CASE REPORT

Septal hematoma after balloon dilation of the sphenoid

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Sponsorships or competing interests that may be relevant to content are disclosed at the end of this article.

When medical management of chronic rhinosinusitis fails to achieve benefit, surgery is often recommended. Functional endoscopic sinus surgery (FESS) has become the method of choice for addressing this disease, and advances in instrumentation to facilitate FESS have led to significant advances and outcome improvements.1

More recently, balloon dilation of the sinus ostia (BDSO) using balloon sinuplasty instruments (Acclarent, Menlo Park, CA) has been introduced in an attempt to enhance mucosal preservation, decrease local trauma, and provide an effective means of relieving disease without the risks of more aggressive measures.2 Initial cadaveric studies revealed this method, which is successful in remodeling bone and tissue in the area of the sinus transition spaces.3 Thus far there have been no reported cases of significant postoperative complications directly attributable to the use of the balloon.4

This case report was approved by the Institutional Review Board for Health Science Research at the University of Virginia.

A 51-year-old female was referred to the University of Virginia with complaints of chronic headache and recurrent episodes of rhinosinusitis. Multiple courses of antibiotics, saline irrigations, and intranasal steroids failed to improve her symptoms. Computed tomography of the sinuses demonstrated isolated, near-total opacification of bilateral sphenoid sinuses with adjacent osteitis. Her past medical history was notable for coronary artery disease with prior bypass grafting and Factor V Leiden disorder requiring warfarin therapy.

Given the patient’s anticoagulation, the decision was made to pursue BDSO of the sphenoid. This was expected to minimize the risk of blood loss. At surgery, the patient’s INR was normal and 12 hours had passed since her last dose of Lovenox.

Intraoperatively, the left sphenoid ostium was identified and BDSO performed (Fig 1). This was then repeated on the right side. Reexamination of the left side was then notable

Figure 1 Post dilation revealing space between septum and superior turbinate with visualization of the sphenoid sinus ostium. S, septum; SSO, sphenoid sinus ostium; ST, superior turbinate.

Figure 2 Obliteration of space between superior turbinate and septum secondary to hematoma. S, septum; H, hematoma; ST, superior turbinate; MT, middle turbinate.

Received February 23, 2009; revised March 23, 2009; accepted March 24, 2009.
for a significantly enlarged, ballotable posterior septum and loss of visualization of the sphenoid ostium (Fig 2). Needle aspiration confirmed a hematoma, and a horizontal incision was made over the posterior septum to allow for evacuation and further drainage. No active bleeding was present at the end of the procedure.

The patient presented to the emergency department on postoperative day eight due to left-sided epistaxis. Endoscopic evaluation revealed slow mucosal bleeding from the septal incision edges controllable with oxidized cellulose packing. On follow-up, the patient was without further episodes of bleeding or headaches.

DISCUSSION

Septal hematoma is a potentially serious complication. Blood collection can result in necrosis and resulting nasal deformity. The hematoma also serves as an excellent culture medium for bacteria, and a septal abscess may develop if the hematoma is untreated. Although septal hematoma is a known complication of septoplasty and nasal trauma, there are no documented reports of this in the literature as a complication of BDSO.1,2,4

The patient described here required anticoagulation for her medical comorbidities. It was postulated that BDSO of the sphenoid would result in less mucosal disruption than traditional FESS and would minimize the bleeding risk. The septal hematoma occurred despite no obvious mucosal injury. It is likely that microfractures of the bone surrounding the natural sphenoid sinus ostium either resulted in primary hemorrhage from their own edges or secondarily lacerated branches of the posterior septal artery, causing subperiosteal bleeding.

Several studies have demonstrated the safety of BDSO.1,4 A study of BDSO in cadavers showed no excessive fracturing of bone and decreased mucosal trauma.3 Vaughan found that patients treated with BDSO had less pain, faster return to work, and less bleeding compared to traditional FESS.1 A large study of BDSO by Weiss et al demonstrated 80.5 percent (247/307) patency of dilated ostia, a continuously improving trend in sinonasal outcome test (SNOT 20) scores, and low revision and complication rates. Revision surgery was required in three sinuses (2.75%; 3/109 patients), and the only adverse events reported were nine cases of bacterial sinusitis, which responded to oral antibiotics. There were no reported cases of significant postoperative epistaxis.4

As demonstrated by these studies, BDSO is mostly a safe procedure. This case highlights the potential for bleeding complications after BDSO despite the minimal mucosal disruption caused by the procedure. The sinus surgeon should be cognizant of this potential, particularly when operating on anticoagulated patients or those with bleeding disorders.

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AUTHOR CONTRIBUTIONS

Alan A.Z. Alexander, analysis and compilation of medical records, drafting of article, final approval; David C. Shonka, Jr, resident surgeon, concept of report, revision, final approval; Spencer C. Payne, surgeon, concept of case report, critical revision, final approval.

DISCLOSURES

Competing interests: Spencer C. Payne, consultant, Stryker, Inc.

Sponsorships: None.

REFERENCES