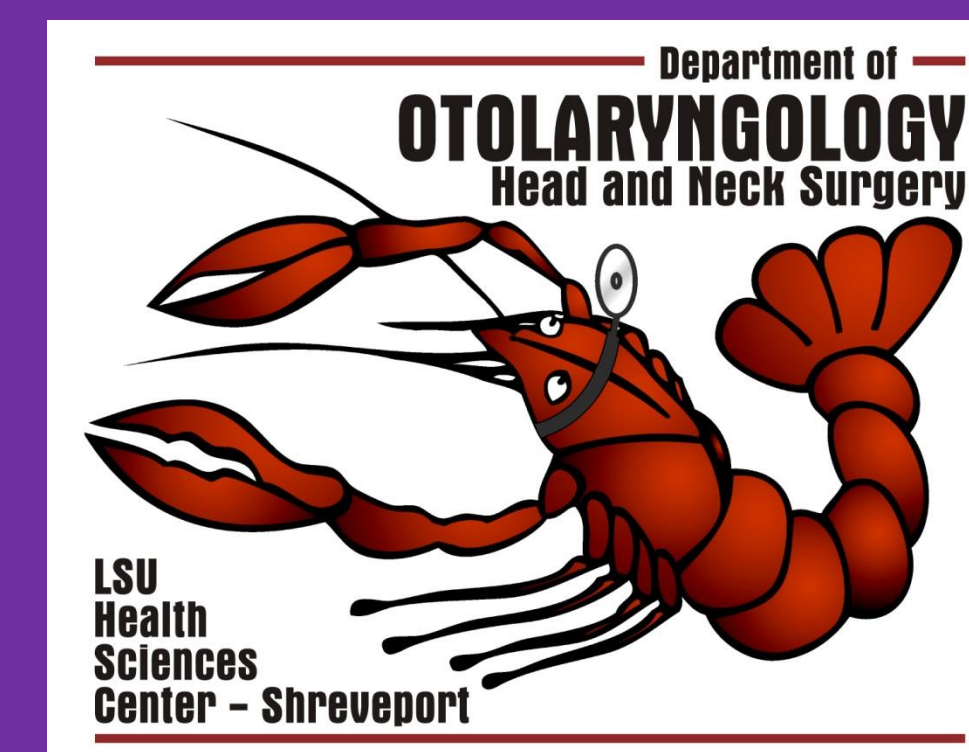


Cone beam computed tomography detects maxilla involvement in presumed primary sinonasal ameloblastoma

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SHREVEPORT

INTRODUCTION

- Ameloblastoma is a locally-aggressive, benign tumor of odontogenic epithelial differentiation which typically arises from the mandible or maxilla.¹
- Ameloblastoma that does not appear to originate from bone is known as peripheral or extraosseus ameloblastoma (PA) and is rare but well reported.
- Sites of PA include mucosa of the oral cavity, particularly the gingiva, and the sinonasal tract.
- Sinonasal involvement of ameloblastoma is not uncommon but typically arises from maxillary ameloblastoma.²
- Primary sinonasal ameloblastoma (PSA) is exceedingly rare, with fewer than 50 cases reported to date.
- Embryologic pathogenesis of PSA is theorized to be secondary to the close developmental association between odontogenic epithelium and the sinonasal tract.¹

OBJECTIVES

- To describe extraosseus locations of PA and cite characteristics of the few reported cases arising from the nasal cavity and paranasal sinuses.
- To examine cone-beam computed tomography (CBCT) as a tool for evaluation of ameloblastoma when conventional CT does not detect bony involvement.

CASE PRESENTATION

A 55 year old female was treated at an outside facility for 18 months of worsening right-sided nasal obstruction, bilateral maxillary facial pain and pressure that failed treatment with topical nasal steroids and oral antihistamines. Conventional CT of the sinuses showed mucosal thickening of the maxillary and ethmoid sinuses. She subsequently underwent endoscopic sinus surgery with bilateral maxillary antrostomy and ethmoidectomy. Atypical appearing tissue within the right maxillary sinus was biopsied and consistent on pathology with ameloblastoma. The patient was subsequently referred to our care.



Figure 1. Endoscopic examination of the right maxillary sinus (MS) showing a lobulated mass along the sinus floor.

On presentation, nasal endoscopy showed a purple and tan-brown hued, lobulated soft tissue mass along the floor of the maxillary sinus (figure 1). Conventional CT scan showed corresponding soft tissue in the right maxillary sinus, without mottling or expansile bony changes of the adjacent maxilla. However, on additional imaging with CBCT, the right maxillary

alveolar process had a subtle multi-cystic mottled appearance consistent with ameloblastoma (figure 2). The patient underwent surgical resection of the mass via a joint endoscopic and trans-oral approach with resection of the adjacent maxilla. Final pathology confirmed bony involvement of the alveolar process with ameloblastoma. The patient is now 7 months post-op with no recurrence.

