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Giant Pleomorphic Adenoma of the Parotid Gland: Images in Medicine

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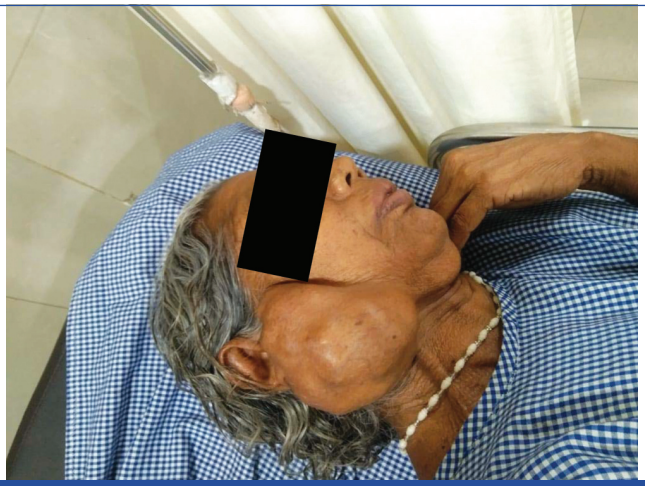
Pleomorphic Adenoma (PA) is the most common benign salivary gland tumour, predominantly affecting the parotid gland. It arises from both epithelial and myoepithelial components, forming a mixed histological pattern. Clinically, PA presents as a slow-growing, painless mass that can attain a significant size if left untreated. Malignant transformation, although rare, remains a concern, especially in long-standing tumours [1].

This article reports a case of PA involving the right parotid gland, affecting both the superficial and deep lobes, which was surgically managed by parotidectomy of the superficial lobe while preserving the facial nerve.

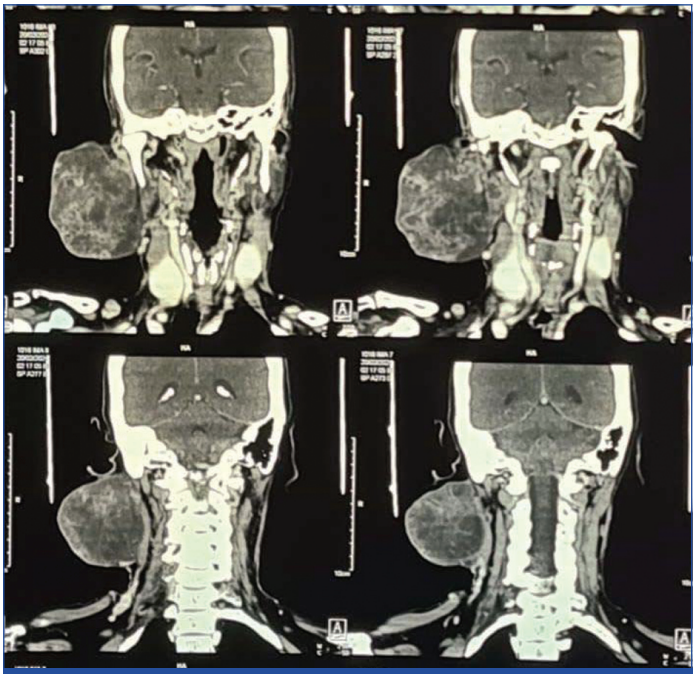
A 72-year-old female presented to the department with a chief complaint of a slowly growing swelling without any symptoms of pain on the right side of her face for the past 10 years. Though the swelling was initially small it gradually increased in size. She had no relevant medical, family, or past dental history. On local extra-oral clinical examination, there was marked facial asymmetry. A large, well-circumscribed, multilobulated, heterogeneously enhancing exophytic mass measuring 9.2×8.1×7 cm was observed arising from the right parotid gland [Table/Fig-1]. Facial muscular movements were examined for facial nerve palsy and were found to be normal. On palpation, the swelling was firm, non fluctuant, non tender, and movable. Intraoral examination revealed no significant findings other than caries of the teeth.



