ventilated O2 sat 78% poor waveform.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Decreased contractility; Normal chamber size ratio
Apical	No pericardial effusion; Decreased contractility; Normal chamber size ratio
Subcostal	No pericardial effusion; Decreased contractility; Normal chamber size ratio
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg
Right Chest	Positive lung sliding; Multiple B-lines (evidence of alveolar interstitial syndrome); Pleural defect
Left Chest	Positive lung sliding; Multiple B-lines (evidence of alveolar interstitial syndrome); Pleural effusion
Summary	Cardiac views demonstrate decreased cardiac contractility; No dilated right ventricle to indicate acute right heart overload suggesting an acute hemodynamically significant pulmonary embolus; No pericardial effusion, right ventricular diastolic collapse, or plethoric IVC to suggest cardiac tamponade; No evidence of severely diminished right atrial pressure based on IVC examination to support hypovolemic shock; Lung sliding is present and no evidence of elevated right atrial pressure upon IVC examination to suggest tension pneumothorax (Patient treated for pulseless electrical activity in prehospital care setting, upon hospital evaluation diagnosed and treated for hyperkalemia. Patient recovers and transferred to a rehabilitation facility after 14 days)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 2

This is a 66-year-old male who presents with chest pain that started while washing his car. The pain is left-sided and constant. He describes it as heavy, sharp, and non-pleuritic. It is non-radiating and non-migrating.

Vitals: T=37 C BP=193/106 mmHg HR=90 bpm RR=22 bpm O2 sat=97% on room air.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Decreased contractility; Normal chamber size ratio; Small anterior fat pad
Apical	No pericardial effusion; Decreased contractility; Markedly dilated aortic root
Subcostal	No gross pericardial effusion; Limited view of heart
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg
Right Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Left Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	Cardiac views demonstrate a markedly dilated aortic root, suggestive of aortic dissection as a possible cause of symptoms; No acute right heart strain to suggest acute pulmonary

thromboembolism; Lung sliding demonstrated in lung windows, excluding pneumothorax, and occasional B-lines confirm no bilateral, unilateral, or focal alveolar interstitial syndrome; No sonographic findings to suggest other causes of chest pain: Clinical diagnosis of acute ascending aortic dissection and thoracic aortic aneurysm (Patient treated with medication to reduce blood pressure and heart rate to reduce aortic wall stress, with the hope of minimizing extension of the dissection. Consultation with cardiologist and cardiothoracic vascular surgeon performed, along with supplemental thoracic aorta imaging; Patient undergoes emergent repair of a proximal aortic aneurysm with dissection and recovers in the hospital over the next 12 days)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 3

This is a 58-year-old male who presents after experiencing a witnessed syncopal episode lasting several minutes.

Vitals: T=37 C BP=70/40 mmHg HR=130 bpm RR=30 bpm O2 sat=87% via facemask.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Normal left ventricular contractility; Dilated and hypokinetic right ventricle; Positive leftward septal deviation (D-sign); Limited near-field view
Apical	No pericardial effusion; Normal left ventricular contractility; Dilated right atrium; Dilated and hypokinetic right ventricle; Limited view of left atrium
Subcostal	No pericardial effusion; Dilated right atrium
Proximal IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
Right Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Left Chest	Positive lung sliding; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	Dilated and hypokinetic right ventricle, interventricular shift leftward, from right to left (D-sign) in the cardiac views; Elevated estimated right atrial pressure based upon IVC examination; No bilateral, unilateral, or focal alveolar-interstitial syndrome findings; No diminished left ventricle contractility to suggest cardiogenic shock; No pericardial effusion or sonographic findings of cardiac tamponade to suggest obstructive shock; Clinical diagnosis of massive pulmonary embolism (Patient managed with crystalloid fluid resuscitation, medication for hemodynamic support, thrombolytic medication, administration of heparin, and interventionalist consultation for massive pulmonary embolus management; The patient undergoes an endovascular procedure to treat thrombi from the right and left pulmonary arteries remaining in the hospital for four days and is weaned off oxygen entirely)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 4

This 62-year-old male, undergoing chemotherapy for multiple myeloma, presents complaining of generalized weakness and shortness of breath. He has had a progressive mental status decline over the past 24 hours. No further history is available at this time.

Vitals: T=35.8 C BP=68/38 mmHg HR=130 bpm RR=30 bpm O2 sat=90% via facemask.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Normal-to-hyperdynamic contractility; Normal chamber size ratio; Anterior fat pad
Apical	No pericardial effusion; Normal-to-hyperdynamic contractility; Normal chamber size ratio
Subcostal	No pericardial effusion; Normal-to-hyperdynamic contractility; Normal chamber size ratio
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg

Right Chest	Positive lung sliding; Multiple B-lines (evidence of alveolar interstitial syndrome); Pleural defect
Left Chest	Positive lung sliding; Scattered B-lines (evidence of alveolar interstitial syndrome)
Summary	Low estimated right-atrial pressure upon IVC examination is supportive of hypovolemia; Evidence of bilateral alveolar interstitial syndrome in both lung windows is suggestive of pulmonary edema, bilateral pneumonia, adult respiratory distress syndrome, or chronic bilateral inflammatory lung condition; Hyperdynamic left ventricular contractility consistent with severe sepsis; Clinical diagnosis of severe sepsis with pulmonary source of infection (Patient treated with additional oxygen, crystalloid fluid resuscitation, antimicrobial medication, and medication for hemodynamic support; The patient is admitted to the Intensive Care Unit for severe sepsis caused by pneumonia; With continued hydration, antibiotics and supportive care, he continues to improve)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 5

This 55-year-old male, with history of coronary artery disease, presents after a syncopal episode that occurred while he was eating dinner at a restaurant. The patient reports having chest tightness, abdominal pain, shortness of breath, and diffuse weakness. He has no known medication allergies.

Vitals: T=37 C BP=74/42 mmHg HR=130 bpm RR=30 bpm O2 sat=86% on room air.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Mildly decreased contractility; Normal chamber size ratio
Apical	No pericardial effusion; Mildly decreased contractility; Normal chamber size ratio
Subcostal	No pericardial effusion; Mildly decreased contractility; Normal chamber size ratio
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg
Right Chest	Positive lung sliding; No evidence of alveolar interstitial syndrome or pneumothorax
Left Chest	Positive lung sliding; No evidence of alveolar interstitial syndrome or pneumothorax
Summary	No acute right heart strain to suggest thromboembolism and obstructive shock; No bilateral lung alveolar interstitial syndrome findings, plethoric IVC, or severely diminished cardiac contractility to suggest cardiogenic shock; No pericardial effusion or sonographic findings of cardiac tamponade to suggest obstructive shock; Clinical diagnosis of anaphylaxis (Patient treated with supplemental oxygen, inhaled bronchodilator medication, crystalloid fluid resuscitation, and intramuscular epinephrine injection; After the second dose of epinephrine, the patient's skin redness, abdominal discomfort, dyspnea, and chest tightness resolves; Blood pressure stabilizes; Patient undergoes a period of observation without recurrent symptoms)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 6

This 30-year-old male presents by ambulance with altered sensorium, after being found down in a retail store. Paramedics established IV access. No further history is available at this time.

Vitals: T=37 C BP=155/84 mmHg HR=85 bpm RR=20 bpm O2 sat=94% on room air.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Normal contractility; Severe concentric left ventricular hypertrophy; Hypertrophic cardiomyopathy; Pacemaker/AICD wire visualized in right atrium and right ventricle
Apical	No pericardial effusion; Normal contractility; Severe concentric left ventricular hypertrophy; Hypertrophic cardiomyopathy; Pacemaker/AICD wire visualized in right atrium and right ventricle
Subcostal	Limited view of heart



Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg
Right Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Left Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	Hypertrophic cardiomyopathy, severe concentric left ventricular hypertrophy in the absence of another cardiac or systemic disease; pacemaker/AICD wire in right atrium/right ventricle; No sonographic findings to suggest alternative etiologies of possible syncope; No acute right-heart strain to suggest thromboembolism and obstructive shock; No bilateral lung alveolar interstitial syndrome findings, plethoric inferior vena cava, or diminished cardiac contractility to suggest cardiogenic shock; No significant pericardial effusion or sonographic findings of cardiac tamponade; Clinical diagnosis of cardiac syncope and hypertrophic cardiomyopathy (Patient is monitored with bedside glucose testing, laboratory studies, electrocardiogram, computed tomography of the head, and defibrillator interrogation; Pacemaker/defibrillator interrogation is normal, laboratory studies and imaging are normal; Patient recovers from a mild concussion and is discharged home with family)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 7

This 58-year-old male, with a past medical history of dialysis-dependent chronic renal insufficiency, presents from a dialysis center complaining of weakness and shortness of breath.

Vitals: T=37 C BP=71/53 mmHg HR=126 bpm RR=24 bpm O2 sat=100% via nasal cannula.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	Large pericardial effusion; Swinging heart; Diastolic collapse of right ventricle; Pleural effusion
Apical	Large pericardial effusion; Swinging heart; Diastolic collapse of right ventricle
Subcostal	Large pericardial effusion; Limited view of heart
Proximal IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
Right Chest	Positive lung sliding; No evidence of pneumothorax or alveolar interstitial syndrome
Left Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	Lung sliding excludes pneumothorax at site of chest ultrasound examination; No bilateral, unilateral, or focal alveolar interstitial syndrome findings to suggest pneumonia; No acute right heart strain to suggest thromboembolism and obstructive shock; No bilateral lung alveolar interstitial syndrome findings, plethoric IVC, or diminished cardiac contractility to suggest cardiogenic shock; circumferential pericardial effusion, "swinging heart" sign, systolic right atrial collapse, diastolic collapse of right ventricle, and elevated estimated right atrial pressure suggestive of cardiac tamponade; Clinical diagnosis of cardiac tamponade (Patient managed with crystalloid fluid infusion, laboratory studies, electrocardiogram and pericardiocentesis for cardiac tamponade causing obstructive shock; The patient recovers in the hospital over five days and is discharged home with family)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 8

This 86-year-old male presents with a complaint of generalized weakness progressive over one week. Today he felt so weak that he was unable to get out of bed.

Vitals: T=37 C BP=85/42 mmHg HR=105 bpm RR=22 bpm O2 sat=93% on room air.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	Circumferential pericardial effusion; Normal contractility; No echocardiographic evidence of cardiac tamponade
Apical	Circumferential pericardial effusion; Normal contractility; No echocardiographic evidence of cardiac tamponade
Subcostal	Circumferential pericardial effusion; Normal contractility; No echocardiographic evidence of cardiac tamponade
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg
Right Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Left Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	Normal-to-low right atrial pressure; No acute right heart strain to suggest thromboembolism and obstructive shock; Hemodynamically insignificant pericardial effusion, devoid of sonographic characteristics of cardiac tamponade; No bilateral lung alveolar interstitial syndrome findings, plethoric inferior vena cava, or diminished cardiac contractility to suggest cardiogenic shock; Clinical diagnosis of hypotension; dehydration; electrolyte imbalance (Patient is managed with crystalloid fluid infusion, laboratory studies, supplemental oxygen, and potassium medication for treatment of hypokalemia; The patient is admitted to the hospital for ongoing hydration and electrolyte repletion and is discharged after one day)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 9

This 75-year-old male presents with shortness of breath, worsening over three hours. He reports chest pain over the same period of time.

