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BEHIND THE SWELLING: A SURGICAL STRIKE ON PLEOMORPHIC ADENOMA

Maxillofacial Surgery

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ABSTRACT

Pleomorphic adenoma is the most common benign salivary gland tumor, predominantly affecting the parotid gland. It is characterized by slow growth and a painless mass, but has potential for malignant transformation if left untreated. Superficial parotidectomy is the treatment of choice for tumors confined to the superficial lobe of the parotid gland. It is a safe and effective surgical approach for pleomorphic adenoma of the superficial parotid lobe. It ensures complete tumor removal with a low risk of recurrence and minimal postoperative morbidity, especially when meticulous dissection and facial nerve preservation are prioritized.

KEYWORDS

superficial musculoaponeurotic system (SMAS), simian virus 40 (SV40), parapharyngeal space, superficial parotidectomy

INTRODUCTION

Pleomorphic adenoma (PA), also referred to as a benign mixed tumor, is the most prevalent type of salivary gland neoplasm, accounting for approximately two-thirds of all salivary gland tumors.[1] It most commonly arises in the parotid gland (around 85% of cases), followed by the minor salivary glands (10%) and the submandibular glands (5%).[2] In most instances, these tumors develop in the superficial lobe of the parotid gland, though they can occasionally involve the deep lobe or extend into the parapharyngeal space.[3] Among minor salivary glands, the palate is the most frequent site of occurrence, followed by the lips, cheeks, tongue, and floor of the mouth.[4] Clinically, PA typically presents as a slow-growing, painless swelling in the parotid region, usually without facial nerve dysfunction.[5] The preferred treatment is wide local excision with adequate margins, accompanied by regular follow-up for at least 3 to 4 years to monitor for recurrence.[6]

CASE REPORT:

A 29 years old male patient reported to the Outpatient Department with a chief complaint of slow growing, painless swelling on the left side of face since 5 years. The swelling was initially small in size and had progressively increased with time to attain the present size. Past medical and surgical history was not relevant. Extra-oral clinical examination revealed a marked facial asymmetry. A well-defined, ovoid, lobular swelling, 5 cm x 5 cm in diameter was seen on the left side of the face. The swelling had a superior-inferior extent from left zygomatic arch to below the lower border of mandible and anteroposterior extent from mid body region to the posterior border of mandible. The left ear lobule was slightly everted. (Figure 1).

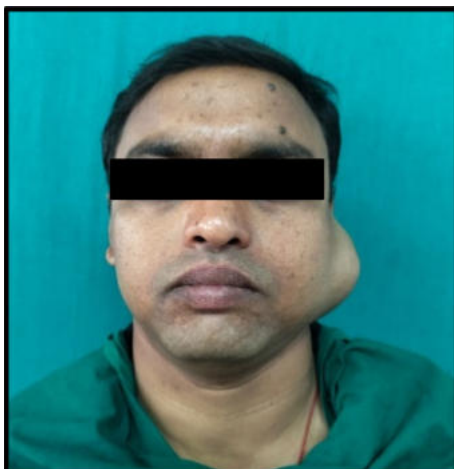

***Fig 1**: Frontal view of the face showing left sided facial swelling.*

The swelling was firm in consistency, non-tender and warm on palpation. It was fixed to the underlying structures and the overlying skin.

Facial and eye movements were normal on examination. Intraoral clinical examination was unremarkable. A provisional diagnosis of benign tumor of the left parotid gland was taken into consideration. Pleomorphic adenoma, Warthin's tumor and neuroma of the facial nerve (nerve sheath tumor) were considered as the most probable differential diagnosis.

Panoramic radiographic examination did not reveal any abnormality. Magnetic resonance imaging (MRI) revealed a large (6.12 x 4x 5.81 cm3), well-defined, lobulated, heterogeneous lesion, extended superiorly to the zygomatic arch and laterally abutted the masseter muscle. Lesion on T1 weighted MR image appeared hypointense and appeared hyperintense on T2 weighted MR images (Figure 2).

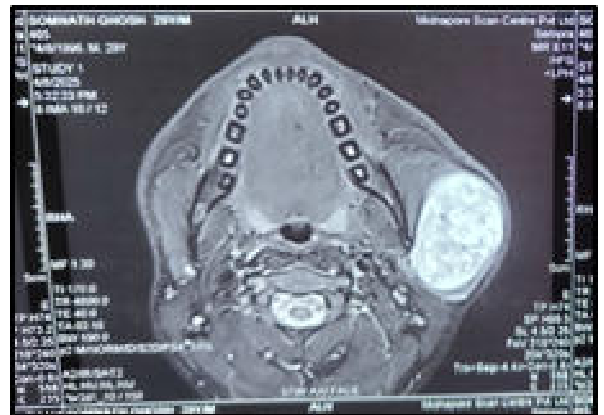

***Fig 2:** Axial MRI - T2 weighted image showing a hyper intense lesion.*

Fine needle aspiration cytology (FNAC) was performed under local anesthesia and showed admixed epithelial, myoepithelial and mesenchymal tissue elements.