[Table/Fig-1]: Clinical photograph of a patient presenting with well-circumscribed multilobulated heterogeneously enhancing exophytic mass which was seen arising from the right parotid gland.

Based on the above clinical findings, a provisional diagnosis of PA was established. Other probable diagnoses, such as Warthin's tumour or facial nerve neuroma, were considered as differential diagnoses. Radiographic investigations, including a Computed Tomography (CT) scan of the neck and Fine Needle Aspiration Cytology (FNAC), were performed.

CT of the neck revealed a large, well-circumscribed, multilobulated, heterogeneously enhancing exophytic mass measuring 9.2×8.1×7 cm, arising from the right parotid gland and involving both the superficial and deep lobes. No calcification was observed within the mass [Table/Fig-2]. There was loss of the fat plane with the adjacent muscles. The left parotid gland appeared unremarkable, and the submandibular glands also appeared grossly unremarkable. Imaging revealed small hypodense nodules in both lobes of the thyroid gland, with some nodules on the left side demonstrating punctate calcifications, suggestive of benign changes. Small, likely reactive, non pathological lymph nodes were present on both sides of the neck. The bilateral lung apices, visualised bony structures, and orbits were unremarkable. Notably, there was evidence of chronic mastoiditis on the right side, and mucosal disease was observed in the left sphenoid sinus. A lesion involving the parotid gland was noted, radiologically consistent with a PA. However, the imaging features raised concerns for a possible malignant transformation of the PA or the presence of another parotid gland malignancy. Therefore, further evaluation with a tissue biopsy was suggested.

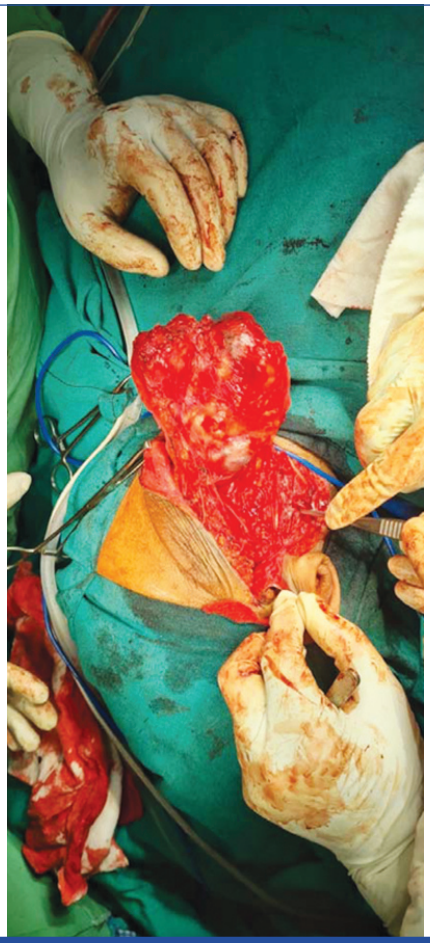


[Table/Fig-2]: Coronal Computed Tomography (CT) images illustrating the presence of a significant mass in the maxillofacial region.