Vitals: T=37.8 C BP=95/70 mmHg HR=115 bpm RR=30 bpm O2 sat=91% via face mask.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Normal contractility; Normal chamber size ratio; Pleural effusion
Apical	No pericardial effusion; Normal contractility; Normal chamber size ratio
Subcostal	No pericardial effusion; Normal contractility; Normal chamber size ratio
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg
Right Chest	No lung sliding; Barcode sign; Suggestive of pneumothorax
Left Chest	Positive lung sliding; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	No lung sliding in right chest window, suggestive of pneumothorax; No bilateral, unilateral, or focal alveolar-interstitial syndrome findings to suggest pneumonia; No acute right heart strain to suggest thromboembolism with obstructive shock; No pericardial effusion or sonographic findings of cardiac tamponade with obstructive shock; No bilateral lung alveolar interstitial syndrome findings, plethoric inferior vena cava, or diminished cardiac contractility to suggest cardiogenic shock; Clinical diagnosis of tension pneumothorax (Patient treated with right-sided thoracostomy; The patient is admitted to the hospital for ongoing care and treatment of a right-sided secondary spontaneous pneumothorax; The right lung expands without complications; The thoracostomy tube is removed after three days; There is no recurrent pneumothorax and the patient is discharged home)

### SonoSim LiveScan® - Cardiac Resuscitation - Case 10

This 62-year-old male presents with complaints of chest pain, radiating to the left shoulder, for six hours. It varies in intensity, is somewhat worse with activity, and is associated with dyspnea.

Vitals: T=37.7 C BP=103/60 mmHg HR=98 bpm RR=23 bpm O2 sat=93% on room air.

Please perform a Focused Cardiac Ultrasound (FoCUS) examination.

Parasternal	No pericardial effusion; Decreased contractility; Dilated left ventricle; Thin interventricular septal walls; No right ventricle strain; Pacer wire visualized in right atrium and right ventricle
Apical	No pericardial effusion; Decreased contractility; Dilated left ventricle; Thin interventricular septal walls; No right ventricle strain; Pacer wire visualized in right atrium and right ventricle
Subcostal	No pericardial effusion; Decreased contractility; Dilated left ventricle; Thin interventricular septal walls; No right ventricle strain; Pacer wire visualized in right atrium and right ventricle
Proximal IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
Right Chest	Positive lung sliding; Occasional scattered B-lines; Pleural defect; Small Pleural Effusion
Left Chest	Positive lung sliding; Occasional scattered B-lines; No evidence of pneumothorax or alveolar interstitial syndrome
Summary	Cardiac views supportive of underlying dilated cardiomyopathy; Dilated left ventricle; Thin interventricular septal wall; Electronic cardiac device wire present; Depressed ejection fraction; No sonographic findings supporting other sources of chest pain and dyspnea; No acute right-heart strain to suggest massive or submassive pulmonary embolus; No pericardial effusion; Positive lung sliding, suggestive of no pneumothorax; Clinical diagnosis of acute coronary syndrome (Patient is treated with supplemental oxygen, electrocardiogram, aspirin, a chest x-ray, laboratory studies, and consult from a cardiologist; The patient reports ongoing chest discomfort despite medical therapy; The cardiologist evaluates the patient and recommends cardiac catheterization for ongoing anginal discomfort; The left circumflex artery is occluded and receives a stent; The patient's discomfort resolves; He is discharged from the hospital after a four-day stay)

## SonoSim LiveScan® - Critical Care - Case 1

This 39-year-old male presents following a motorcycle accident. He was found alongside a roadway 16 hours after the accident, on a cold winter day.

Vitals: T=30 C BP=84/54 mmHg HR=48 bpm RR=20 bpm O2 sat=98% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid; Additional split-screen image: Abdominal CT
Suprapubic	Normal pelvic window; No free fluid; Decompressed bladder with indwelling Foley catheter; Additional split-screen image: Abdominal-pelvic CT (performed without indwelling Foley catheter)
LUQ	Normal LUQ window; No free fluid; Additional split-screen image: Abdominal CT
Proximal IVC	IVC diameter less than or equal to 2.1 cm with less than 50% collapse; Right atrial pressure 5 to 10 mmHg
Mid-Aorta	Normal aorta; Normal caliber mid-IVC segment
Parasternal	No pericardial effusion; Mildly reduced ejection fraction
Apical	No pericardial effusion; Mildly reduced ejection fraction; Normal chamber sizes
Subcostal	No pericardial effusion; Mildly reduced ejection fraction; Normal chamber sizes

Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Moderate-sized IVC with mild respirophasic collapse in Subcostal window; Mildly reduced LV ejection fraction in all cardiac windows; No evidence of intraperitoneal fluid or acute pneumothoraces; Clinical diagnosis of moderate hypothermia with secondary hypotension due to decreased myocardial contractility, cold diuresis, and peripheral vasoconstriction (Patient treated with active core rewarming, crystalloid fluid infusion, and passive external rewarming with ICU admission)

### SonoSim LiveScan® - Critical Care - Case 2

This 11-year-old male presents with vomiting and diarrhea for two days and progressive weakness.

Vitals: T=38.3 C BP=90/52 mmHg HR=130 bpm RR=20 bpm O2 sat=98% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Small bowel containing liquid contents posterior to bladder
LUQ	No free fluid in splenorenal window; Mild splenomegaly
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Flattened distal IVC
Parasternal	No pericardial effusion; Hyperdynamic heart with normal ejection fraction and chamber sizes
Apical	No pericardial effusion; Hyperdynamic heart with normal ejection fraction and chamber sizes
Subcostal	No pericardial effusion; Normal LV ejection fraction and chamber sizes
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	IVC mildly narrowed in diameter with mild respirophasic collapse in Proximal IVC and Mid-Aorta windows; No evidence of intraperitoneal fluid or acute pneumothoraces; Clinical diagnosis of acute febrile illness with moderate hypovolemia due to insensible fluid loss (Patient treated in the ED with antipyretics and intravascular volume repletion with crystalloid solutions over a course of eight hours, with normalization of vital signs)

### SonoSim LiveScan® - Critical Care - Case 3

This 63-year-old male presents with dyspnea, hypotension, and seven days of bilateral lower-extremity swelling.

Vitals: T=39 C BP=84/54 mmHg HR=110 bpm RR=22 bpm O2 sat=93% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid; Additional split-screen image: Abdominal CT
Suprapubic	Abnormal pelvic window; No free fluid; Decompressed bladder with indwelling Foley catheter and adjacent echogenic mass (organized thrombus vs. solid tumor); Additional split-screen image: Abdominal-pelvic CT
LUQ	Normal LUQ window; No free fluid; Additional split-screen image: Abdominal CT
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta
Parasternal	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Apical	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Subcostal	Limited image window quality; Normal LV ejection fraction and chamber sizes
Right Chest	Normal lung sliding; Occasional B-lines; No evidence of pneumothorax
Left Chest	Normal lung sliding; Multiple B-lines; No evidence of pneumothorax
Right Groin	Right femoral vein DVT; Non-compressible femoral vein; Venous flow absent with color Doppler
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Summary	Echogenic mass in bladder (organized thrombus vs. solid tumor) noted in Suprapubic window; Evidence of right femoral vein DVT in Right Groin window; Borderline increased B-lines symmetrically in both lung windows; No evidence of intraperitoneal fluid or acute pneumothoraces; Normal cardiac function (without any evidence of right heart strain); Normal-diameter IVC; Clinical diagnosis of septic shock (Abnormal urinalysis suggestive of urosepsis complicated by bladder mass and right femoral vein DVT; No evidence of right heart strain, but pulmonary embolism not excluded; Increased B-lines bilaterally correlate with elevated BNP and attribute to mild-to-moderate non-cardiogenic pulmonary edema due to sepsis); Patient treated with broad-spectrum intravenous antibiotics, vasopressors, supplemental oxygen, and ICU admission, with presumptive diagnosis of septic shock (Fluid resuscitation performed in a graduated manner due to pulmonary edema, with greater emphasis placed on vasopressor support)

### SonoSim LiveScan® - Critical Care - Case 4

This 57-year-old male, with a history of end-stage liver disease, presents with two days of progressive, diffuse abdominal pain and new-onset hypotension.

Vitals: T=38 C BP=84/40 mmHg HR=120 bpm RR=24 bpm O2 sat=94% on room air.

Please perform the RUSH protocol scan.

RUQ	Positive RUQ window; Large amount of anechoic free fluid; Small-sized liver with irregular margins and coarse echotexture
Suprapubic	Positive pelvic window; Multiple areas of anechoic free fluid surrounding bladder
LUQ	Positive LUQ window; Moderate anechoic free fluid surrounding spleen
Proximal IVC	IVC poorly visualized; Unable to make clinical inference due to poor image quality
Mid-Aorta	Normal aorta; Flattened IVC with respirophasic collapse
Parasternal	Mild LVH; Normal LV ejection fraction; Normal cardiac contractility
Apical	Mild LVH; Normal LV ejection fraction; Normal cardiac contractility

Subcostal	Mild LVH; Normal LV ejection fraction; Normal cardiac contractility
Right Chest	Normal lung sliding; No evidence of pneumothorax; A-line; Positive B-line; Clinical diagnosis of interstitial edema due to anasarca
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral vein; No evidence of deep venous thrombosis
Summary	Evidence of large-volume intraperitoneal fluid collection with anechoic free fluid noted in RUQ, Suprapubic, and LUQ windows; Flattened IVC with respirophasic collapse in Mid-Aorta window; Small-sized liver with irregular margins and coarse echotexture suggestive of liver cirrhosis; Patient admitted to ICU and ultimately received a clinical diagnosis of end-stage liver disease complicated by subacute bacterial peritonitis and septic shock (Patient successfully treated with broad-spectrum intravenous antibiotics and vasopressors)

### SonoSim LiveScan® - Critical Care - Case 5

This 31-year-old male presents with coughing, dyspnea, and altered mental status following a motor vehicle accident, the scene of which contained a lot of smoke and fire.

Vitals: T=37 C BP=110/78 mmHg HR=78 bpm RR=22 bpm O2 sat=98% on 100% non-rebreather mask.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Prominent prostate gland
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Collapsed distal IVC
Parasternal	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Apical	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Subcostal	Normal LV ejection fraction and chamber sizes; No evidence of right heart strain
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Left Groin	Normal femoral vein study; No evidence of deep venous thrombosis
Summary	Normal cardiac function with no evidence of severe hypovolemia; No evidence of free intraperitoneal fluid or acute lung pathology; Patient's altered mentation ultimately attributed to smoke and chemical fume inhalation (Patient improved in ED with supportive care measures over four hours)

### SonoSim LiveScan® - Critical Care - Case 6

This 65-year-old male presents with acute-onset abdominal and back pain. Patient's abdomen is tense and distended.

Vitals: T=36 C BP=60/p mmHg HR=94 bpm RR=15 bpm.

Please perform the RUSH protocol scan.	
RUQ	Positive RUQ window; Anechoic free fluid
Suprapubic	Positive pelvic window; Moderately distended bladder; Marked free fluid in the pelvis
LUQ	Positive LUQ window; Anechoic free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Abdominal aortic aneurysm (10 cm) with mural thrombus; Highly reflective linear echo with mural thrombus suggestive of GORE-TEX® graft
Parasternal	Normal LV ejection fraction; Mild LVH; No evidence of right heart strain
Apical	Normal LV ejection fraction; No evidence of right heart strain
Subcostal	Normal LV ejection fraction; Normal chamber sizes; No evidence of right heart strain
Right Chest	Normal right-lung sliding and comet-tail artifact; No pneumothorax
Left Chest	Normal left-lung sliding and comet-tail artifact; No pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis (incomplete femoral vein collapse due to insufficient compression rather than thrombus)
Left Groin	Normal femoral vein; No evidence of deep venous thrombosis
Summary	Diffuse, large-volume, anechoic fluid collections in RUQ, Suprapubic, and LUQ windows; Abdominal aortic aneurysm (10 cm) with mural thrombus and highly reflective linear echo suggestive of GORE-TEX® graft; Clinical diagnosis of ruptured abdominal aortic aneurysm with intraperitoneal extravasation (Patient treated with blood product transfusion and emergent operative intervention)

### SonoSim LiveScan® - Critical Care - Case 7

This 40-year-old female, with a history of metastatic carcinoma, presents with fever, weakness, and dyspnea.

