Pleomorphic Adenoma of the Infratemporal Fossa: Case Report and Literature Review

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INTRODUCTION

A 42 year-old incarcerated male presented to our emergency department after being struck in the face with a ball during prison softball league. The patient suffered a minimally displaced fracture of the inferior medial aspect of his left orbit and was incidentally noted to have a homogenous density present in the left infratemporal fossa on computed tomography (Fig 1).

Figure 1. Axial & coronal images. A homogenous mass is present in the left infratemporal fossa. Bony remodeling of the posterior wall of the maxillary sinus is observed. No evidence of bony invasion.

RESULTS

Pleomorphic adenoma, or benign mixed tumor, is derived from the distal portions of the salivary ducts, including the intercalated ducts and acini. It is composed of a diverse population of cells demonstrating epithelial differentiation such as ductal structures with associated non-ductal elements. It also often contains cells of mesenchymal differentiation with areas of myxoid, hyaline, chondroid and osseous tissue (Fig 4).

It is most common neoplasm of the salivary glands and accounts for 40-70% of all neoplasms of the parotid, submandibular, and minor salivary glands; pleomorphic adenoma of the sublingual glands is rare. It has been reported to occur in any of the minor salivary glands which can appear throughout the upper and lower respiratory tract.

Embryologically, salivary glands are derived from outpouchings of the buccopharyngeal epithelium. The outermost strands of the glandular epithelium invade the connective tissue of the capsule. These may be responsible for ectopic salivary tissue.

Pleomorphic adenoma has been reported to appear in as diverse locations as the main stem bronchus, trachea, nasal septum, lacrimal gland, and the pterygopalatine fossa. It has also been reported to metastasize after multiple local recurrences, acting similar to a low-grade malignancy.

Complete surgical excision is the treatment of choice and should involve an adequate margin of uninvolved tissue.

DISCUSSION

Tumors of the infratemporal fossa present a surgical and diagnostic challenge because of the complexity of the local anatomy and the often occult nature of tumors harbored there. Tumors of the infratemporal fossa can be described as primary, secondary or metastatic. Adenoid cystic carcinoma, adenocarcinoma, and squamous cell carcinoma have been shown to be the most common malignant tumors of the infratemporal fossa with nasopharyngeal fibroma frequently found in benign lesions. We report the first documented pleomorphic adenoma of the infratemporal fossa.

The infratemporal fossa is usually involved by tumors extending from the surrounding areas such as the paranasal sinuses, middle cranial fossa, nasopharynx, parotid, and the external auditory canal. Primary tumors of the infratemporal fossa are seen less frequently and metastasis to this area is extremely rare.

Due to its concealed location, tumors often present late. Clinical signs and symptoms are insidious and are frequently attributed to other structures or disease.

In addition, surgical planning is confounded by the close proximity to intracranial structures, the orbit, sinuses, and the nasopharynx.

METHODS AND MATERIALS

Anterior antrostomy, also known as the Caldwell-Luc, was named after American and French surgeons who independently described the approach to the maxillary antrum thru the canine fossa more than a century ago. We performed a typical anterior antrostomy and continued our dissection thru the postero-lateral wall of the maxillary sinus in order to enter the infratemporal fossa (Fig 2). The lesion was noted to be completely encapsulated and was easily identified. It was then dissected free from the surrounding adipose tissue and removed.

CONCLUSIONS

Though rare, a variety of neoplasms can involve the infratemporal fossa. Patients with malignancies of this region usually present late in their disease course with invasion into surrounding structures. Diagnosis and approach to this region is difficult considering its concealed location.

REFERENCES