

CASE REPORT

Mastoid Bone Involved by Pleomorphic Adenoma

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ABSTRACT

Pleomorphic adenoma is a benign tumor of the salivary glands, most commonly affecting the parotid gland. Pleomorphic adenoma of the ear is rare. The use of imaging modalities, especially magnetic resonance imaging (MRI), is particularly useful in localizing and surgical planning of these tumors. We present a case of pleomorphic adenoma invading the mastoid cortical bone, with review of literature.

Keywords: Cortical mastoidectomy, Mastoid bone, Pleomorphic adenoma.

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CASE REPORT

A 30-year-old male patient presented to the outpatient department with complaints of swelling behind the left ear, left ear decreased hearing, and tinnitus since the past 4 months. There was a history of a similar swelling behind the left ear 2 years earlier, for which he had undergone surgery, the details of which were unavailable with the patient. Physical examination revealed a swelling of about 3 × 3 cm posterior and superior to the left ear, causing obliteration of the postauricular groove. A postaural scar of the previous surgery was seen (Fig. 1). There was no local rise in temperature or tenderness over the swelling. The swelling was firm in consistency and mobile along the horizontal plane. Skin over the swelling was pinchable. Left ear tympanic membrane was found to be normal. Pure tone audiometry showed a mild conductive hearing loss of 30 db in the left ear. Examination of the opposite ear was found to be normal.

We proceeded to do a high-resolution computed tomogram of the temporal bone. This showed a hypodense soft tissue lesion in the lateral part of the left temporal

bone, causing erosion of the mastoid air cells posteriorly and extending close to the sigmoid plate. Laterally, it was extending to involve the soft tissue superior to the pinna (Fig. 2). On performing magnetic resonance imaging (MRI), the lesion was hyperintense on T2-weighted images and isointense on T1. The lesion measured 2.5 × 2.7 cm in dimensions (Fig. 3).

The patient was planned for a mastoid exploration under general anesthesia (Fig. 4). On entering the mastoid, the tumor was found to infiltrate the mastoid cavity. Dural and sigmoid sinus plates were found to be intact; fallopian canal was intact. A cortical mastoidectomy was done and the entire mass was removed *in toto*.

The specimen sent for histopathological examination showed features suggestive of pleomorphic adenoma. The



Fig. 1: Preoperative photograph of the mass posterior and superior to the left ear

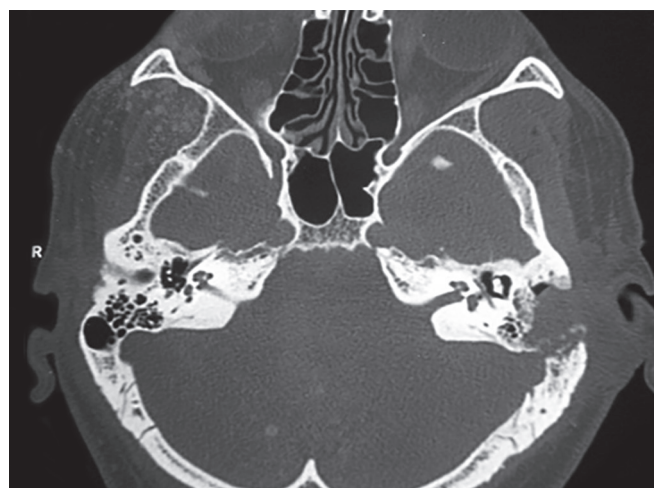


Fig. 2: High-resolution computed tomogram temporal bone, axial plane showing a hypodense soft tissue lesion in the lateral part of the left temporal bone, causing erosion of the mastoid air cells posteriorly

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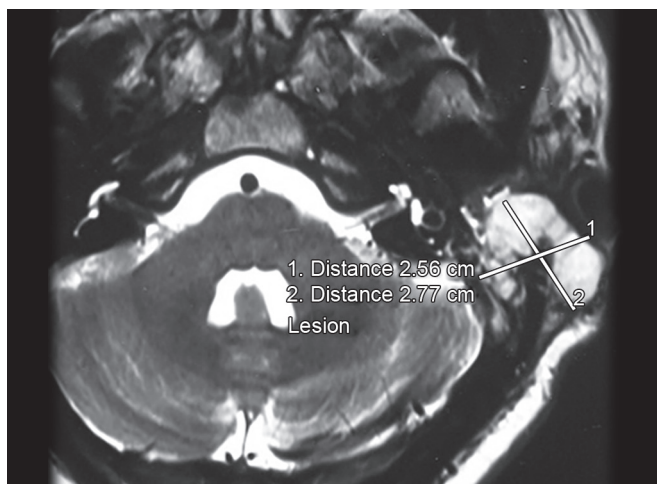


Fig. 3: Magnetic resonance imaging temporal bone, axial plane showing a hyperintense lesion measuring 2.5 × 2.7 cm (T2-weighted image)

patient is now on regular follow-up and is asymptomatic for the past 6 months.

DISCUSSION

Pleomorphic adenoma is a benign tumor of the salivary glands, most commonly affecting the parotid gland. In view of its histological architecture being composed of both epithelial and mesenchymal elements, it is also commonly called as a “benign mixed tumor.” Immunohistochemically, this tumor is composed of cytokeratin and S-100 protein deposited either focally or widespread.¹ Treatment of pleomorphic adenoma is primarily surgical. However, recurrences are known to occur, even decades after primary surgery, with an incidence as high as 17%.² This could be due to breach of the tumor capsule, spillage of tumor during surgery, or incomplete excision.³

Stennert et al³ found a higher proliferative index of the marker Ki-67 in pleomorphic adenomas of the aggressive type. Measurement of the nuclear antigen Ki-67 is a much more significant factor to determine the aggressive nature of the tumor.⁴ High expression of glycosylated phosphoprotein mucin 1 (MUC1) is also a known factor for recurrences.⁵

Pleomorphic adenoma of the ear is rare. The possible cause of its occurrence could be because of the presence of ceruminous glands in the external auditory canal, metaplasia of the middle ear mucosa, or presence of ectopic salivary glands.⁶ Extension of the tumor into the ear through the stylomastoid foramen from a previously operated pleomorphic adenoma of the parotid has also been described.⁷ Although described, the propensity to invade bone is also very rare.⁸ Limited invasion of the bone of the mastoid cortex was seen in our case.

The use of imaging modalities, especially MRI, is particularly useful in localizing and surgical planning



Fig. 4: Intraoperative photograph showing the mass on making postaural incision

of these tumors. The type of surgery done depends of the type of recurrence, patient’s age, and the extent of previous surgery and has to be individualized from patient to patient.⁹

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