Vitals: T=39 C BP=70/p mmHg HR=76 bpm RR=28 bpm O2 sat=93% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with less than 50% collapse; Right atrial pressure 5 to 10 mmHg
Mid-Aorta	Normal aorta; Plethoric distal IVC
Parasternal	Pericardial effusion (moderate-size); No evidence of cardiac tamponade
Apical	Pericardial effusion; Mild heart swinging; No definitive evidence of cardiac tamponade
Subcostal	Pericardial effusion (moderate-size); No evidence of cardiac tamponade
Right Chest	Normal right-lung sliding; No pneumothorax
Left Chest	Normal left-lung sliding; No pneumothorax; Focal comet-tail artifacts
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis

Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Moderate-sized IVC with mild respirophasic collapse in Proximal IVC window; Moderate-to-large-sized pericardial effusion; No definitive echocardiographic evidence of tamponade (dilated IVC, equivocal swinging heart sign, no right ventricular end-diastolic collapse or paradoxical wall motion); Localized B-lines in left lung (Focal lung consolidation); No evidence of free fluid within intraperitoneal cavity; Clinical diagnosis of septic shock due to left-sided pneumonia complicated by a symptomatic moderate-to-large-sized pericardial effusion (Patient treated with broad-spectrum intravenous antibiotics, crystalloid fluid resuscitation, and vasopressors and admitted to the ICU)

### SonoSim LiveScan® - Critical Care - Case 8

This 44-year-old female in her first trimester of pregnancy, with a pre-existing cardiomyopathy and cardiac pacemaker, presents with acute-onset shortness of breath.

Vitals: T=38 C BP=85/51 mmHg HR=95 bpm RR=32 bpm O2 sat=92% on room air.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Live first-trimester intrauterine pregnancy; No pelvic free fluid
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter greater than 2.1 cm with less than 50% collapse; Right atrial pressure 15 to 20 mmHg
Mid-Aorta	Normal aorta
Parasternal	Moderately depressed LV ejection fraction; Dilated right ventricle with decreased contractility
Apical	Moderately depressed LV ejection fraction; Dilated right ventricle with decreased contractility; Pacemaker wire in right atrium and ventricle
Subcostal	Moderately depressed LV ejection fraction; Pacemaker wire in right atrium and ventricle
Right Chest	Multiple B-lines; Alveolar interstitial syndrome
Left Chest	Occasional B-line (clinically diagnosed with cardiogenic pulmonary edema)
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis; Inguinal lymph node
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Normal first-trimester IUP; Dilated IVC (consistent with elevated right heart pressures or fluid overload state); Moderately depressed left-ventricular ejection fraction with cardiac pacemaker within RA and RV; Asymmetric B-lines (Right lung greater than left lung); No evidence of free fluid within intraperitoneal cavity; Clinical diagnosis of multifactorial hypotension due to decompensated non-ischemic cardiomyopathy, complicated by right-sided pneumonia and sepsis syndrome (Patient treated with broad-spectrum intravenous antibiotics, inotropic, and vasopressor support)

### SonoSim LiveScan® - Critical Care - Case 9

This 38-year-old male presents with altered mental status following a motorcycle accident.

Vitals: T=37 C BP=70/p mmHg HR=110 bpm RR=28 bpm O2 sat=92% on room air.

Please perform the RUSH protocol scan.

RUQ	Positive RUQ window; Marked free anechoic fluid
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Suprapubic	Positive pelvic window; Marked anechoic free fluid in pelvis
LUQ	Positive LUQ window; Anechoic fluid in subdiaphragmatic space
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Distally collapsed IVC consistent with hypovolemia
Parasternal	Normal cardiac function; Tachycardic; No pericardial effusion
Apical	Normal cardiac function; Tachycardic; No pericardial effusion
Subcostal	Normal cardiac function; Tachycardic; No pericardial effusion; Proximal IVC imaged in held expiration minimizing respirophasic variation
Right Chest	Multiple B-lines; Alveolar interstitial syndrome; Trace pleural fluid; Pleural defect; No pneumothorax
Left Chest	Lung pulse noted; No lung point seen; No left-lung sliding or comet-tail artifact, finding suggestive of pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Large-volume anechoic free fluid in RUQ, Suprapubic, and LUQ windows; Narrow-diameter IVC; Multiple B-lines and trace anechoic pleural fluid accumulation in right lung; No lung sliding in left lung suggestive of pneumothorax; Clinical diagnosis of large-volume hemoperitoneum and hemorrhagic shock, complicated by a right-sided pulmonary contusion, possible hemothorax, and a left-sided pneumothorax (Patient managed with endotracheal intubation, massive blood product transfusion protocol, left-sided tube thoracostomy, and emergent exploratory laparotomy)

### SonoSim LiveScan® - Critical Care - Case 10

This 22-year-old female with Hodgkin's lymphoma, on chemotherapy, presents with lethargy and fever.

Vitals: T=40 C BP=84/p HR=74 bpm RR=32 bpm.

Please perform the RUSH protocol scan.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Echogenic debris along inferior bladder wall
LUQ	Normal LUQ window; No free fluid
Proximal IVC	IVC diameter less than or equal to 2.1 cm with more than 50% collapse; Right atrial pressure 0 to 5 mmHg
Mid-Aorta	Normal aorta; Collapsed distal IVC
Parasternal	Normal heart with hyperdynamic contractility; Normal ejection fraction; No pericardial effusion
Apical	Normal heart with hyperdynamic contractility; Normal ejection fraction; No pericardial effusion
Subcostal	Normal heart with hyperdynamic contractility; Normal ejection fraction; No pericardial effusion
Right Chest	Multiple groupings of B-lines suggestive of increased fluid content; No pneumothorax
Left Chest	Normal left-lung sliding; A-line; Several B-lines; No pneumothorax
Right Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis

Left Groin	Normal femoral and saphenous veins; No evidence of deep venous thrombosis
Summary	Narrow-diameter IVC; Exaggerated asymmetric B-lines (Right lung greater than left lung); Normal cardiac function with hyperdynamic contractility; No evidence of anechoic free fluid within abdominal cavity; Clinical diagnosis of sepsis syndrome and alveolar interstitial syndrome with right-lung pneumonia (Patient treated with supplemental oxygen, broad-spectrum intravenous antibiotics, crystalloid fluid resuscitation, vasopressor support, and ICU admission)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 1

This 36-year-old female presents with intermittent severe abdominal and pelvic pain for one day. It is diffuse and radiates to the mid abdomen. She has not had it before. When the pain becomes severe, she reports nausea and has had one episode of vomiting and no diarrhea or fever.

Vitals: T=37 C BP=98/57 mmHg HR=115 bpm RR=20 bpm O2 sat=98% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Uterus	Complex ovarian cystic mass 7 cm in largest diameter; Prominent endometrial cavity/stripe; No definitive evidence of intrauterine pregnancy
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal heart; No pericardial effusion
IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
Summary	No evidence of significant free fluid in pelvic, hepatorenal, or splenorenal regions to suggest ruptured ovarian cyst or ectopic pregnancy with associated hemorrhage; No evidence of hydronephrosis to suggest obstructing ureteral calculus; No definitive intrauterine or ectopic pregnancy; Clinical diagnosis of ovarian torsion (Patient is rapidly evaluated by the obstetrician-gynecologist, who is concerned about the possibility of ovarian torsion; Patient undergoes exploratory laparotomy; During surgery, blood flow is restored to the right ovary, and ovarian cysts are removed; Patient has a positive pregnancy test; Serial human chorionic gonadotropin levels are monitored and rise appropriately; Patient has an otherwise unremarkable pregnancy and delivers a child approximately eight months later)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 2

This 27-year-old female presents with acute right-sided abdominal pain, back pain, vomiting, and vaginal bleeding for three days.

Vitals: T=38 C BP=94/58 mmHg HR=90 bpm RR=16 bpm O2 sat=97% on room air.

Please use sonography to evaluate this patient.

RUQ	Acute calculous cholecystitis, including a gallbladder neck gallstone; No free fluid in hepatorenal space (Morison's pouch); Normal liver; Normal right kidney
Uterus	Normal 7-week IUP; Normal fetal cardiac activity
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal heart; No pericardial effusion

IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg
Summary	Cholelithiasis with calculus in the gallbladder neck; Thickened, edematous gallbladder wall and pericholecystic fluid; No evidence of right-sided hydronephrosis to suggest ureteral colic from an obstructing ureteral calculus; No evidence of significant pelvic, hepatorenal, or splenorenal free fluid to suggest a ruptured ovarian cyst or alternative type of intraabdominal hemorrhage; Viable intrauterine pregnancy indicated by intrauterine gestational sac with fetal pole demonstrating cardiac activity; Clinical diagnosis of acute calculous cholecystitis and a threatened miscarriage (Patient is treated with crystalloid fluid infusion, antibiotics, and Rho(D) immune globulin; The general surgeon is consulted; Patient is admitted to the hospital for ongoing care; Over the next 12 hours, the patient feels better and tolerates oral fluids; Patient receives a surgical consultation and has a good outcome)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 3

This 38-year-old female presents with one week of intermittent vomiting and two days of abdominal pain. The pain is continuous, lower-abdominal, moderate-to-severe in intensity, nonradiating, and nonmigrating.

Vitals: T=37 C BP=96/46 mmHg HR=90 bpm RR=20 bpm O2 sat=95% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); Normal right kidney
Uterus	Left-adnexal, circular ring of medium-echogenicity with hypoechoic center (adjacent to the ovary), suspicious for ectopic pregnancy; Left-adnexal, thin-walled cystic mass; Small-quantity pelvic free fluid noted, which could correlate with pathologic hemorrhage or cyst rupture
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal heart; No pericardial effusion
IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg
Summary	No evidence of intrauterine gestation; Left-adnexal, medium-echogenic, circular ring with hypoechoic center (adjacent to the ovary) suspicious for ectopic pregnancy; Left-adnexal, thin-walled cystic mass; Small-quantity pelvic free fluid which could correlate with pathologic hemorrhage or cyst rupture; Clinical diagnosis of ectopic pregnancy, complex left-adnexal mass, and dehydration (Patient is treated with crystalloid fluid infusion and Rho(D) immune globulin; A comprehensive transabdominal and transvaginal ultrasound confirms findings suspicious for ectopic pregnancy in the left adnexa; Patient is evaluated by the obstetrician-gynecologist who removes the left-adnexal mass and ovarian cyst with laparoscopy; Pathology studies confirm the left-adnexal mass contains chorionic villi; Patient recovers in the hospital over the next two days and has a good outcome)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 4

This 34-year-old female presents with acute pelvic cramping after exercising one hour ago. She reports vaginal spotting, weakness, and lightheadedness.

Vitals: T=36.7 C BP=90/48 mmHg HR=100 bpm RR=14 bpm O2 sat=98% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); Normal right kidney
Uterus	Normal 12-week twin live pregnancies
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal heart; No pericardial effusion

IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg
Summary	Viable twin intrauterine gestation; IVC diameter less than 2.1 cm with respirophasic variation greater than 50% which correlates with a right atrial pressure (RAP) of 0 to 5 mmHg; Clinical diagnosis of dehydration (Patient is given repeated crystalloid fluid infusions; After repeat crystalloid fluid boluses, the patient ambulates without difficulty and reports feeling better; Patient has no further vaginal bleeding and pelvic cramping subsides; Patient is given instructions for temporary activity limitations until she sees an obstetrician-gynecologist; Patient is discharged home and sees her obstetrician-gynecologist 2 days later and is doing well; Her twin pregnancy continues uneventfully)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 5

This 36-year-old pregnant female presents with intermittent acute right flank and abdominal pain. She has been experiencing it transiently over the past week, but today it has been persistent for 90 minutes. The patient also reports nausea and vomiting without fever, diarrhea, or vaginal bleeding.