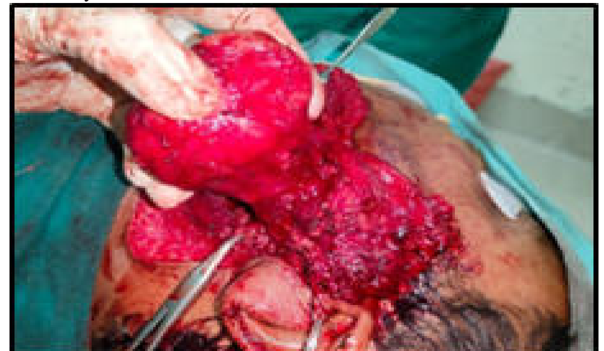

***Fig 3**: Intraoperative procedure showing the separation of tumor mass from the nerve bundles.*

After obtaining informed consent from the patient, a superficial parotidectomy was performed to excise the tumor along with the superficial lobe of the left parotid gland. A modified Blair incision was made in the left preauricular region, followed by careful dissection of the platysma muscle and the superficial musculoaponeurotic system (SMAS). Using a retrograde technique, the peripheral branches of the facial nerve were identified and meticulously preserved. These nerve branches were carefully dissected away from the underlying parotid tissue. The tumor was then excised following its separation from the facial nerve and the adjacent masseter muscle. (Figure 3)

The excised tumor mass was 6 cm x 5 cm x 3cm in dimension. Histopathology revealed a well capsulated, spindled, stellate to epithelioid cells which were dispersed in a lattice-like fashion within the myxoid stroma. At places, tubules lined by an inner layer of ductal cells and an outer layer of myoepithelial cells, radiating surrounding the myxoid matrix, were present. Anatomosed tubules of dual cells melting into myxoid stroma were also seen. Focal areas showed squamous metaplasia with keratinization. Normal salivary acini were seen at the periphery. All the margin were free from tumor. Histopathological features were suggestive of Pleomorphic adenoma of left parotid gland. No definite evidence of malignancy seen in the sections studied.

Post Operatively, mild paresis of Left buccal branch of Facial Nerve was observed. Patient was kept on regular follow up.

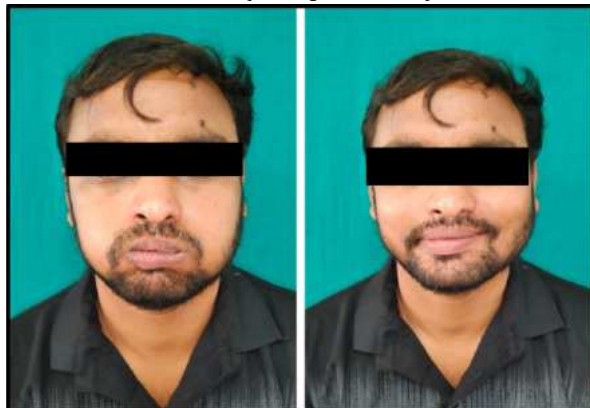

Fig 4: *Post-operative photographs showing mild facial nerve weakness*

DISCUSSION

In 1972, the World Health Organization defined pleomorphic adenoma (PA) as a well-circumscribed tumor notable for its diverse histological appearance. It is characterized by an admixture of distinct epithelial elements with mucoid, myxoid, and chondroid stromal components.[7] Despite its complex histological presentation-largely due to the varied composition of the extracellular matrix-PA is generally classified as a benign neoplasm.[8,9]

The exact etiology of PA remains unclear. However, studies have shown that its incidence increases approximately 15–20 years following radiation exposure. Additionally, some research has suggested a possible link between PA and simian virus 40 (SV40).[10] Clinically, pleomorphic adenomas are most often detected incidentally during routine examinations, presenting as painless, mobile, slow-growing masses. Originating from glandular tissue in the head and neck region, these tumors typically appear as firm, non-ulcerative swellings.[11] Most measure between 2 and 6 cm at the time of surgical removal, although larger tumors may present as irregular, nodular masses that stretch the overlying skin or mucosa.[12,13] The tumor's weight can vary significantly, ranging from a few grams to over 8 kilograms in extreme cases.[14]

In the parotid gland, PA is usually located below the earlobe and over the angle of the mandible. Facial nerve involvement is uncommon, but in cases of long-standing or significantly enlarged tumors, facial weakness may occur.[15,16] When the deep lobe of the parotid is affected, the tumor may present as a retrotonsillar mass or as a lesion in the parapharyngeal space.[17]

In the present case, superior lobe of the left parotid gland with the tumor mass was excised with utmost care to preserve the facial nerve branches. Pleomorphic adenomas need to be managed diligently as they have a tendency for recurrence and malignant transformation. Rupture of the capsule and subsequent tumor spillage during excision are attributable risk factors for recurrence. Up to 10% cases show malignant transformation and features predictive of malignant change include advancing age, massive tumor size, a long duration of the mass, occurrence in submandibular salivary gland, and hyalinized connective tissue.

CONCLUSIONS

Pleomorphic adenoma remains the most prevalent benign salivary gland tumor, with the parotid gland being the most commonly affected site. Although it typically presents as a slow-growing, painless mass without neurological symptoms, early diagnosis is crucial to prevent potential complications such as tumor enlargement, facial nerve involvement, or rare malignant transformation. Surgical excision via superficial parotidectomy remains the gold standard treatment for pleomorphic adenomas confined to the superficial lobe. The use of a retrograde approach for facial nerve identification, as applied in this case.

Successful management of pleomorphic adenoma requires not only meticulous surgical technique but also long-term follow-up due to the tumor's known potential for late recurrence, even after complete excision. Clinicians should maintain a high index of suspicion and ensure thorough postoperative surveillance to ensure patient safety and sustained disease-free survival.

This case reinforces the role of early intervention and careful surgical planning in achieving favorable outcomes for patients with parotid gland pleomorphic adenomas, particularly in young adults, where preservation of aesthetics and function is paramount.

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