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Case Report

Schwannoma of the Maxilla: A Case Report

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Abstract

Although the head and neck region is the most common site of neurilemmomas, with an estimated 25 - 45% of cases reported, neurilemmomas involving the maxilla are rare, and with fewer than 16 reported in the literature [1]. Here we present the case of a schwannoma of the maxilla which initially presented as dental pain. Imaging and surgical approach add to the body of literature.

Keywords: *Schwannoma; Maxilla; Neurilemmomas*

Introduction

Although the head and neck region is the most common site of neurilemmomas, with an estimated 25 - 45% of cases reported, neurilemmomas involving the maxilla are rare, and with fewer than 16 reported in the literature [1].

Case Report

Schwannomas, or neurilemmomas, are rare peripheral nerve sheath neoplasms. Originally described in 1932 by Masson, these lesions originate from Schwann cells [2]. Although common in the head and neck region, accounting for 25 - 45% of all extracranial schwannomas, these rarely occur in the maxilla [3]. In the head and neck, these lesions present as a solitary, slow growing mass, which most commonly present in the tongue, and more rarely in the mandible. In soft tissue schwannomas present as a firm moveable mass [4]. Intraosseous lesions affecting the posterior mandible have been well described. These lesions originate from the inferior alveolar nerve and usually present as asymptomatic radiolucent lesions, which rarely result in anesthesia of the ipsilateral mental region. Plain film and CT-imaging provide valuable diagnostic and surgical tools.

Here we present a rare case of a maxillary schwannoma. Limited publications exist on the presentation of these lesions. The clinical and radiographic presentation is included as well as the surgical approach to resection of the lesion. These data help contribute to our growing understanding of maxillary schwannomas.

Mrs. R was a 72-year-old African-American female who presented to Temple University Hospital Oral and Maxillofacial Clinic in July of 2020, with the chief complaint of "my mouth is swollen and I need a tooth pulled," along with a referral from her general dentist for extraction of tooth #5. She reported a 3-month history of worsening pain around tooth #5 and slowly progressive swelling of the right

maxillary buccal vestibule. She denied drainage from the area. She denied fevers, chills, night sweats, nausea or vomiting. She also denied any unintentional weight loss. All other systems were negative.

Her past medical history was significant for asthma, hypertension, a prior ischemic stroke, hyperlipidemia, anxiety, gout, hypothyroidism, chronic pain and delayed emergence from anesthesia. Outpatient medications included: Albuterol inhaler; Amlodipine; Metoprolol; Low-dose aspirin; Lipitor; Xanax; Colchicine; Synthroid; Gabapentin She reported allergies to: Motrin (chest pain); Nifedipine (swelling). She denied smoking, alcohol or drug use.

Her past surgical history included left total knee replacement; partial hysterectomy; 2 hemorrhoidectomies; multiple breast mass excisions; and orthopedic surgeries, including lumbar fusion, 18 hand surgeries and foot tendon repair.

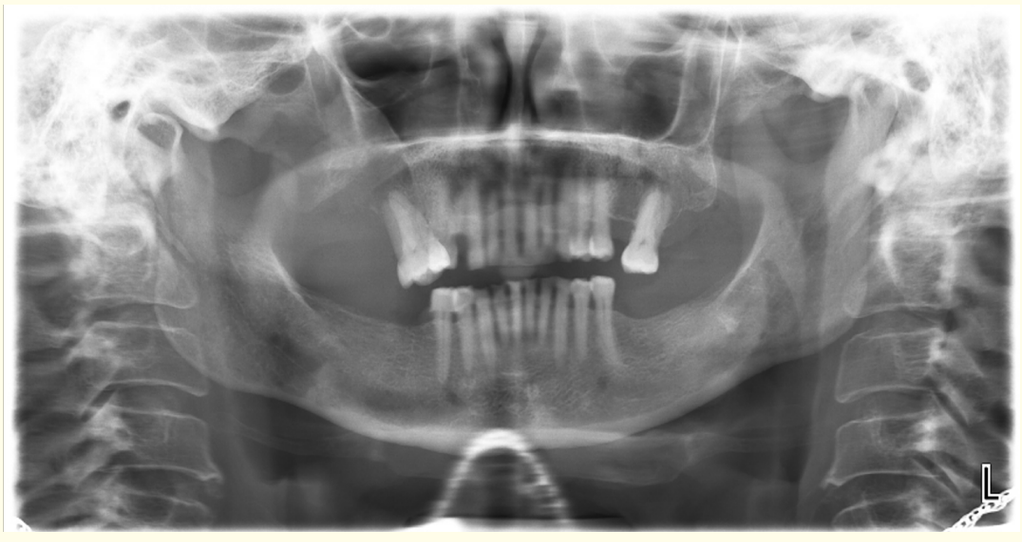
Her family history was non-contributory.

