

Multidisciplinary Approach to a Massive Palatal Lesion - Exploring a Case of Pleomorphic Adenoma of the Palate

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Abstract: Pleomorphic adenoma is a benign salivary gland tumor which has both components of epithelial and mesenchymal origin. In this paper, we report a case of 60 year old female patient, presenting a palatal sessile lesion with approximately 6 cm in diameter. The lesion had over 3 years of period, but started as peanut sized, slow growing swelling and at present with ulceration at the posterior palate with difficulty in speech and swallowing. The histopathological examination revealed a moderately cellular arrangement polyhedral squamous epithelial cells arranged as sheets and strands which demonstrating duct-like structures comprising eosinophilic coagulum interspersed with hyalinized areas. Immuno histochemical analysis revealed positivity for p63 and Ki67. Surgical management and rehabilitation of palate was carried out. In an effort to improve the awareness and understanding of such lesions, a discussion of the histological, immune histochemical and surgical features of pleomorphic adenoma is presented in this study. In recent days, it has been a growing concern about patients neglecting or hesitating to adhere to prescribed medical treatments. Creating awareness is a crucial step towards fostering a more patient-centered healthcare system.

Keywords: Women, Health education, Public health, Welfare

Introduction:

In the head and neck region only 2-3% of all tumours are salivary gland tumours, the majority of which are benign. Within the oral cavity, there are around 600-1000 minor salivary glands are present with the exception of the gingiva and the anterior portion of the hard palate.¹ Varying Minor Salivary Gland Tumors (MSGT) like pleomorphic adenoma, adenoid cystic carcinoma and mucoepidermoid carcinoma, among which pleomorphic adenoma (PA) accounts for the highest percentage of benign MSGT, with a slight female predilection (2:1) occurring in the 4th - 6th decade of life.^{2,3,4}

A 60-year-old woman patient presented with a swelling on the palate which was present for 2 years. Extra orally, the patient presented with no gross asymmetry of the face and lymph nodes were not palpable. The patient presented with incompetent lips due to the growth and found it difficult to close her mouth. Intraorally, the patient presented with chronic generalized periodontitis and halitosis. On examination of the swelling, a sessile growth of 6 x 8 x 4 cm from the anterior midline of the palate in relation to 15-25 tooth region extending posteriorly up to the soft palate and also the posterior extent was not evident clinically. (Figure 1 A) On palpation, no bleeding or discharge was observed. The mass was soft to firm, compressible, tender and the surrounding area was erythematous. Prominent blood vessels were seen on the growth. On further examination, an ulcer of 1 x 1 cm was seen on the right side, posterior to the hard palate close to 17,18 region with evidence of pus discharge. Bilateral clearing of the nostrils was noted.

CT revealed a well-defined soft tissue mass approximately 6.7 x 4.7 x 4.1 cm seen from the left fossa of Rosenmuller extending into the oral cavity. Multiple enhancing lymph nodes were noted on both sides. Sclerosis and erosion of lingual alveolar process of the maxilla was also noted. (Figure 1 B). Given that the lesion had several blood arteries nourishing it, neovascularization was proposed as the prognosis, and a malignant neoplastic tumour was tentatively identified.

FNAC examination revealed a cellular smear showing a heterogenous population of lymphoid cells composed of small lymphocytes, large lymphocytes, immunoblasts and few macrophages were seen.

An incisional biopsy was performed, which showed cellular neoplasm showing sheets and islands of plasmacytoid cells and myoepithelial cells. (Figure 1C & 1 D). The histopathological differentials included myoepithelioma and pleomorphic adenoma. Then, immunohisto chemistry for Ki67, p63, Sox10, and vimentin was carried out, and the results showed that the neoplastic cells were positive for p63 and that Ki-67% was 1%. (Figure 2 (A-D))

A wide-local excision with marginal clearance of 0.5cm and a peripheral osteotomy of up to 2 cm was performed. A buccal flap was placed and sutured.