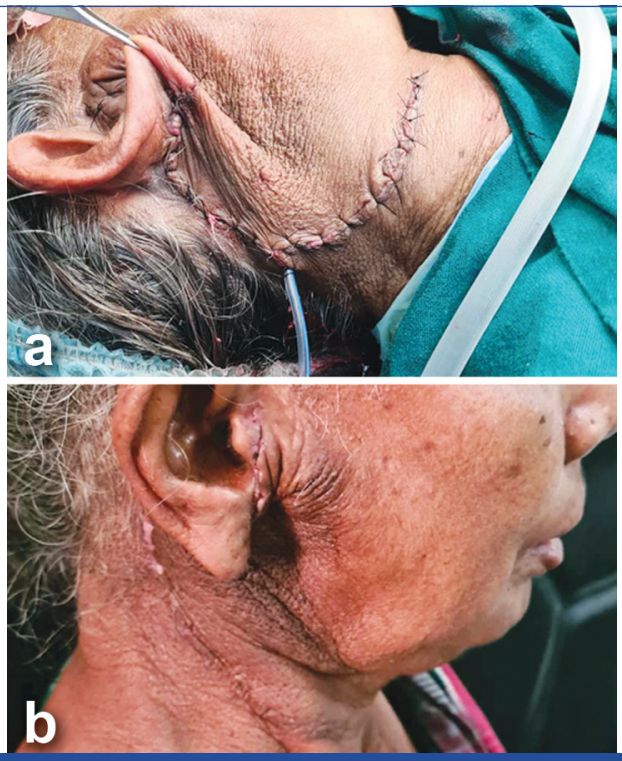
FNAC of the mass was performed. The examined smears were cellular and showed a matrix containing tumour with fibrillary stroma. Sheets of ductal cells and myoepithelial cells were noted. FNAC of the mass suggested a benign salivary gland neoplasm, favouring PA (Category IV A), consistent with the Milan System for Reporting Salivary Gland Cytopathology [2].

The patient subsequently underwent a total parotidectomy with preservation of the facial nerve. Intraoperatively, the tumour was found to be well-circumscribed, allowing for meticulous dissection and successful preservation of the facial nerve [Table/Fig-3]. The mass was completely excised with clear surgical margins [Table/

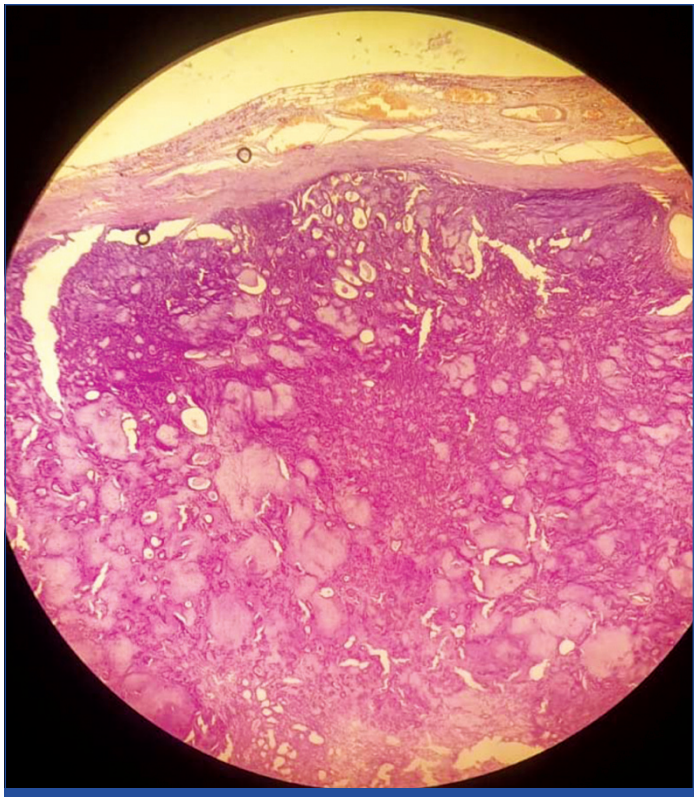
Fig-4]. Histopathological examination of the resected specimen confirmed the diagnosis of PA, with no evidence of malignant transformation. The tumour showed well-defined areas of epithelial cells surrounded by a myxoid stroma, characteristic of PA. No signs of malignancy were found [Table/Fig-5].



[Table/Fig-3]: Intraoperative photograph depicting a significant soft-tissue mass located in the preauricular region.



[Table/Fig-4]: Postoperative healing following superficial parotidectomy for a benign parotid tumour. a) Immediate postoperative view after layered closure with suction drain via preauricular-cervical incision; b) Postoperative day 14, demonstrating satisfactory wound healing with minimal scarring and absence of infection, haematoma, or facial nerve dysfunction.