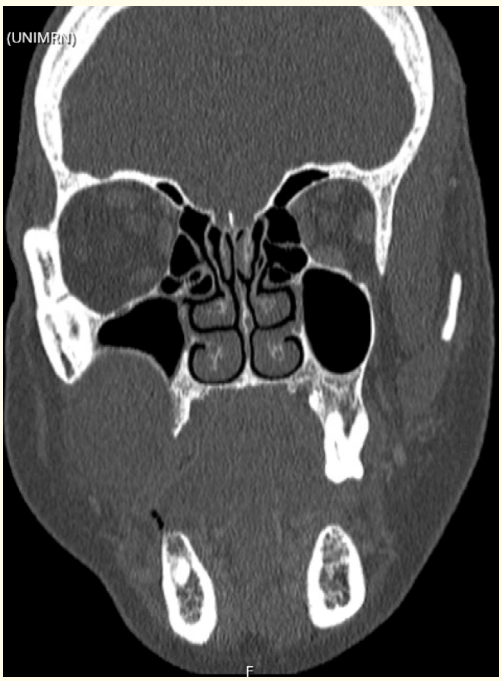
Clinical examination at that time was significant for a large buccal swelling, which was firm and exquisitely tender to palpation, obliterating the right maxillary buccal vestibule. Teeth #s 3, 4, 5 were carious and mobile. There was what was described as mild enlargement of palatal soft tissue adjacent to teeth #s 3, 4, 5.

A panorex (Figure 1) was taken on the day of her initial presentation and revealed partial dentition in poor repair. The right posterior maxilla was significant for severe bone loss adjacent to teeth #s 3 and 4 and retained root #5. It was difficult to assess whether there was bone loss eroding into the maxillary sinus versus a well-circumscribed radiolucent lesion with a combination of severe bone loss. Tooth #3 seemed to be displaced, in what would logically be assumed to be supra-eruption of an unopposed maxillary tooth.

Initial differential diagnosis included possible chronic odontogenic vestibular space abscess associated with carious maxillary teeth and localized, severe periodontal disease. Incision and drainage and extraction of teeth #s 3, 4 and 5 was performed with local anesthesia. The area was aspirated with a 20-gauge needle and was negative for fluid. The three teeth were extracted without complication. The lesion was evaluated further clinically and the hyperplastic tissue from the palatal aspect of the sockets as well as what appeared to be granulation tissue from the socket of #3 was collected and sent to the lab for histopathological assessment. At this time, a discussion was had with the patient that CT with contrast of the facial skeleton and soft tissues was advised for total imaging diagnostics of this lesion. With a clearer clinical image, the differential diagnosis was updated to include: salivary duct obstruction, a chronic inflammatory process, ameloblastoma or pleiomorphic adenoma. The biopsy returned as “granulation tissue”.

The patient was initially lost to follow up, but after re-presenting with worsening pain and swelling associated with her right maxilla, a CT Maxillofacial with contrast was obtained. Imaging results showed an expansile mass arising from the right maxilla measuring 4.7 x 3.2 x 5.8 cm with associated resorption of adjacent maxillary alveolar ridge and scalloping of the posterior wall of the right maxillary sinus (Figure 2). In the coronal image one can see the resorption of the alveolus as well as the scalloping with no erosion through the floor of the maxillary sinus (Figure 3). Another image showed part of the posterior extent of the lesion, nearing the pterygoid plates. The differential diagnosis was updated to include unilocular ameloblastoma, odontogenic keratocyst and odontogenic myxoma





