

Dary J Costa MD, Jennifer Brinkmeier MD

Saint Louis University Department of Otolaryngology – Head & Neck Surgery  
Cardinal Glennon Children's Hospital

## Abstract

**Objectives:** 1. Describe a unique case of pediatric cervical lung herniation presenting as a neck mass. 2. Review the literature for characteristics of pediatric cervical lung hernia. 3. Provide recommendations for management.

**Methods:** Case report and literature review.

**Case:** An 11 year old boy was admitted with cough and neck swelling. Exam revealed prominent bilateral compressible supraclavicular bulge without crepitus or pulsation. Computed tomography and chest fluoroscopy identified lung parenchyma herniating through the thoracic inlet. He was treated conservatively and neck swelling resolved after the cough subsided.

**Literature review:** Pubmed was searched for English language articles from 1978 to present. 14 cases of cervical lung herniation were identified in the recent medical literature, five of whom were children, one requiring surgical intervention. An association between fascial defects and chest wall hernias has been described suggesting a congenital fascial weakness may contribute to the pathophysiology.

**Conclusions:** Spontaneous cervical lung herniation (Sibson hernia) represents an unusual cause of a neck mass in children. Thoughtful exam and radiologic workup will reveal the etiology. Conservative treatment is often effective.



Figure 1. Neck bulge during cough

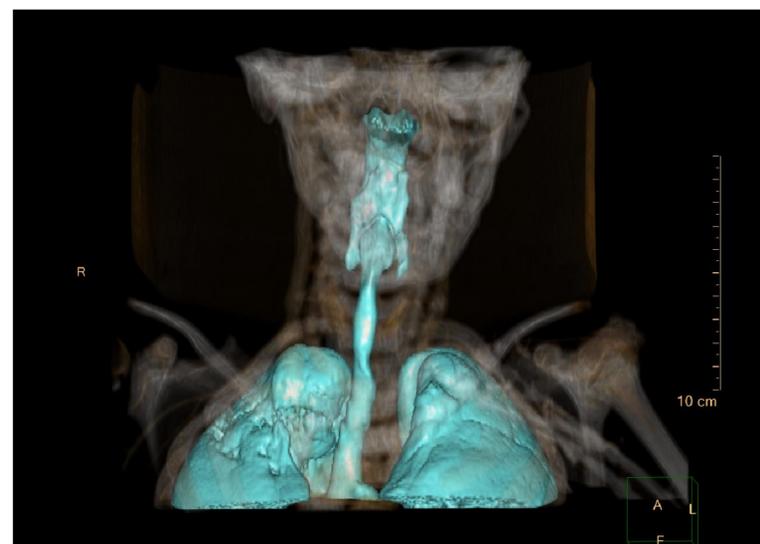


Figure 2. Reconstructed CT image of lung apices adjacent to thoracic inlet



Figure 3. Fluoroscopic image obtained during cough showing lung parenchyma herniating into neck

## Results

14 case reports of cervical lung herniation were identified (table). Six of the reported cases were children under age 18 years. None had previous trauma. Eleven of the patients had cervical lung herniation on the right, two were bilateral, one on the left side. All patients presented with a neck mass, other symptoms are listed in the table. Five patients underwent surgical repair for persistent symptoms and others resolved or there was no mention of follow-up. Two articles described patients with incidental lung herniation on imaging studies (15, 16).

Author and year	Age/sex	Symptoms (in addition to neck mass)	laterality	treatment
Mraidha K et al 2017	48 year male	none	right	not described
Martchek MA et al 2015	11 year male	respiratory arrest	right	lung decompressed
Prasad S et al 2014	50 year male	Tuberculosis, cough	right	not described
Mason K et al 2013	78 year male	dysphagia	right	not described
Chmielik LP et al 2012	10 year female	cough	right	surgical repair
Ranu H et al 2011	50 year male	cough	right	not described
Zhang P et al 2010	35 year female	cough, dyspnea, discomfort	right	thoroscopic repair
Mao A et al 2007	10 year female	cough	right	not described
Rahman M et al 2006	36 year male	neuralgic pain	bilateral	thoroscopic repair
Evans AS et al 2005	39 year male	cough	right	not described
Jheon S et al 2002	41 year male	discomfort, dyspnea	right	thoroscopic repair
Mehdi NF et al 2002	20 month infant	dysphagia, hoarseness	bilateral	not described
Bayne SR et al 1997	2 month female	absent sternocleidomastoid	left	thoractomy repair
Gonzalez del Rey J 1990	6 year old male	dyspnea, cough	right	resolved spontaneously