Vitals: T=37.7 C BP=115/74 mmHg HR=96 bpm RR=18 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	Multiple intrarenal stones; Right hydroureter; Moderate right hydronephrosis; No free fluid in hepatorenal space (Morison's pouch)
Uterus	Double decidual sign and gestational sac; Likely yolk sac; No definitive fetal pole; No demonstrable cardiac activity; Uterine fibroid
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal heart; No pericardial effusion
IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg
Summary	Moderate hydronephrosis consistent with symptomatic ureterolithiasis/hydroureter; Double decidual sign consistent with a gestational sac; Yolk sac present within gestational sac confirming intrauterine gestation; No definitive evidence of fetal pole or cardiac activity; Anterior intramural echogenic mass with hypoechoic shadowing, which is consistent with leiomyoma; Clinical diagnosis of obstructive uropathy (Patient treated with analgesic medication; Patient reports feeling better, and her pain resolves in the acute care setting; Patient is scheduled for an outpatient obstetrician-gynecologist appointment the following day to discuss ongoing pregnancy care; Recurrent right-flank and lower-abdominal pain is managed with oral analgesic medication at home; Twelve hours later, the patient identifies a calculus in the urine, and her pain resolves)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 6

This 22-year-old female presents after a syncopal episode. She reports weakness and lightheadedness with diffuse abdominal pain. She also describes having a two-week history of intermittent vomiting, without diarrhea.

Vitals: T=36 C BP=78/42 mmHg HR=110 bpm RR=22 bpm O2 sat=95% on room air.

Please use sonography to evaluate this patient.

RUQ	Free intraperitoneal fluid in the hepatorenal interface (Morison's pouch); Normal right kidney; Large gallstone (incidental finding)
Uterus	Left-adnexa, circular ring of medium-echogenicity with hypoechoic center (adjacent to the ovary), suspicious for ectopic pregnancy
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Tachycardia; Hyperdynamic heart; Elevated ejection fraction

IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg
Summary	No evidence of intrauterine gestation; Left-adnexal, medium-echogenic, circular ring with hypoechoic center (adjacent to the ovary) suspicious for ectopic pregnancy; Intraperitoneal free fluid in hepatorenal and splenorenal regions consistent with a significant volume of intraperitoneal hemorrhage; Tachycardia and hyperdynamic cardiac contractility consistent with a compensatory response to hypovolemia; Proximal IVC diameter less than 2.1 cm and respirophasic variation exceeding 50% consistent with right atrial pressure (RAP) of 0 to 5 mmHg, which is consistent with hypovolemia and low central venous pressure (CVP); Clinical diagnosis of ruptured ectopic pregnancy (Patient is rapidly evaluated by the obstetrician-gynecologist and transported to the operating room; Patient is discharged home after a four-day hospital stay and has a good outcome)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 7

This 25-year-old pregnant female presents shortly after a near-syncopal event. Upon standing up from a seated position, she became lightheaded and fell onto her buttocks. She reports having had chest pain over one week. The chest pain is increased by lying supine and improved by sitting forward. She has had recent fever and cough, and reports mild dyspnea. After the near-syncopal event, the patient describes having mild pelvic cramps, without vaginal bleeding or fluid leak.

Vitals: T=37.9 C BP=105/55 mmHg HR=96 bpm RR=24 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); Liver cyst; Normal right kidney
Uterus	Normal 19-week IUP
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Small pericardial effusion; No evidence of cardiac tamponade
IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg in nonpregnant patients; Important: data is limited with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Summary	Pericardial effusion (often identified with pericarditis); Fetal development consistent with second-trimester gestation with normal cardiac activity; Fetal biometry at 21 weeks $\pm$ 10 days; Clinical diagnosis of acute pericarditis (Patient has been experiencing chest pain and presents shortly after a near-syncopal episode; Chest x-ray and EKG are performed; Rho(D) immune globulin is administered; Patient is placed into observational care; Cardiac monitoring reveals no hemodynamic instability or dysrhythmia; Repeat sonography reveals no significant change with time; Patient is discharged in good condition with close outpatient follow-up)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 8

This 32-year-old female presents via paramedics after she was struck by a car. The patient is anxious and frightened, initially unable to provide further history.

Vitals: T=36 C BP=74/42 mmHg HR=105 bpm RR=20 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	Hemoperitoneum; Free intraperitoneal fluid in hepatorenal interface (Morison's pouch); Normal right kidney
Uterus	Normal 18-week IUP; Transverse lie
LUQ	Hemoperitoneum; Free fluid in splenorenal interface; Normal left kidney
Subcostal	Tachycardia; Hyperdynamic heart; Elevated ejection fraction

IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Interpretation limited secondary to second-trimester gravid uterus
Summary	Intraperitoneal free fluid in hepatorenal and splenorenal regions consistent with hemorrhage; Hyperdynamic contractility consistent with compensatory response to hypovolemia; Intrauterine gestation; Fetal cardiac activity confirming viability; Fetal biometry (abdominal circumference) correlating with a fetal age of 19 weeks; Cinical diagnosis of hemoperitoneum and hemorrhagic shock (Patient is treated with transfusion and transexamic acid; Chest and AP Pelvis x-rays are ordered; Surgeon and obstetrician-gynecologist are consulted; Patient is transported to the operating room; Hemorrhage from hepatic injury is controlled; No evidence of uterine injury is identified during surgery; Patient recovers from surgery in the hospital over the next seven days, and no other injuries are identified; Patient's pregnancy continues without complication)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 9

This 18-year-old female with hemodialysis-dependent chronic kidney disease presents with generalized weakness for one week. She has missed multiple dialysis visits recently because of frequent vomiting. She also reports one day of vaginal spotting.

Vitals: T=36 C BP=86/58 mmHg HR=98 bpm RR=24 bpm O2 sat=93% on room air.

Please use sonography to evaluate this patient.

RUQ	Polycystic kidney; No free fluid in hepatorenal interface (Morison's pouch)
Uterus	Normal 8-week IUP; Normal fetal cardiac activity; No free fluid
LUQ	Polycystic kidney; No free fluid in splenorenal space
Subcostal	Large pericardial effusion; No definitive echocardiographic evidence of cardiac tamponade
IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 15 to 20 mmHg
Summary	Large pericardial effusion; Proximal IVC showing IVC diameter greater than 2.1 cm and less than 50% respirophasic variation, correlating with right atrial pressure (RAP) of 15 to 20 mmHg and suggesting elevated central venous pressure (CVP), which is consistent with a hemodynamic effect from the pericardial effusion; Decidual endometrial reaction containing an embryo; Cardiac activity demonstrated within the embryo confirming viability; Clinical diagnosis of uremic pericarditis causing cardiac tamponade (Patient receives crystalloid fluid bolus infusion; Cardiologist is consulted; Patient is transported to the operating room where pericardiocentesis is performed; A drainage catheter is placed over a guidewire, and 300 mL of serous fluid is removed; Patient becomes hemodynamically stable; During hospitalization, patient is dialyzed and sees an obstetrician-gynecologist; No further vaginal spotting is noted; Patient is discharged from the hospital seven days later with a good outcome)

### SonoSim LiveScan® - Early Stage Pregnancy - Case 10

This 29-year-old female presents with fever and malaise for three days. She complains of abdominal and back pain, and intermittent vomiting. She denies diarrhea but does report vaginal spotting.

Vitals: T=39 C BP=85/44 mmHg HR=105 bpm RR=22 bpm O2 sat=98% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal interface (Morison's pouch); Normal right kidney
Uterus	No intrauterine pregnancy identified; Echogenic intrauterine debris consistent with retained products of conception and/or intrauterine blood clots; Trace free fluid in posterior cul-de-sac
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal heart; Epicardial fat pad

IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg
Summary	Heterogeneous-density endometrial debris nonspecific but consistent with retained products of conception; Clinical diagnosis of severe sepsis caused by septic miscarriage (Patient is treated with repeated crystalloid fluid bolus infusion, antibiotics, and vasopressor/cardioactive medication; Obstetrician-gynecologist is consulted; Patient is transported to the operating room where operative care is performed; Patient is treated in the Intensive Care Unit after surgery; With continued crystalloid infusion, medication for hemodynamic support, and antibiotics, the patient recovers from severe sepsis; Patient is discharged from the hospital seven days later with a good outcome)

## SonoSim LiveScan® - Late Stage Pregnancy - Case 1

This 34-year-old female presents to the emergency department with altered mental status via paramedics. The patient was found down in a retail store. Further history is not available at this time. The patient is unable to provide coherent history.

Vitals: T=37.5 C BP=185/95 mmHg HR=90 bpm RR=20 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	No free fluid in splenorenal space; Limited view due to bowel gas artifact
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg in nongravid patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.43 cm with a 34w0d gestational age; HC measures 29.35 cm with a 32w3d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 32.34 cm with a 36w2d gestational age; Normal four-chamber view of fetal heart
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.59 cm with a 34w0d gestational age
Upper Uterus	Placental attachment at anterior uterine fundus; MVP measures 6.7 cm
Para Ut RLQ	Limited view due to bowel gas artifact
Para Ut RMQ	Limited view due to bowel gas artifact
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Limited view due to bowel gas artifact
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Limited view due to bowel gas artifact

Summary	Fetal biometry measurements consistent with 35-week gestation; Viable fetus; Cardiac activity present; Fetal head as the presenting part indicative of cephalic presentation; Clinical diagnosis of eclampsia (Patient is evaluated by the obstetrician-gynecologist immediately, who continues treatment for eclampsia; Patient's mental status normalizes over the following 30 minutes; No further seizure activity is noted and blood pressure is controlled with continued antihypertensive medication; After stabilization, the patient undergoes induced delivery; A 35-week infant is delivered and recovers uneventfully; After a five-day hospital stay, the patient is discharged home in good condition)
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## SonoSim LiveScan® - Late Stage Pregnancy - Case 2

This 18-year-old female presents following a motor vehicle accident. She complains of shortness of breath and abdominal pain, and states she is pregnant.

Vitals: T=36.8 C BP=86/50 mmHg HR=90 bpm RR=20 bpm O2 sat=95% on room air.

Please use sonography to evaluate this patient.

RUQ	Hemoperitoneum; Free intraperitoneal fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	No free fluid in splenorenal space; Limited view due to bowel gas artifact
Subcostal	Normal cardiac function; Mild left ventricular hypertrophy; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg in nonpregnant patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 7.88 cm with a 31w4d gestational age; HC measures 27.49 cm with a 30w0d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus (severely limited view); AC measures 28.20 cm with a 32w2d gestational age; Normal four-chamber view of fetal heart
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 5.50 cm with a 29w0d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Placental attachment at anterior uterine body; MVP measures 5.7 cm
Para Ut RMQ	Limited view due to bowel gas artifact
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Limited view due to bowel gas artifact
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Limited view due to bowel gas artifact
Summary	Free fluid at hepatorenal interface; Fetal biometry measurements consistent with 31-week gestation; Viable fetus; Cardiac activity present; Fetal head as the presenting part indicative of cephalic presentation; Clinical diagnosis of hemorrhagic shock and placental abruption (Patient is evaluated by the obstetrician-gynecologist and surgeon immediately; Patient stabilizes with surgery and blood-product transfusion; Infant is delivered by cesarean section; Patient recovers



after surgery and is discharged 16 days later in good condition; Infant continues to receive supportive care in the Neonatal Intensive Care Unit)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 3

This 37-year-old pregnant female presents with lower-abdominal discomfort and concerns that her water broke. She was in the process of standing up from a seated position and then noted some clear, nonbloody fluid within her undergarments. She reports palpitations and feeling fatigued over the past week, but otherwise her review of systems is unremarkable.