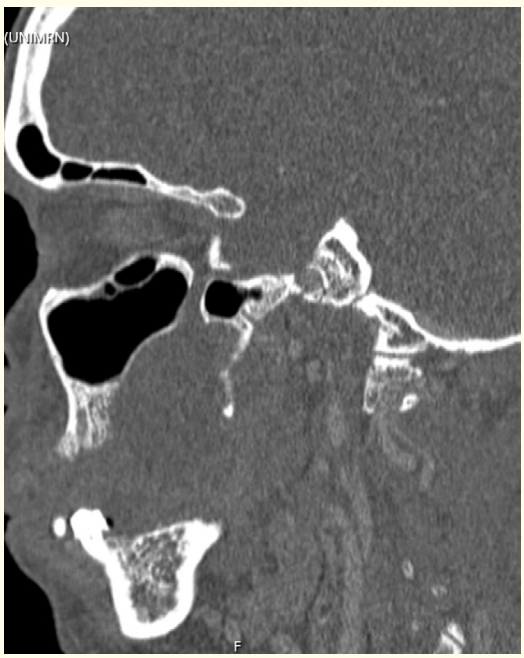


Figure 1-3: *The CT scan displayed the outline of the lesion and, on her panorex, what appears to be an oval, slightly radiopaque area extending anteriorly to around tooth #4, superiorly nearing the level of the zygomatic arch, posteriorly to the posterior border of the ramus, and inferiorly to the level of the alveolar ridge of the mandible.*

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A three-dimensional medical model of the patient's skull and lesion (Figure 4 and 5) was milled and used for pre-surgical planning purposes. On the day of the procedure the patient was orally intubated and general anesthesia was induced. A maxillary vestibular incision was made with a bovie from tooth #10, 5 mm apical to the mucogingival junction, and carried posteriorly to tooth #6 region, where the incision was carried up along the edentulous alveolar ridge and then extended posteriorly.

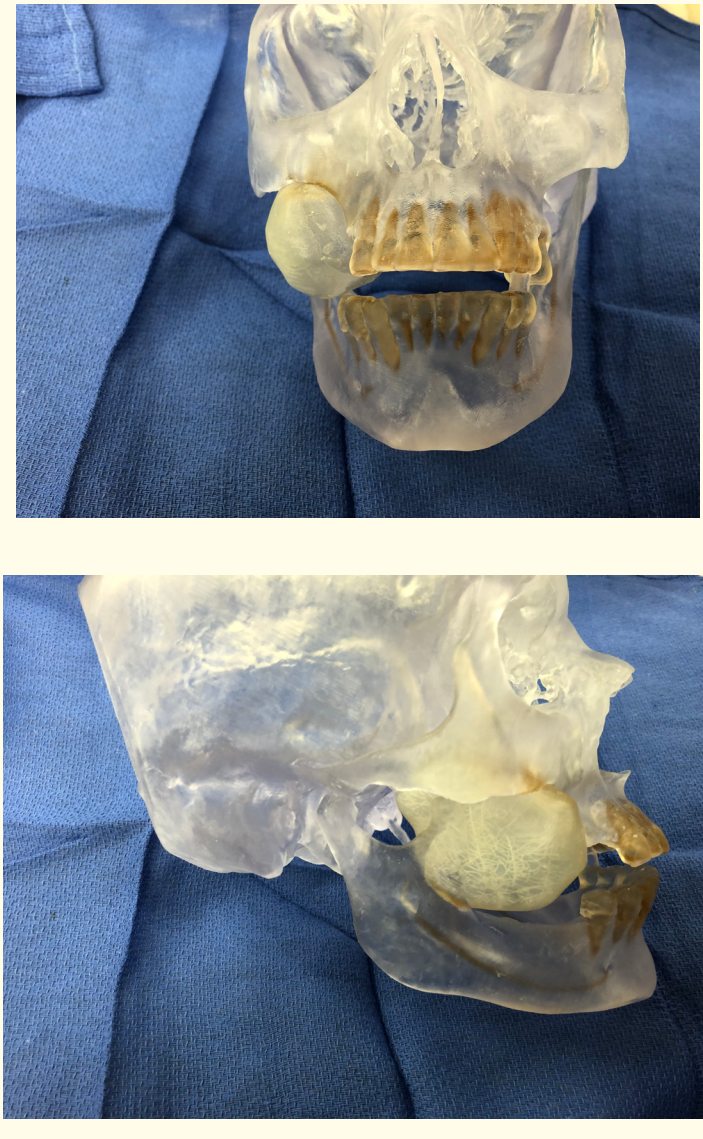

Figure 4-5: *A three-dimensional medical model of the patient's skull and lesion was milled and used for presurgical planning purposes.*

A full thickness flap was elevated superiorly along the anterior maxilla until the infraorbital nerve was identified, which was protected throughout the entirety of the case. The flap was further elevated revealing the lesion. The lesion was undermined along the anterior maxillary sinus wall and posteriorly along the lateral pterygoid plate. A mucosal envelope was dissected off the lesion laterally, with care taken to avoid Stenson's duct. The lesion was then removed in one piece within its own capsule (Figure 6 and 7).

