



Chronic sphenoid sinusitis after anterior skull base reconstruction with MEDPOR

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Introduction

Anterior skull base reconstruction is an important component following neoplastic resection. Emphasis is placed on creating a watertight seal to prevent cerebrospinal fluid leak and pneumocephalus. Repair options include synthetic material, non-vascularized tissue (e.g. fat or fascia), local flaps, or regional/free flaps.¹ Here, we report a case of sphenoid sinusitis following skull base reconstruction with a synthetic porous polyethylene implant.

Case report

A 61-year old female with a past medical history of diabetes mellitus, hyperlipidemia, irritable bowel syndrome, and osteoporosis presented to our institution with a 2-year duration of postnasal drip and globus sensation. Two years prior to the onset of these symptoms, she underwent transsphenoidal hypophysectomy for a pituitary adenoma at an outside institution and had been discharged from their care. Rigid nasal endoscopy was performed and revealed postsurgical changes, including a posterior septectomy and sphenoidotomy. There was crusting against the sphenoid face which was removed and cultured (**Fig. 1**). After this was removed, it revealed an area of what appeared to be exposed sphenoid intersinus septal bone which was grasped with through cutting forceps and removed as much as patient would tolerate. There was still a small rim of “bone” visible. On follow up 2 weeks later she did not report a significant improvement in her symptoms. Endoscopy once again demonstrated crusting along the residual sphenoid intersinus septum. She was treated with topical antibiotic irrigation without change in symptoms. She was taken to the operating room to remove the residual “bone.” Intraoperatively, the residual “bone” appeared to move as one free piece. Upon removal, it was revealed to be a porous polyethylene (MEDPOR) implant. Postoperatively she noted much less postnasal drip and the sphenoid sinus appeared well mucosalized without crusting or exposed bone (**Fig. 2**).



Fig. 1. Preoperative endoscopy of the sphenoid sinus showing significant crusting.



Fig. 2. Postoperative appearance with healthy mucosa.

Results

To our knowledge, this is the first published report of an implant causing low-grade chronic sphenoid sinusitis following skull base reconstruction. The porous nature of high-density polyethylene implants allows vascular and soft tissue ingrowth, which is thought to enhance stabilization of the implant and promote resistance to infection.² Reconstruction of the sellar floor with autologous bone compared to MEDPOR has been previously studied without significant differences in complication rates.³ Regardless, all foreign bodies have the potential to extrude or act as a nidus for infection. Chaaban and Woodworth reported a patient that presented after reconstruction with a MEDPOR implant following craniofacial resection of an adenocarcinoma.⁴ The patient had developed frontal bone pseudomonas osteomyelitis and required implant removal, debridement of the necrotic bone, and free tissue reconstruction. Patient comorbidities, such as age greater than 60 years, diabetes mellitus, or prior radiation may be risk factors for complications following skull based reconstruction.⁵ Implant positioning may also influence the extrusion/migration rate. It is important for surgeons to recognize these potential complications when planning skull base reconstruction and select appropriately.

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