Vitals: T=37.4 C BP=100/62 mmHg HR=95 bpm RR=20 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Suprapubic	Fetal limbs visualized; Breech presentation
LUQ	No free fluid in splenorenal space; Normal left kidney (limited image view)
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 5 to 10 mmHg in nonpregnant patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.61 cm with a 21w3d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus (severely limited view); AC measures 17.07 cm with a 22w0d gestational age; Normal four-chamber view of fetal heart; Note: Fetal movement resulting in various fetal positioning between image windows
Supraumbilical	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 5.07 cm with a 21w3d gestational age; HC measures 18.60 cm with a 21w0d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Amniotic fluid pocket measures 5.0 cm
Para Ut RMQ	Placental attachment at anterior uterine body
Para Ut RUQ	Amniotic fluid pocket measures 5.0 cm
Para Ut LUQ	Amniotic fluid pocket measures 5.4 cm
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Amniotic fluid pocket measures 3.2 cm
Summary	Fetal biometry measurements consistent with 21-week gestation; Viable fetus; Cardiac activity present; Fetal pelvis as the presenting part indicative of breech presentation; Normal amniotic fluid quantity assessment; Clinical diagnosis of fluid leakage (Patient's obstetrician-gynecologist comes to assess the patient; It is presumed that the patient's "water loss" was most likely caused by urinary stress incontinence; Patient fatigue improves with more sleep and her palpitations resolve spontaneously; Patient is followed closely by her obstetrician-gynecologist and has an otherwise unremarkable second- and third-trimester pregnancy)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 4

This 38-year-old pregnant female presents with abdominal pain, vomiting, and fever.

Vitals: T=38.2 C BP=90/52 mmHg HR=114 bpm RR=20 bpm O2 sat=97% on room air.

Please use sonography to evaluate this patient.

RUQ	No free intraperitoneal fluid in hepatorenal space (Morison's pouch); Cholelithiasis; Stone in gallbladder neck and one in fundus; Thickened anterior gallbladder wall; No pericholecystic fluid; Renal cyst
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Hyperdynamic heart (elevated ejection fraction); No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg in nonpregnant patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.04 cm with a 32w2d gestational age; HC measures 28.68 cm with a 31w4d gestational age; Note: Fetal movement resulting in various fetal positioning between image windows
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 27.60 cm with a 31w5d gestational age; Normal four-chamber view of fetal heart; MVP measures 3.8 cm
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 5.86 cm with a 30w4d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Limited view due to bowel gas artifact
Para Ut RMQ	Limited view due to bowel gas artifact
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Placental attachment at anterior uterine fundus
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Limited view due to bowel gas artifact
Summary	Borderline thickened gallbladder wall, large gallstone in the fundus of the gallbladder, and a small gallstone in the neck of the gallbladder; Fetal biometry measurements consistent with 31-week gestation; Viable fetus; Cardiac activity present; Fetal head as the presenting part indicative of cephalic presentation; Clinical diagnosis of acute calculous cholecystitis (Patient's blood pressure stabilizes after ongoing fluid resuscitation and serum lactate normalizes; Patient is assessed by the obstetrician-gynecologist, who recommends continued electronic fetal monitoring, but is reassured by the current tracing; Surgeon evaluates the patient and discusses the risks and benefits of cholecystectomy with the patient and obstetrician-gynecologist)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 5

This 32-year-old pregnant female presents after a syncopal episode, which occurred after she stood up quickly from a recumbent position. She fell from a standing height, striking her abdomen when she fell. She reports persistent weakness, lightheadedness, and has some abdominal discomfort.

Vitals: T=36.9 C BP=83/45 mmHg HR=110 bpm RR=21 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Polycystic right kidney
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	No free fluid in splenorenal space; Polycystic left kidney
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg in nonpregnant patients; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 7.81 cm with a 31w2d gestational age; HC measures 29.43 cm with a 32w3d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with limited views; AC measures 26.63 cm with a 30w5d gestational age; Normal four-chamber view of fetal heart; MVP measures 5.1 cm
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.16 cm with a 32w0d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Limited view due to bowel gas artifact
Para Ut RMQ	Placental attachment at posterior uterine body
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Limited view due to bowel gas artifact
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Limited view due to bowel gas artifact
Summary	Bilateral polycystic kidney disease; Fetal biometry measurements consistent with 32-week gestation; Viable fetus; Cardiac activity present; Fetal head as the presenting part indicative of cephalic presentation; Clinical diagnosis of syncope and abdominal trauma (Patient's vital signs remain stable; Obstetrician-gynecologist suspects that the patient's presenting symptoms were related to Aortocaval Compression Syndrome and dehydration; Patient's lightheadedness resolves and she does not experience orthostatic symptoms with positional change; Patient is observed on the electronic fetal monitor for several hours in labor and delivery to monitor for signs of placental abruption or fetal distress)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 6

This 34-year-old pregnant female presents with progressive fatigue, shortness of breath, and abdominal discomfort over one week. She denies having chest pain, fever, cough, vaginal bleeding, or water loss.

Vitals: T=37.1 C BP=102/62 mmHg HR=120 bpm RR=28 bpm O2 sat=90% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	No free fluid in splenorenal space; Normal left kidney

Subcostal	Severely decreased ejection fraction of 15 to 20% with global hypokinesis; Dilated right ventricle with moderately decreased function; No pericardial effusion
Proximal IVC	IVC diameter greater than 2.1 cm; Respirophasic collapse less than 50%; Right atrial pressure 15 to 20 mmHg in nongravid patients: Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 9.34 cm with a 38w0d gestational age; HC measures 33.33 cm with a 38w1d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with severely limited views; AC measures 34.45 cm with a 38w3d gestational age; Normal four-chamber view of fetal heart
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 7.54 cm with a 38w4d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Amniotic fluid pocket measures 3.3 cm
Para Ut RMQ	Placental attachment at anterior uterine fundus
Para Ut RUQ	Amniotic fluid pocket measures 6.2 cm
Para Ut LUQ	Amniotic fluid pocket measures 4.4 cm
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Amniotic fluid pocket measures 1.7 cm
Summary	Severely depressed left ventricular ejection fraction (15 to 20%) with global hypokinesis; Fetal biometry measurements consistent with 38-week gestation; Viable fetus; Cardiac activity present; Fetal head as the presenting part indicative of cephalic presentation; Normal amniotic fluid quantity assessment; Clinical diagnosis of peripartum cardiomyopathy (Patient is admitted for ongoing care; An interdisciplinary team that includes a cardiologist, perinatologist, neonatologist, and obstetrician oversee her condition; Shortly thereafter she delivers a term infant; Patient's cardiomyopathy gradually improves over the following six months)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 7

This 28-year-old pregnant female presents with vaginal bleeding over a four-hour time frame. She denies trauma, pelvic or lumbar pain, or vaginal water loss. She is very concerned about fetal viability.

Vitals: T=37.3 C BP=96/55 mmHg HR=100 bpm RR=20 bpm O2 sat=99% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Suprapubic	Fetal cranium visualized; Funic presentation
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1 cm; Respirophasic collapse less than or equal to 50%; Right atrial pressure 5 to 10 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients

Lower Uterus	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 5.21 cm with a 21w6d gestational age; HC measures 19.64 cm with a 21w6d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 17.09 cm with a 22w0d gestational age; Normal four-chamber view of fetal heart; Note: Fetal movement resulting in various fetal positioning between image windows
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.90 cm with a 22w4d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Limited view due to bowel gas artifact
Para Ut RMQ	Limited view due to bowel gas artifact
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Limited view due to bowel gas artifact
Para Ut LMQ	Placental attachment at posterior uterine fundus; MVP measures 3.1 cm
Para Ut LLQ	Limited view due to bowel gas artifact
Summary	No evidence of hemorrhage; No placenta previa; Fetal biometry measurements consistent with 22-week gestation; Viable fetus; Cardiac activity present; Umbilical cord as the presenting part indicative of funic presentation; Clinical diagnosis of vaginal bleeding (Patient is admitted for observation; Electronic fetal monitor tracing remains normal; No further episodes of vaginal bleeding are noted; Patient is discharged three days later; Remainder of her pregnancy is unremarkable and she has vaginal delivery at 38 weeks gestational age)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 8

This 23-year-old pregnant female presents with diffuse myalgia and back pain for two days. She reports generalized weakness, vomiting (without diarrhea), and headache. She denies respiratory symptoms, abdominal pain, vaginal bleeding, or water loss.

Vitals: T=38 C BP=84/43 mmHg HR=110 bpm RR=23 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Normal right kidney
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	No free fluid in splenorenal space; Normal left kidney
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.25 cm with a 33w1d gestational age; HC measures 27.81 cm with a 31w4d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus; AC measures 28.88 cm with a 32w6d gestational age; Normal four-chamber view of fetal heart

Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.36 cm with a 33w0d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Limited view due to bowel gas artifact
Para Ut RMQ	Placental attachment at right-lateral uterine body; Placental calcifications; MVP measures 5.9 cm
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Limited view due to bowel gas artifact
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Limited view due to bowel gas artifact
Summary	Fetal biometry measurements consistent with 32-week gestation; Viable fetus; Cardiac activity present; Fetal head as the presenting part indicative of cephalic presentation; Clinical diagnosis of pyelonephritis and severe sepsis (Patient is admitted for ongoing hydration and treatment with antibiotics for pyelonephritis; With volume resuscitation and antibiotics, the electronic fetal monitor tracing improves and uterine contractions subside; By hospital day two, the patient feels better, is afebrile, and has no further vomiting; Patient is then discharged home on hospital day three and has a good outcome)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 9

This 28-year-old female presents in critical condition from trauma sustained during a motor vehicle accident. She was wearing a seat belt in the front passenger seat in a vehicle that had major front-end impact. The patient has been unresponsive since emergency personnel arrival at the scene.

Vitals: T=37 C BP=63/38 mmHg HR=120 bpm RR=18 bpm O2 sat=93% with high-flow bag-valve mask O2 ventilation.

Please use sonography to evaluate this patient.

RUQ	Hemoperitoneum; Free intraperitoneal fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Anechoic fluid superior to diaphragm (pleural fluid); Normal right kidney
Suprapubic	Fetal cranium visualized; Cephalic presentation
LUQ	Hemoperitoneum; Free intraperitoneal fluid in splenorenal space; Anechoic fluid superior to diaphragm (pleural fluid); Normal left kidney
Subcostal	Normal cardiac function; Trace pericardial effusion; Right-sided anechoic pleura fluid collection; Right-lung consolidation
Proximal IVC	IVC diameter less than or equal to 2.1cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	BPD and HC measurements at level of fetal brain showing limited view of cavum septi pellucidi, third ventricle, and thalami; BPD measures 8.83 cm with a 35w5d gestational age; HC measures 31.59 cm with a 35w3d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with limited view; AC measures 29.42 cm with a 33w3d gestational age; Normal four-chamber view of fetal heart
Supraumbilical	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 6.57 cm with a 33w6d gestational age
Upper Uterus	Limited view due to bowel gas artifact

Para Ut RLQ	Limited view due to bowel gas artifact
Para Ut RMQ	Placental attachment at posterior uterine body; MVP measures 3.4 cm
Para Ut RUQ	Limited view due to bowel gas artifact
Para Ut LUQ	Limited view due to bowel gas artifact
Para Ut LMQ	Limited view due to bowel gas artifact
Para Ut LLQ	Limited view due to bowel gas artifact
Summary	Patient initially presents with vital signs identified in the case history; subsequently decompensates hemodynamically precipitating a perimortem c-section; Fetal biometry measurements consistent with 34-week gestation; Potentially viable fetus with bradycardic heart rate; Fetal head as the presenting part indicative of cephalic presentation; Clinical diagnosis of traumatic cardiac arrest (After emergency department cesarean section delivery, neonatal resuscitation is initiated; Infant responds to resuscitation and continues to recover in the Neonatal Intensive Care Unit; Despite continued resuscitative efforts, the mother cannot be resuscitated)

### SonoSim LiveScan® - Late Stage Pregnancy - Case 10

This 28-year-old pregnant female presents with abdominal and thoracolumbar back pain for three days. She has had vomiting, without diarrhea. The patient is uncertain of the gestational age.