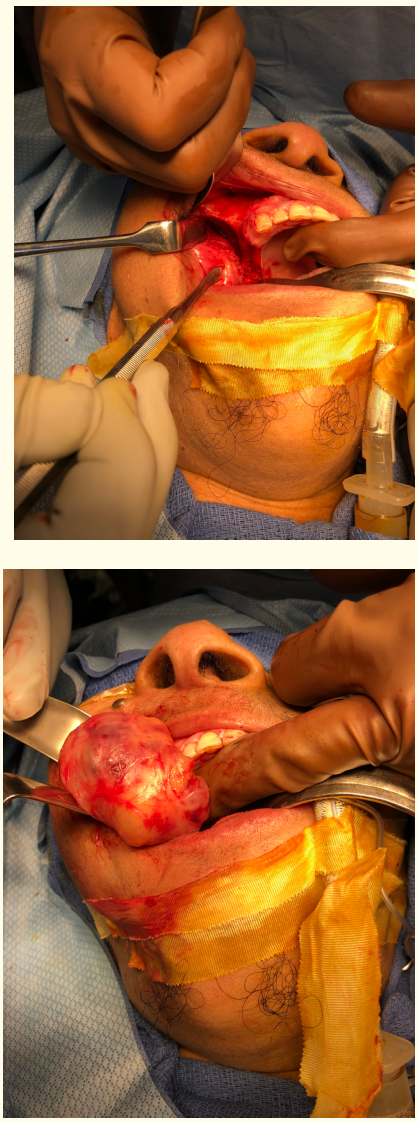

Figure 6-7: *Intraoperative photos depicting lesion removal within its own capsule.*

Irrigation of the surgical site revealed mild persistent oozing from the pterygoid plate region. The site was packed with moist gauze for 5 minutes. Removal of the gauze revealed little improvement, and Bovie cautery was then used with caution and superficially to aid in bleeding cessation. Irrigation and placement of Avitene, a microfibrillar collagen hemostatic agent, followed by moist 4x4 gauze provided significant improvement in hemostasis. The flap was closed primarily with 3-0 vicryl sutures in a horizontal mattress fashion. The area was observed with no immediate hematoma formation.

Due to the continuous oozing present clinically, a CT angiogram was ordered to evaluate the vasculature, and the patient was admitted for observation of the clinical picture and of hemodynamic stability. The CT angiogram demonstrated small focal extravasation from the pterygoid branch of the right maxillary artery, which was likely representative of an active bleed. Interventional radiology was consulted, at which time (considering patient's history of ischemic stroke) no surgical intervention or embolization was deemed necessary. On post-operative day 1, the patient remained hemostatic with small fluctuations in hemoglobin levels. On post-op day 2, the patient experienced a decrease in hemoglobin from 9.1 to 7.1, and complained of some lightheadedness, at which point she was transfused 1 unit of packed red blood cells. A repeat CT angiogram showed no active bleed. Serial complete blood counts were monitored for the following 24 hours and maintained a trend of a hemoglobin greater than 10 grams per deciliter. On post-operative day 3, a decision was made to discharge the patient based on stable hemoglobin and no active bleeding clinically.

Discussion and Conclusion

Neurilemmomas involving the maxilla represent a rare entity with fewer than 16 reported. Here we present the case of a schwannoma of the maxilla which initially presented as dental pain and swelling of the left maxillary sinus region. Although rare, schwannoma should be included on the differential for radiolucent lesions of the head and neck. Other authors have documented pain associated with these maxillary lesions, and recurrence after resection is rare [5]. Preoperative radiographic panorex and CT imaging for this case add to the limited literature available. Three-dimensional preoperative modeling for surgical planning aids in the refinement of the surgical approach as well as visualization and discussion for a more tangible informed consent by the patient.

Statement of Clinical Relevance

Neurilemmomas involving the maxilla are rare. Here we present the case of a schwannoma of the maxilla which initially presented as dental pain and swelling of the left maxillary sinus region. Preoperative radiographic imaging for this case add to the limited literature available.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

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