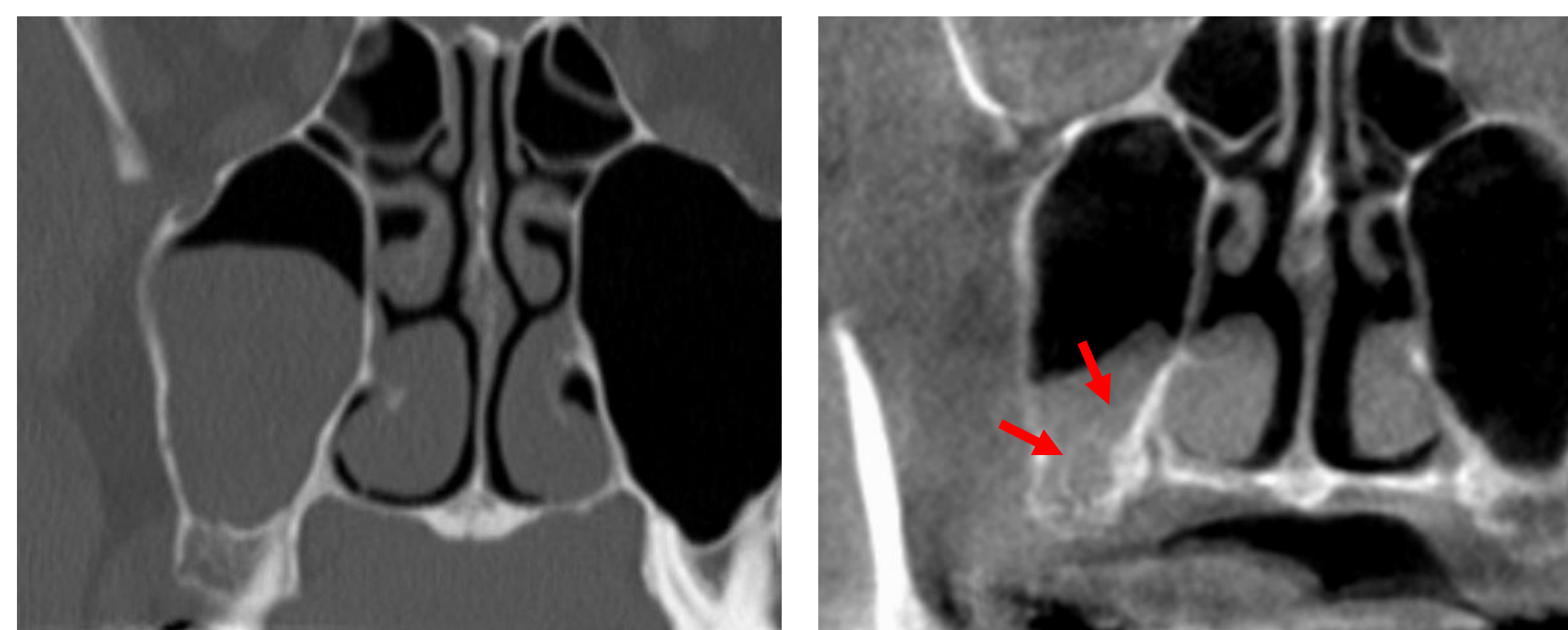


Figure 2. No changes to the adjacent maxilla are identified on conventional CT (left). CBCT (right) shows mottling of the right alveolar process indicative of primary maxillary ameloblastoma. Other changes from OSF endoscopic sinus surgery can be seen.

DISCUSSION

- Similar to this patient, previously reported cases of PSA typically presented with symptoms that overlap with chronic rhinosinusitis, most notably nasal obstruction.¹
- Over half of the reported cases of PSA involved the maxillary sinus, although some were limited to the nasal cavity without paranasal sinus disease.¹
- In this case of ameloblastoma, radiographic findings on conventional CT did not indicate bony involvement, suggestive of PSA.
- However, CBCT and operative findings confirmed that the adjacent maxillary alveolar process was involved by ameloblastoma and was likely the primary site.
- CBCT is an imaging modality that uses a cone beam of radiation to produce high resolution images with decreased artifact from dental restorations when compared to conventional CT.³
- Additional imaging with CBCT in cases of ameloblastoma may show involvement of adjacent bone that is not visualized on conventional CT. Identification of bone involvement carries important implications regarding treatment and prognosis, given the risk of recurrence in ameloblastoma with incomplete resection.
- This case suggests that some cases of ameloblastoma diagnosed as PSA may actually arise from the maxilla.

CONCLUSIONS

PSA is a rare manifestation of ameloblastoma, wherein the primary disease does not arise from the maxilla or mandible but rather the sinonasal tract. Subtle changes to bony structures may be detected using CBCT in suspected cases of PSA that may not be identified on conventional CT imaging, which can provide vital information regarding proper diagnosis and treatment of this disease process.

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