Vitals: T=37.9 C BP=90/58 mmHg HR=100 bpm RR=22 bpm O2 sat=96% on room air.

Please use sonography to evaluate this patient.

RUQ	No free fluid in hepatorenal space (Morison's pouch); No hepatobiliary pathology noted; Renal cyst; Nephrolith; Punctate calcifications; No hydronephrosis
Suprapubic	Fetal limbs visualized; Breech presentation
LUQ	No free fluid in splenorenal space (limited view); Moderate hydronephrosis
Subcostal	Normal cardiac function; No pericardial effusion; No right-heart strain
Proximal IVC	IVC diameter less than or equal to 2.1cm; Respirophasic collapse greater than 50%; Right atrial pressure 0 to 5 mmHg; Important: limited data with regard to how IVC size and respirophasic changes are affected by uterine compression in second- and third-trimester pregnant patients
Lower Uterus	FL measurement from cartilaginous greater trochanteric and lateral condylar junctions with ossified femur; FL measures 3.34 cm with a 20w3d gestational age
Infraumbilical	AC measurement at level of fetal stomach, spine, fetal ribs, and intrahepatic segment of umbilical vein at portal sinus with limited view; AC measures 15.32 cm with a 20w4d gestational age; Normal four-chamber view of fetal heart
Supraumbilical	BPD and HC measurements at level of fetal brain showing cavum septi pellucidi, third ventricle, and thalami; BPD measures 4.66 cm with a 20w1d gestational age; HC measures 17.39 cm with a 20w0d gestational age
Upper Uterus	Limited view due to bowel gas artifact
Para Ut RLQ	Amniotic fluid pocket measures 4.3 cm
Para Ut RMQ	Placental attachment at posterior uterine body
Para Ut RUQ	Amniotic fluid pocket measures 3.2 cm
Para Ut LUQ	Amniotic fluid pocket measures 2.7 cm
Para Ut LMQ	Limited view due to bowel gas artifact

Para Ut LLQ	Amniotic fluid pocket measures 4.0 cm
Summary	Left-sided, moderate-severity hydronephrosis; Bilateral nephrolithiasis; Fetal biometry measurements consistent with 21-week gestation; Viable fetus; Cardiac activity present; Fetal pelvis as the presenting part indicative of breech presentation; Normal amniotic fluid quantity assessment; Clinical diagnosis of pyelonephritis with obstructive uropathy (Patient's blood pressure stabilizes after ongoing fluid resuscitation, and her serum lactate normalizes; Patient is assessed by the interventionalist, who recommends and performs a renal decompression procedure for obstructive uropathy; Patient recovers in the hospital over the following five days and is discharged home with a good outcome)

### SonoSim LiveScan® - Trauma Care - Case 1

This 61-year-old male presents with complaints of chest pain and shortness of breath following a fall from a second-story balcony.

Vitals: T=37 C BP=120/64 mmHg HR=98 bpm RR=30 bpm O2 sat=95% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid; Prominent prostate gland with irregular surface contour and internal calcification; Small bladder diverticulum
LUQ	Normal LUQ window; No free fluid
Subcostal	Normal cardiac window; Normal ejection fraction
Right Chest	No evidence of lung sliding; Supportive of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Right-sided pneumothorax in Right Chest window (Lack of lung sliding, rib movement only; Suggestive M-mode findings); No evidence of intraperitoneal free fluid; Clinical diagnosis of isolated right-sided pneumothorax (Patient treated with small-caliber tube thoracostomy)

### SonoSim LiveScan® - Trauma Care - Case 2

This 38-year-old male presents with a single stab wound just to the left of the sternum, below the level of the left nipple. Patient complains of weakness and localized chest pain at the site of the wound.

Vitals: T=36 C BP=94/p mmHg HR=134 bpm RR=24 bpm O2 sat=92% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; Incidental right renal punctate calcifications
Suprapubic	Normal pelvic window; Prominent left-sided paravesicular iliac vasculature
LUQ	Normal LUQ window; Poorly visualized left kidney; Incidental left renal stone
Subcostal	Large pericardial fluid collection; No sonographic evidence of pericardial tamponade
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Large acute pericardial effusion in Subcostal window (Moderately dilated IVC showing mild collapse with inspiration; No definitive echocardiographic evidence of pericardial tamponade); No evidence of intraperitoneal fluid; Clinical diagnosis of hemodynamically significant acute



pericardial effusion secondary to penetrating trauma (Patient transported to OR for emergent thoracotomy)

### SonoSim LiveScan® - Trauma Care - Case 3

This 22-year-old male presents following a gunshot wound to the right flank. Patient complains of weakness, shortness of breath, and chest pain.

Vitals: T=36 C BP=100/54 mmHg HR=100 bpm RR=20 bpm O2 sat=92% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	No evidence of lung sliding; Supportive of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Right-sided pneumothorax in Right Chest window (Lack of lung sliding, rib movement only; Suggestive M-mode findings; Absent sliding-lung sign with power Doppler); No evidence of intraperitoneal free fluid; Clinical diagnosis of isolated right-sided pneumothorax (Patient treated with small-caliber tube thoracostomy)

### SonoSim LiveScan® - Trauma Care - Case 4

This 64-year-old female patient presents with complaints of left flank pain following a motor vehicle accident.

Vitals: T= 36 C BP= 94/50 mmHg HR= 114 bpm RR= 18 bpm O2 sat=97% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid; Perinephric fat pad; Additional split-screen image: Abdominal CT
Suprapubic	Normal pelvic window; No free fluid; Additional split-screen image: Abdominal-pelvic CT
LUQ	Suprasplenic hematoma vs. free fluid between diaphragm and superior aspect of spleen; Left kidney not visualized; Additional split-screen image: Abdominal CT
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Suprasplenic hematoma vs. free fluid in LUQ window; Splenic injury resulting from blunt trauma (Patient managed non-operatively with blood product transfusion)

### SonoSim LiveScan® - Trauma Care - Case 5

This 25-year-old male presents following a rollover motor vehicle accident. Patient has a seatbelt sign across his chest and abdomen.

Vitals: T=37 C BP=148/88 mmHg HR=76 bpm RR=20 bpm O2 sat=99% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid; Additional split-screen image: Abdominal CT
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Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid; Additional split-screen image: Abdominal CT
Subcostal	Normal subcostal window; Normal ejection fraction; Findings video reveals collapsible IVC and possible hypovolemia; Ultrasound window does not reveal respirophasic variation as it was obtained during breath holding
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Narrow-diameter IVC with exaggerated respirophasic collapse in Subcostal Findings video (Not seen in Subcostal ultrasound window due to image acquisition protocol involving breath holding); No definitive evidence of intraperitoneal free fluid; Clinical diagnosis of mild hypovolemia without direct evidence of intraperitoneal hemorrhage (No evidence of intraperitoneal hemorrhage on follow-up CT imaging; Patient managed with observation and crystalloid infusion)

### SonoSim LiveScan® - Trauma Care - Case 6

This 6-year-old male presents following a fall from a second-story window.

Vitals: T=37 C BP=110/50 mmHg HR=110 bpm RR=24 bpm O2 sat=98% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Normal pediatric eFAST examination; No evidence of intraperitoneal injury or pneumothoraces; Clinical diagnosis of multiple contusions (Patient admitted for inpatient observation and serial abdominal examinations)

### SonoSim LiveScan® - Trauma Care - Case 7

This 21-year-old male presents with complaints of chest pain and shortness of breath following a gunshot wound to the left chest.

Vitals: T=36 C BP=88/p mmHg HR=124 bpm RR=32 bpm O2 sat=91% on 100% non-rebreather face mask.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid
Suprapubic	Normal pelvic window; No free fluid
LUQ	Normal LUQ window; No free fluid; Perinephric fat pad
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Positive lung window; Anechoic fluid collection, supportive of left-sided hemothorax; Pathologic B-line artifacts; No evidence of pneumothorax

Summary	Anechoic fluid collection and localized evidence of alveolar-interstitial fluid in Left Chest window (Localized multiple B-lines; Lung sliding noted; No evidence of pneumothorax under site of transducer); Narrow and collapsible IVC in Subcostal window (Consistent with hypovolemia); No evidence of intraperitoneal free fluid; Clinical diagnosis of isolated left-sided hemothorax with pulmonary contusion and hemorrhagic shock secondary to penetrating trauma (Patient treated with tube thoracostomy and blood product transfusion)
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### SonoSim LiveScan® - Trauma Care - Case 8

This 48-year-old male, with a remote history of alcohol abuse, presents with complaints of left-sided chest pain and abdominal bloating following a fall onto his left side.

Vitals: T=36 C BP=140/62 mmHg HR=84 bpm RR=18 bpm O2 sat=98% on room air.

Please perform an eFAST exam.

RUQ	Positive RUQ window; Subdiaphragmatic free fluid
Suprapubic	Positive pelvic window; Free fluid in pelvis
LUQ	Abnormal LUQ window; Anechoic region within spleen
Subcostal	Normal subcostal window; Normal ejection fraction; Pleural effusion suggested; No pericardial effusion
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Anechoic free fluid in RUQ and Suprapubic windows; Clinical diagnosis of moderate volume acute intraperitoneal hemorrhage; Splenic laceration identified resulting from blunt trauma; Suggestion of hemothorax (Patient managed non-operatively with blood product transfusion)

### SonoSim LiveScan® - Trauma Care - Case 9

This 19-year-old female, with a history of idiopathic renal failure, presents with abdominal guarding following a motor vehicle accident. Patient complains of diffuse abdominal pain.

Vitals: T=37 C BP=90/p mmHg HR=99 bpm RR=22 bpm O2 sat=96% on room air.

Please perform an eFAST exam.

RUQ	Normal RUQ window; No free fluid; Atretic right kidney
Suprapubic	Positive pelvic window; Free fluid visible; Inflated Foley catheter within a decompressed bladder
LUQ	Positive LUQ window; Free fluid within suprasplenic and splenorenal spaces; Left-sided pleural effusion; Atretic left kidney
Subcostal	Normal subcostal window; Normal ejection fraction; Mildly-narrowed IVC luminal diameter
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Bilateral atretic kidneys in LUQ and RUQ windows consistent with chronic renal insufficiency; Anechoic free fluid in Suprapubic and LUQ windows; Mild narrowing of IVC in Subcostal window; Clinical diagnosis of acute intraperitoneal hemorrhage secondary to blunt trauma (Patient underwent emergent exploratory laparotomy due to diffuse tenderness, hypotension, and intraperitoneal fluid collection following acute blunt traumatic injury)

### SonoSim LiveScan® - Trauma Care - Case 10

This 51-year-old homeless and intoxicated male presents following an assault by multiple assailants. Patient complains of diffuse abdominal pain, chest pain, and dyspnea.

Vitals: T=37 C BP=96/44 mmHg HR=110 bpm RR=22 bpm O2 sat=96% on room air.

Please perform an eFAST exam.

