Cavernous hemangioma of the maxillary sinus with bone erosion

Erich Mussak, BS; Jerry Lin, MD; Mukesh Prasad, MD, FACS

Abstract

We report a case of cavernous hemangioma originating in the maxillary sinus. This is an unusual location for hemangioma, and this case also had a rare presentation involving bone erosion. The substantial bone destruction and resultant widening of the right ostiomeatal complex made it difficult to differentiate this cavernous hemangioma from malignant epithelial tumors.

Introduction

Hemangiomas are common, benign vascular neoplasms that can occur in nearly every tissue in the human body. Although these lesions are fairly common in the head and neck, they occur infrequently in the sinonasal cavity. Osseous cavernous hemangiomas in this anatomic location are quite rare, but nonosseous hemangiomas originating in the sinonasal cavity are an even more exotic lesion. Cavernous hemangiomas exhibit slow growth and can be destructive because of a pressure effect.

Since soft-tissue, sinonasal cavernous hemangiomas are uncommon, it is difficult to compile a list of characteristic symptoms. However, patients tend to present with recurrent epistaxis and nasal obstruction; one reported case involved hemoptysis.

Batsakis classified hemangiomas according to the predominant type of vasculature involved in the lesion and described them as capillary, cavernous, or mixed. In children, the most common manifestation is capillary hemangioma, whereas in adults the cavernous variation is more frequent. To date, the pathogenesis of hemangioma is unknown. It evolves with rapid proliferation involving pericyte and endothelial cell hyperplasia and then enters a steady regression phase.

Case report

A 33-year-old woman presented with right-sided ear pain, nasal congestion, upper-tooth discomfort, headaches, and nausea of 4 months’ duration. She derived no benefit from multiple courses of antibiotics, nasal sprays, and oral steroids. Rhinologic examination was remarkable for a polypoid mass in the right middle meatus, with a patent nasal airway, no active bleeding, and no cerebrospinal fluid rhinorrhea. Of historical note, the patient reported an increased tendency to clot because of a prothrombin disorder for which she had taken anticoagulants during a previous pregnancy.

Computed tomography of the sinuses showed (1) an abnormal soft-tissue process causing expansion of the right maxillary sinus with complete opacification of the right maxillary antrum, (2) widening of the right ostiomeatal complex with mucosal thickening in the right-sided ethmoidal sinus cells, and (3) no violation of the bony walls separating the sinuses from the orbit or intracranial cavity (figure 1, A and B).

The patient underwent a right-side functional endoscopic sinus surgery (FESS), including a total ethmoidectomy and maxillary antrostomy, with removal of the mass in its entirety. Final histopathology revealed a cavernous hemangioma with ectatic, irregular, thin-walled vascular channels, and with partial sclerosis under ulcerated and nonulcerated mucosal lining. Some channels contained areas of papillary endothelial hyperplasia (figure 2). Intraoperative frozen-section pathology revealed a lesion with organized fibrin suggestive of a mass secondary to the patient’s hematologic disorder.

The patient remains symptom- and disease-free at 4 months’ follow-up.

Discussion

Relatively few reports have noted bone changes caused by cavernous hemangioma involvement. In reporting perhaps the most similar cases to ours, Kim et al described 2 patients in whom a hemangioma had eroded the medial wall of the maxillary sinus and the nasal turbinates. Both patients had a displaced septum, and the hemangioma also had invaded the ethmoidal sinus and the orbit. Several other hemangiomas have been shown to be invasive.
A and required extensive intervention despite their benign histopathologic appearance.\(^9\)

Radiographically, hemangiomas characteristically have the appearance of water, soft tissue, or infiltrate when observed in the head and neck. Phleboliths, which are areas of calcification of an old thrombus resulting in T1 hypointensity and T2 hyperintensity on magnetic resonance imaging, are often seen with hemangiomas.\(^10\) Although not performed in this case, angiography and transarterial embolization can be valuable tools in treating cavernous hemangioma. Pooling of contrast can be observed on angiography, which can be helpful in diagnosing hemangioma.

A complete differential diagnosis of a nonosseous mass in the sinonasal cavity should include non-neoplastic lesions (e.g., hemangioma, antrochoanal polyp, mucocele, thrombosis) and neoplastic lesions (e.g., hemangiendothelioma, angiosarcoma). Also capable of occurring throughout the body, malignant hemangiendothelioma is frequently misdiagnosed as hemangioma.

Conservative surgical intervention is curative for cavernous hemangioma of the sinus cavity. The extent of the surgical incision should be weighed against the resultant morbidity.

References

Figure 1: Axial (A) and coronal (B) maxillofacial CTs show an abnormal soft-tissue process causing expansion of the right maxillary sinus with complete opacification of the right maxillary antrum, and widening of the right ostiomeatal complex with mucosal thickening in the right-sided ethmoidal sinus cells. No violation of the bony walls separating the sinuses from the orbit or intracranial cavity is seen.

Figure 2: Histopathology reveals a cavernous hemangioma with ectatic, irregular, thin-walled vascular channels, and with partial sclerosis under ulcerated and nonulcerated mucosal lining. In some such channels there were areas of papillary endothelial hyperplasia (H&E, original magnification ×20).