Table. Reported cases of cervical lung hernia from 1978 to present

## Discussion

This case describes cervical lung hernia as an unusual cause of transient pediatric neck mass. Literature review suggests the condition is more common on the right and can affect all age groups. Lung hernias are generally divided into diaphragmatic, thoracic, and cervical. Cervical herniation occurs when lung parenchyma extrudes through the thoracic inlet via defect or laxity in the suprapleural membrane (Sibson's fascia) and is occasionally referred to as "Sibson's hernia." Chronic cough, weightlifting, or playing a wind instrument may contribute to herniation. Apical pleural defects have been incidentally identified in asymptomatic patients and may exacerbate the pathology (17). Imaging at rest may be normal but imaging during valsalva or cough is diagnostic. Compliance in pediatric patients may be challenging and a strong clinical suspicion is required for diagnosis. Most cases can be managed conservatively in the absence of severe or persistent symptoms.

## Conclusions

Cervical lung hernia is a consideration for transient neck mass in children. Conservative therapy is often effective.

## Case report

An 11 year old boy was hospitalized with human metapneumovirus pneumonia and neck bulging during cough without known underlying neck mass. He had history of congenital diaphragmatic hernia repaired in infancy then an umbilical hernia repaired at age 5. He also underwent tracheostomy in infancy for tracheomalacia but was decannulated successfully. Exam revealed a well-healed tracheostomy scar, no neck mass at rest bilateral low anterior neck bulging with cough (figure 1) that was compressible and without crepitus. Flexible fiberoptic laryngoscopy and chest x-ray were unrevealing. CT of the neck suggested lung parenchyma herniating into the neck (figure 2). Fluoroscopy confirmed cervical lung herniation during cough (figure 3). The patient was managed conservatively and symptoms resolved.

## Methods and Materials

A Pubmed search for English-language articles from 1980 to present was performed using search terms, "cervical lung hernia" and "sibson hernia." 120 article titles and abstracts were reviewed for relevance and 18 articles were reviewed.

## Contact

Dary Costa MD  
SSM Cardinal Glennon Children's Hospital  
Saint Louis University School of Medicine Department of Otolaryngology  
Dary.costa@health.slu.edu  
314-577-5675

## References

- Mraidha K et al. Lung herniation - a case report of a spontaneous cervical hernia. Tunis Med. 2017 Jan;95(1):72-73.
- Martchek MA et al. Cervical lung herniation complicating a case of acute asthmatic bronchitis in a child. Pediatr Emerg Care. 2015 Apr;31(4):281-3.
- Prasad S et al. An unusual cause for neck swelling: apical lung hernia. BMJ Case Rep. 2014 Feb 10;2014.
- Mason K et al. Lung herniation: an unusual cause of dysphagia. Ear Nose Throat J. 2013 Dec;92(12):561-2.
- Chmielik LP et al. Neck tumour - lung hernia in a 10-year-old girl - diagnostic difficulties. Int J Pediatr Otorhinolaryngol. 2012 Apr;76(4):593-5.
- Ranu H et al. Apical lung herniation. Thorax. 2011 Aug;66(8):740.
- Zhang P et al. Video-assisted repair of cervical lung hernia. Thorac Cardiovasc Surg. 2010 Apr;58(3):185-7.
- Mao A, Kammen BF. Dynamic cervical lung herniation in a 10-year-old girl with cough. Pediatr Radiol. 2007 Oct;37(10):1058.
- Rahman M et al. Bilateral cervical lung hernia with T1 nerve compression. Ann Thorac Surg. 2006 Feb;81(2):716-8.
- Evans AS et al. Spontaneous apical lung herniation presenting as a neck lump in a patient with Ehlers-Danlos syndrome. Surgeon. 2005 Feb;3(1):49-51.
- Jheon S et al. Thoracoscopic repair of cervical lung hernia. J Thorac Cardiovasc Surg. 2002 Nov;124(5):1030-1.
- Mehdi NF et al. Radiological case of the month. Bilateral congenital apical lung herniation. Arch Pediatr Adolesc Med. 2002 Jan;156(1):81-2.
- Bayne SR et al. Lung herniation into the neck associated with congenital absence of the sternocleidomastoid muscle. J Pediatr Surg. 1997 Dec;32(12):1754-6.
- Gonzalez del Rey J et al. Cervical lung herniation associated with upper airway obstruction. Ann Emerg Med. 1990 Aug;19(8):935-7.
- Bhalla M et al. Lung hernia: radiographic features. Am J Roentgenol. 1990 Jan;154(1):51-3.
- Galetta D et al. Apical parietal pleural holes: what are they? Thorac Cardiovasc Surg. 2010 Jun;58(4):237-8.
- Curran G. Cervical lung protrusions in children. Pediatr Radiol. 1998 Jul;28(7):533-8.