RUQ	Positive RUQ window; Large amount of anechoic free fluid
Suprapubic	Positive pelvic window; Anechoic free fluid surrounding bladder
LUQ	Positive LUQ window; Small amount of anechoic free fluid; Splenomegaly
Subcostal	Normal subcostal window; Normal ejection fraction
Right Chest	Normal lung sliding; No evidence of pneumothorax
Left Chest	Normal lung sliding; No evidence of pneumothorax
Summary	Markedly positive eFAST examination (Evidence of large-volume intraperitoneal fluid collection with anechoic free fluid noted in RUQ, Suprapubic, and LUQ windows); Splenomegaly in LUQ window; Thickened gallbladder wall; Small-sized liver with irregular margins and coarse echotexture suggestive of liver cirrhosis; Patient admitted to monitored inpatient bed and ultimately received a clinical diagnosis of end-stage liver disease and ascites (Based on suggestive sonographic features, CT imaging with Hounsfield unit analysis suggestive of ascites rather than blood, stable serial hemoglobin values, and normalization of vital signs during inpatient course)

### SonoSim LiveScan® - Hepatobiliary - Case 1

This 91-year-old female presents with upper abdominal pain lasting for several hours. Please evaluate her hepatobiliary system with ultrasonography.

RUQ	Liver with irregular margins and increased echotexture; Normal right kidney; No free fluid in hepatorenal interface (Morison's Pouch)
X-7	Gallbladder with multiple mobile and nonmobile, echogenic foci
Proximal IVC	Liver with increased echotexture; IVC diameter greater than 2.1 cm with less than or equal to 50% collapse; Right atrial pressure 15 to 20 mmHg
LUQ	Normal spleen; Normal left kidney; No free fluid in splenorenal interface
Summary	Cirrhotic liver; Gallbladder with multiple gallstones and polyps; Clinical diagnosis of cholelithiasis

### SonoSim LiveScan® - Hepatobiliary - Case 2

This 30-year-old female in her third trimester of pregnancy presents with epigastric pain and anorexia, and is found to have an elevated lipase level. Please evaluate her hepatobiliary system with ultrasonography.

RUQ	Liver with increased echogenicity; Gallbladder with echogenic foci
X-7	Gallbladder with echogenic foci; Common bile duct .6 cm
Proximal IVC	Normal pancreas; Normal aorta, IVC, splenic vein, and superior mesenteric artery
LUQ	Normal spleen size and texture; Normal left kidney; No free fluid in splenorenal interface
Summary	Borderline sonographic criteria for acute cholecystitis; Distended gallbladder with impacted gallstone within gallbladder neck; Gallbladder wall thickness = 4 mm; CBD = 6 mm; No pericholecystic fluid; Fatty liver. Patient admitted for pain control and cholecystectomy

### SonoSim LiveScan® - Hepatobiliary - Case 3

This 45-year-old male with a longstanding history of alcohol abuse presents with abdominal distention and intermittent right upper quadrant pain over several months. Please evaluate his hepatobiliary system with ultrasonography.

RUQ	Small, shrunken liver with irregular margins and heterogeneous echotexture; Echogenic density in right kidney; Free fluid in hepatorenal interface (Morison's pouch)
X-7	Small, shrunken liver with irregular margins and heterogeneous echotexture; Gallbladder with multiple echogenic foci; Free fluid along lateral edge of left lobe of liver
Proximal IVC	Limited view due to bowel gas artifact; Free fluid along lateral edge of left lobe of liver
LUQ	Enlarged spleen; Trace anechoic fluid along superior pole of spleen and in splenorenal interface
Summary	Cirrhotic liver; Ascites; Gallbladder with multiple small gallstones; Clinical diagnosis of chronic cirrhosis, cholelithiasis, and mild splenomegaly

### SonoSim LiveScan® - Hepatobiliary - Case 4

This 53-year-old male presents with several months of progressive right upper quadrant pain and abdominal distension. Please evaluate his hepatobiliary system with ultrasonography.

RUQ	Liver with heterogeneous echotexture; Normal right kidney; Normal IVC; No free fluid in hepatorenal interface (Morison's pouch); No free fluid in pleural space
X-7	Liver with heterogeneous echotexture; Normal gallbladder; Normal aorta and IVC; Normal main portal vein diameter; Common bile duct within normal limits
Proximal IVC	Liver with heterogeneous echotexture; Caudate lobe lesion of 3.4 cm; Normal aorta, IVC, splenic vein, and hepatic vein; Normal pancreatic head
LUQ	Normal left kidney; No free fluid in splenorenal interface
Summary	Liver with heterogeneous echotexture and caudate lobe lesion of 3.4 cm; Clinical diagnosis of hepatic metastasis

### SonoSim LiveScan® - Hepatobiliary - Case 5

This 49-year-old-male presents with weakness and diffuse abdominal discomfort. Patient has history of cirrhosis with transjugular intrahepatic portosystemic shunt (TIPS). Please evaluate his hepatobiliary system with ultrasonography.

RUQ	Liver with irregular margins and heterogeneous echotexture; Transjugular intrahepatic portosystemic shunt (TIPS); Recanalized umbilical vein; Normal gallbladder; No free fluid in hepatorenal interface (Morison's pouch)
X-7	Liver with irregular margins and heterogeneous echotexture; Recanalized umbilical vein; Normal gallbladder
Proximal IVC	Limited view due to bowel gas artifact
LUQ	Enlarged spleen; Normal left kidney; No free fluid in splenorenal interface
Summary	Stable TIPS; Recanalized umbilical vein; Clinical diagnosis of cirrhosis and splenomegaly

### SonoSim LiveScan® - Hepatobiliary - Case 6

This 72-year-old female presents with two days of coughing, progressive right upper quadrant vs. lower chest respirophasic discomfort. Patient has history of pulmonary hypertension, scoliosis, and kyphosis. Please evaluate her upper abdomen with ultrasonography.

RUQ	Normal right kidney; Free fluid surrounding liver and in hepatorenal interface (Morison's pouch)
X-7	Normal right kidney; Dilated bowel; Free fluid in abdominal cavity

Proximal IVC	Normal pancreas; Normal IVC; Normal splenic vein; No free fluid
LUQ	Normal spleen size and texture; Normal left kidney; No free fluid in splenorenal interface
Summary	Ascites; Clinical diagnosis not determined

### SonoSim LiveScan® - Hepatobiliary - Case 7

This 35-year-old-female presents with one-week diffuse abdominal pain, nausea, and vomiting. Please evaluate her hepatobiliary system with ultrasonography.

RUQ	Normal liver size and texture; Normal right kidney; No free fluid in hepatorenal interface (Morison's pouch)
X-7	Gallbladder with nonmobile echogenic foci
Proximal IVC	Normal liver echotexture; Normal pancreatic head; No free fluid
LUQ	Normal spleen size and texture; Normal left kidney; No free fluid in splenorenal interface
Summary	Gallbladder with nonmobile, echogenic foci; Clinical diagnosis of asymptomatic gallbladder polyp, no evidence of cholecystitis

### SonoSim LiveScan® - Hepatobiliary - Case 8

This 31-year-old male presents with vomiting and intermittent epigastric pain that intensifies with eating over the last week. Please evaluate his hepatobiliary system with ultrasonography.

RUQ	Normal liver size and texture; Normal right kidney; No free fluid in hepatorenal interface (Morison's pouch); No free fluid in the pleural space
X-7	Normal gallbladder; Normal gallbladder wall measurement; Normal main portal vein diameter
Proximal IVC	Pancreatic mass of 4 cm x 2 cm; Dilated pancreatic duct
LUQ	Normal spleen size and texture; Normal left kidney; No free fluid in splenorenal interface
Summary	Pancreatic mass with dilated pancreatic duct; Clinical diagnosis of pancreatic cancer

### SonoSim LiveScan® - Hepatobiliary - Case 9

This 56-year-old male presents with intermittent right upper quadrant pain, nausea, and vomiting. Past medical history of cirrhosis with transjugular intrahepatic portosystemic shunt (TIPS). Please evaluate his hepatobiliary system with ultrasonography.

RUQ	Liver with irregular margins and heterogeneous echotexture; Transjugular intrahepatic portosystemic shunt (TIPS)
X-7	Liver with irregular margins and heterogeneous echotexture; Gallbladder with multiple echogenic foci
Proximal IVC	Liver with irregular margins and heterogeneous echotexture; IVC diameter greater than 2.1 cm with less than or equal to 50% collapse; Right atrial pressure 15 to 20 mmHg
LUQ	Enlarged spleen; Normal left kidney; No free fluid in splenorenal interface
Summary	Cirrhotic liver; Stable TIPS; Clinical diagnosis of hepatitis C, cholelithiasis, and splenomegaly

### SonoSim LiveScan® - Hepatobiliary - Case 10

This 79-year-old female presents with right upper quadrant pain that has been intermittent for several days. Please evaluate her hepatobiliary system with ultrasonography.

RUQ	Gallbladder with echogenic foci and trace pericholecystic free fluid
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X-7	Gallbladder with echogenic foci and trace pericholecystic free fluid; Common bile duct .7 cm
Proximal IVC	Normal pancreas; Normal aorta; Normal superior mesenteric artery; No free fluid seen
LUQ	Normal spleen size and texture; Normal left kidney; No fluid seen in splenorenal interface
Summary	Acute symptomatic cholelithiasis; Large gallstone; Upper limits of normal CBD = 7mm (adjusted for patient age); Normal gallbladder wall thickness; Trace fluid around margin of gallbladder (unclear origin)

### SonoSim LiveScan® - Genitourinary - Case 1

This 39-year-old male with prior history of renal lithiasis and stenting presents with a fever, chills, and bilateral flank pain. Please evaluate his kidneys and bladder with ultrasonography.

RUQ	Right kidney with moderate-to-severe pelvic dilatation; Echogenic foci seen within the renal pelvis; Renal parenchyma appears normal; No free fluid in hepatorenal interface (Morison's pouch)
Suprapubic	Bladder with cluster of echogenic foci within the dependent portion of the bladder, with largest individual calculus measuring approximately 9 mm
LUQ	Normal left kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in splenorenal interface
Summary	Right kidney with nephrolithiasis and moderate pelvic dilatation; Bladder has multiple free floating calculi; Normal left kidney; Clinical diagnosis of right kidney hydronephrosis due to distal ureter obstruction, most likely an impacted stone

### SonoSim LiveScan® - Genitourinary - Case 2

This 68-year-old male presents with a one-week history of intermittent left flank pain. Pain has worsened over the last several hours and is now accompanied by nausea and vomiting. Please examine his kidneys and bladder with ultrasonography.

RUQ	Normal right kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in hepatorenal interface (Morison's pouch)
Suprapubic	Bladder with small calcification in area of left ureterovesical junction; Enlarged, complex (i.e., partially cystic) appearing prostate; Normal bladder wall
LUQ	Left kidney with mild pelvic dilatation; No evidence of nephrolithiasis; No free fluid in splenorenal interface
Summary	Left kidney with mild pelvic dilatation; Bladder with a small calcification seen in area of left ureterovesical junction; Normal right kidney; Clinical diagnosis of mild left kidney hydronephrosis due to an impacted renal stone in the ureterovesical junction; Further studies required to evaluate enlarged, partially cystic prostate

### SonoSim LiveScan® - Genitourinary - Case 3

This 31-year-old female presents with a fever and bilateral flank pain persisting for several hours. Please evaluate her kidneys and bladder with ultrasonography.

RUQ	Enlarged right kidney with multiple cysts (some have septations); Increased echogenicity of renal cortex; Punctate calcifications
Suprapubic	Normal bladder and bladder wall; Trace free fluid in the posterior cul-de-sac

LUQ	Enlarged left kidney with multiple cysts (some have septations); Increased echogenicity of renal cortex; Echogenic foci consistent with renal stone; Punctate calcifications
Summary	Markedly enlarged, echogenic bilateral kidneys with associated cysts of multiple sizes; Echogenic foci consistent with renal stone in left kidney; No evidence of hydronephrosis; Clinical diagnosis of medical renal disease, most likely polycystic kidney disease; Bilateral punctate calcifications; Left kidney nephrolithiasis

### SonoSim LiveScan® - Genitourinary - Case 4

This 23-year-old female presents with a fever and right flank pain. Patient has a family history of renal stones. Please evaluate her kidneys and bladder with ultrasonography.