[Table/Fig-5]: Histopathological image of salivary gland tissue stained with Haematoxylin and Eosin (H&E) at 4x magnification showing chondromyxoid tissue, tumour epithelial cells proliferation into ducts and strands. The tumour is encircled by a connective tissue capsule.

Postoperatively, the patient experienced no facial nerve dysfunction and was advised to have regular follow-up visits to monitor for any recurrence. At the 6-month follow-up, the patient was asymptomatic, with no evidence of recurrence or complications. The surgical site had healed well, and there were no signs of facial nerve paralysis.

The PA accounts for 60-70% of parotid tumours, commonly affecting middle-aged adults with a slight female predilection [3]. PAs involving the parotid gland occur mostly in the superficial lobe, as in our case, while only 10% of cases involve the deep lobe of the parotid gland beneath the facial nerve. An understanding of the anatomy and the extracranial course of the facial nerve and its branches is crucial for comprehending the involvement of the parotid gland and for planning further surgical treatment. This entity is best treated by surgically excising the tumour mass. Untreated cases may grow significantly while remaining painless. For those involving the superficial lobe, a superficial parotidectomy is performed, with careful identification and preservation of the facial nerve. With adequate surgery, PA has an excellent prognosis, with a cure rate of more than 95% [4]. Histopathologically, PA consists of epithelial and mesenchymal components, creating a pleomorphic appearance [5]. While benign, its potential for malignant transformation (carcinoma ex-PA) necessitates complete surgical excision [6].

In this case, FNAC confirmed PA with spindle-shaped myoepithelial cells. CT imaging suggested potential malignancy due to the tumour's large size and loss of the fat plane with adjacent muscles. The patient underwent total parotidectomy with preservation of the facial nerve, and histopathology confirmed PA with no malignant features [7]. Complete excision with clear margins is essential to prevent recurrence, which can range from 4-10%, particularly in larger tumours. The presence of pseudopodia or capsular penetration increases the risk of recurrence [7]. Literature suggests that PAs larger than 6 cm carry a higher risk of malignant transformation [8]. [Table/Fig-6] summarises the management of similar cases of giant PA from the literature [9-13].

Recent advances in molecular pathology indicate that PA is associated with genetic aberrations such as PLAG1 and HMGA2 overexpression, which play a role in tumourigenesis and potential

S. No.	Authors and Years	Tumour location	Tumour size/ duration	Management	Key findings
1	Patil S et al., 2020 [9]	Parotid gland	Giant; longstanding (multiple cases)	Total parotidectomy with nerve preservation	Multiple neglected cases, risk to facial nerve; need early diagnosis
2	Gupta A et al., 2021 [10]	Palate (minor salivary gland)	Large; slow growing	Intraoral surgical excision	Challenging surgical access; rare site
3	Ketheeswaran P et al., 2019 [11]	Parotid gland	~20 years growth; very large	Superficial parotidectomy	Limited resource setup; facial nerve carefully preserved
4	Singh R et al., 2022 [12]	Submandibular gland	Giant; rare site	Submandibular excision	Rare site; important for differential diagnosis
5	Shaikh S et al., 2023 [13]	Parotid gland	Large; long standing	Total parotidectomy + FNAC+ histopathology	FNAC useful even in rare large tumours; histological confirmation essential
6	Present study	Right parotid gland	large; longstanding	total parotidectomy +FNAC+ histopathology.	Preservation of the facial nerve.

[Table/Fig-6]: Management of similar cases from the literature [9-13].

malignant transformation [14]. The presence of these markers can aid in assessing the risk of recurrence and malignancy in PA cases [15].

Long-term follow-up is advised to monitor for late recurrence or malignant transformation. In line with recommendations from the Association of Oral and Maxillofacial Surgeons of India (AOMSI), early surgical intervention with proper facial nerve preservation remains the treatment of choice [16].

Pleomorphic Adenoma should be considered in cases of painless parotid masses. Timely diagnosis and complete excision are crucial to prevent complications. This case highlights the importance of surgical management and long-term follow-up in preventing recurrence and ensuring patient well-being.

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