RUQ	Right kidney with mild pelvic dilatation; Dilated proximal ureter; Small calcification in proximal ureter; No free fluid in hepatorenal interface (Morison's pouch) (Color Doppler enabled)
Suprapubic	Normal bladder and bladder wall; No free fluid in posterior cul-de-sac (Color Doppler enabled)
LUQ	Normal left kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in splenorenal interface (Color Doppler enabled)
Summary	Right kidney with mild pelvic dilatation; Normal bladder and left kidney; Clinical diagnosis of right kidney hydronephrosis due to distal obstruction (with an additional nonobstructing renal calculus in the proximal ureter); Further studies required to determine level of obstruction

### SonoSim LiveScan® - Genitourinary - Case 5

This 49-year-old female presents for a second opinion following discovery of a perirenal mass on a recent CT scan she underwent following a motor vehicle accident. Please evaluate her kidneys and bladder with ultrasonography.

RUQ	Normal right kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in the hepatorenal interface (Morison's pouch)
Suprapubic	Normal bladder and bladder wall; No free fluid in posterior cul-de-sac
LUQ	Normal left kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in splenorenal interface; Small, solid-appearing mass near the superior pole of left kidney, not well visualized
Summary	Normal right kidney, left kidney, and bladder; Left kidney has a small, solid-appearing mass near the superior pole; Clinical diagnosis of left adrenal mass; Further studies required to evaluate and determine histology of mass

### SonoSim LiveScan® - Genitourinary - Case 6

This 30-year-old female presents with severe right groin and flank pain persisting for several hours. Please evaluate her kidneys and bladder with ultrasonography.

RUQ	Right kidney with mild-to-moderate pelvic dilatation; Renal parenchyma appears normal; Echogenic foci seen; No free fluid in hepatorenal interface (Morison's pouch)
Suprapubic	Normal bladder and bladder wall; No free fluid in posterior cul-de-sac
LUQ	Normal left kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in splenorenal interface
Summary	Right kidney with moderate pelvic dilatation; Normal bladder and left kidney; Clinical diagnosis of right kidney hydronephrosis due to distal ureter obstruction, most likely an impacted stone; Right kidney nephrolithiasis

### SonoSim LiveScan® - Genitourinary - Case 7

This 74-year-old male presents with diffuse abdominal distention that has been present for many years but is getting worse and is now accompanied by bilateral flank pain. Please evaluate his kidneys and bladder with ultrasonography.



RUQ	Enlarged right kidney with multiple cysts (some have septations); Increased echogenicity of renal cortex; Free fluid in hepatorenal interface (Morison's pouch) (Color Doppler enabled)
Suprapubic	Partially filled bladder; Moderate amount of free fluid in pelvis; Free floating bowel (Color Doppler enabled)
LUQ	Enlarged left kidney with multiple cysts (some have septations); Increased echogenicity of renal cortex (Color Doppler enabled)
Summary	Enlarged echogenic bilateral kidneys with associated cysts of multiple sizes; Moderate amount of free fluid in the abdomen and pelvis; Clinical diagnosis of medical renal disease, most likely polycystic kidney disease and ascites

### SonoSim LiveScan® - Genitourinary - Case 8

This 29-year-old male presents with dysuria and intermittent left flank pain. Please evaluate his kidneys and bladder with ultrasonography.

RUQ	Right kidney with tiny microcalcifications; No hydronephrosis; No free fluid in the hepatorenal interface (Morison's pouch)
Suprapubic	Small calcification seen impacted in area of left ureterovesical junction; Normal bladder wall
LUQ	Left kidney with tiny microcalcifications; No hydronephrosis; No free fluid in splenorenal interface
Summary	Right and left kidneys with microcalcifications and no hydronephrosis; Small calcification seen in the left ureterovesical junction; Clinical diagnosis of an impacted stone in the left ureterovesical junction, likely caused by nephrolithiasis

### SonoSim LiveScan® - Genitourinary - Case 9

This 31-year-old male presents with right flank pain for several hours. Please evaluate his kidneys and bladder with ultrasonography.

RUQ	Right kidney with mild pelvic dilatation; Dilated proximal ureter; Renal parenchyma appears normal; No free fluid in hepatorenal interface (Morison's pouch) (Color Doppler enabled)
Suprapubic	Normal bladder and bladder wall; Small calcifications seen within prostate
LUQ	Normal left kidney; No evidence of nephrolithiasis; No hydronephrosis; No free fluid in splenorenal interface (Color Doppler enabled)
Summary	Right kidney with mild pelvic dilatation and a dilated proximal ureter; Normal bladder and left kidney; Clinical diagnosis of right kidney hydronephrosis due to distal ureter obstruction, most likely an impacted stone

### SonoSim LiveScan® - Genitourinary - Case 10

This 62-year-old male is unable to accurately recall his medical history but reports "some type of kidney disease" and was told his kidneys are failing. Please evaluate his kidneys and bladder with ultrasonography.

RUQ	Enlarged right kidney with multiple cysts (some have septations); Increased echogenicity of renal cortex (Color Doppler enabled)
Suprapubic	Normal bladder and bladder wall (Color Doppler enabled)
LUQ	Enlarged left kidney with multiple cysts; (some have septations); Increased echogenicity of renal cortex (Color Doppler enabled)
Summary	Markedly enlarged echogenic bilateral kidneys with associated cysts of multiple sizes; Normal bladder; Clinical diagnosis of medical renal disease, most likely polycystic kidney disease

## WCUME - Final - Case 1

This patient is part of the final test.

Please use sonography to examine her.

Right Eye	Right eye with retinal detachment
Left Eye	Left intraocular foreign body in posterior chamber
Neck	Thyroid cyst / nodule
Right Chest	Right lung; Right anterior chest; Pleural sliding; Multiple densely-spaced pathologic B-lines; Thickened pleural interface
Left Chest	Right lung; Right anterior chest; Pleural sliding; Multiple densely-spaced pathologic B-lines; Thickened pleural interface
R Lung Mid Ax	Large right-sided pleural effusion; Ascites
RUQ	Positive RUQ window; Large amount of anechoic free fluid; Small-sized liver with irregular margins and coarse echotexture; No accompanying split-screen image
Right Kidney	Right kidney; Moderate hydronephrosis with hydroureter; Multiple intrarenal stones; Additional split-screen image: Abdominal CT
Suprapubic	Bladder stone
Uterus	Twin live intrauterine pregnancies (cephalad view)
LUQ	Left kidney; Large renal cyst; No accompanying split-screen image
Mid-Aorta	Fusiform abdominal aortic aneurysm measuring 10 cm length x 4.5 cm anterior-posterior diameter (more proximal view); No accompanying split-screen image
Parasternal	Marked global hypokinesis; Dilated cardiomyopathy with a 15% left-ventricular ejection fraction; Right ventricular enlargement and hypokinesis; Thickening of anterior and posterior mitral valve leaflets; Pulmonary and tricuspid valve regurgitation; Pleural effusion
Apical	Left ventricular thrombus
Subcostal	Moderate pericardial effusion; Mild right-ventricular hypertrophy; Right ventricle pacemaker wire; Swinging heart with no right ventricular collapse or IVC collapse
RUQ 2	Acute calculous cholecystitis; Cholelithiasis (multiple gallstones, including a gallbladder neck stone); No accompanying split-screen image
RLQ	Dilated loops of small intestine; Small bowel obstruction; Additional split-screen image: Abdominal CT
Right Wrist	Right distal radial fracture with moderate dorsal displacement of distal fragment (proximal view); No accompanying split-screen image
Left Thigh	Large left anterior thigh abscess
Left Knee	Left knee effusion (most distal view); Septated fluid collection; No accompanying split-screen image
Right Leg	Cellulitis
Proximal IVC	Frog

## Appendix A - FoCUS Definitions

AC2	Apical Two Chamber
AC3	Apical Three Chamber
AC4	Apical Four Chamber
AC5	Apical Five Chamber
AFib	Atrial Fibrillation
AI	Aortic Insufficiency
AICD	Automatic Implantable Cardioverter Defibrillator
Ao	Aorta
AR	Aortic Regurgitation
AS	Aortic Stenosis
ASD	Atrial Septal Defect
AV	Aortic Valve; Atrioventricular
AVA	Aortic Valve Area
AVR	Aortic Valve Replacement
A wave	Atrial Wave
BAV	Bicuspid Aortic Valve
BP	Blood Pressure
CABG	Coronary Artery Bypass Grafting
CAD	Coronary Artery Disease
CFD	Color-Flow Doppler
CFM	Color-Flow Mapping
CHD	Congenital Heart Defect
CHF	Congestive Heart Failure
CM	Cardiomyopathy
CO	Cardiac Output
CWD	Continuous-Wave Doppler
Cx	Circumflex Artery
ECG	Electrocardiogram
EDV	End-Diastolic Volume
EF	Ejection Fraction
EPSS	E-Point Septal Separation
ESV	End-Systolic Volume
E wave	Early Wave
HTN	Hypertension
IAS	Interatrial Septum
IVC	Inferior Vena Cava
IVS	Interventricular Septum
LA	Left Atrium
LAA	Left Atrial Appendage
LAD	Left Anterior Descending
LCA	Left Coronary Artery
LCC	Left Coronary Cusp
LCx	Left Circumflex Artery
LM	Left Main
LV	Left Ventricle

LVEDP	Left Ventricular End-Diastolic Pressure
LVESD	Left Ventricular End-Systolic Dimension
LVH	Left Ventricular Hypertrophy
LVOT	Left Ventricular Outflow Tract
LVOTa	Left Ventricular Outflow Tract Area
LVOTd	Left Ventricular Outflow Tract Diameter
MI	Myocardial Infarction
MR	Mitral Regurgitation
MS	Mitral Stenosis
MV	Mitral Valve
MVA	Mitral Valve Area
MVP	Mitral Valve Prolapse
MVR	Mitral Valve Repair/Replacement
NCC	Non-Coronary Cusp
PA (L PA / R PA)	Pulmonary Artery (Left / Right)
PAP	Pulmonary Artery Pressure
PASP	Pulmonary Artery Systolic Pressure
PCI	Percutaneous Coronary Intervention
PDA	Persistent Ductus Arteriosus
PFO	Patent Foramen Ovale
PG	Pressure Gradient
PHT	Pressure Half-Time
PLAX	Parasternal Long Axis
PM	Papillary Muscle
PPM	Permanent Pacemaker
PR	Pulmonic Regurgitation
pRVSP	Peak Right Ventricular Systolic Pressure
PS	Pulmonic Stenosis
PSAX	Parasternal Short Axis
PV	Pulmonic Valve
PWD	Pulsed-Wave Doppler
RA	Right Atrium
RAP	Right Atrial Pressure
RCA	Right Coronary Artery
RCC	Right Coronary Cusp
RHD	Rheumatic Heart Disease
RV	Right Ventricle
RVH	Right Ventricular Hypertrophy
RVIT	Right Ventricular Inflow Tract
RVOT	Right Ventricular Outflow Tract
SV	Stroke Volume
SVC	Superior Vena Cava
TDI	Tissue Doppler Imaging
TR	Tricuspid Regurgitation
TV	Tricuspid Valve
Vmax	Velocity Maximum

VSD	Ventricular Septal Defect
VTI	Velocity Time Integral
WMA	Wall Motion Abnormality