Formalin-fixed histopathological tissues of the excisional biopsy revealed a fibrous capsule enclosing a cellular neoplasm showing sheets and islands of plasmacytoid cells with bland oval nuclei. No evidence of atypia, increased mitosis or necrosis was seen. Histopathological image showing moderately cellular lesion with sheets and strands of

polyhedral squamous epithelial cells exhibiting duct-like structures containing eosinophilic coagulum interspersed with hyalinized cartilaginous areas. Areas showed plasmacytoid myoepithelial cells with eosinophilic cytoplasm and eccentrically placed nuclei. (Figure 3 A-H)). A final diagnosis of Pleomorphic Adenoma was made and one year follow-up reveals no signs of recurrence and favourable prognosis. (Figure 4 A-G)

Discussion:

The roof of the oral cavity possesses numerous minor glands from which salivary gland neoplasm stems where 20% are malignant, while 80% are benign. Most tumors develop on the hard palate seen under the minor salivary gland tumors and the parotid gland for major salivary gland tumors.⁵ Among these minor salivary gland tumors of the palate, pleomorphic adenoma (PA), a heterogenous tumor is found to be the most common of them all with a female predilection with a 2:1 ratio. Although it may be seen at any age group, it typically manifests in the fourth and fifth decades of life.^{4,6} PA is slow-growing and presents with persistent symptoms spanning several months. The subtle functional indications of salivary tumors of the palate include a feeling of a foreign body and a small discomfort during swallowing.³ The case that we reported is consistent with the literature and also gives 2-3 years of history with slow-growing swelling.

The palate can host a variety of tumour types, which complicates the differential diagnosis of pleomorphic adenoma. It might be a monomorphic adenoma with basal or ductal cells when referring to benign tumours. It could be an acinar cell adenocarcinoma, mucoepidermoid carcinoma, adenoid cystic carcinoma (cylindroma), or polymorphic adenocarcinoma in malignant tumours.⁷

There have been several large-sized PAs of hard and soft palate reported in the literature.⁸ In the present case, the tumor was about 6x8 cm, which is an unusual size. The absence of a capsule, or its presence is very little, is the most significant characteristic of pleomorphic adenoma which mainly occur in minor salivary glands.⁹

Imaging plays a major role in diagnostic techniques. The type of tumor can be partially determined by CT scan and MRI, which can also provide information on the tumor's location, size, and dissemination to nearby superficial and deep structures. On the contrary, in the present case, the CT imaging exhibited a well-defined soft tissue density mass lesion that extended into the oral cavity that was arising from the fossa of Rosenmuller. The pharyngeal recess, or fossa of Rosenmuller, is the most typical location of origin for nasal cancers, which was in favour of a malignant lesion. But further analysis of radiographical and histological examination confirmed the accurate diagnosis and further treatment plan. The final diagnosis is made by histopathology, with assistance from the history, physical exam, and radiographic examination.^{10,11}

A palatal abscess, odontogenic and non-odontogenic cysts, soft tissue tumours, and salivary gland tumours are among the possible differential diagnosis.

On the histopathologic examination of PA, it is often biphasic, with a background stroma that might be cartilaginous, mucoid, myxoid, or hyaline, and a combination of

polygonal epithelial and spindle-shaped myoepithelial cells. The components of epithelial elements, which are made up of polygonal, spindle, or stellate-shaped cells, can be arranged in duct-like structures, sheets, clusters, or interlacing strands.¹⁰

IHC such as p53 can be done to differentiate PA from carcinoma ex-pleomorphic adenoma.¹² Mostly, cytokeratin is positive in ductal (epithelial) cells and myoepithelial cells are positive for S100, alpha-SMA, SOX10, p63. PLAG1 immunostaining can also be performed.¹³

The surgical removal of the lesion with a marginal clearance is the pillar of treatment for salivary gland tumours.⁹ After complete surgical resection, these tumors typically do not reoccur and have an excellent prognosis. At five and ten years, the recurrence rate is around 3.4% and 6.3%, respectively. The probability of a lesion developing malignancy and developing into a carcinoma ex-pleomorphic adenoma is negligible and inversely correlated with the duration of the lesion (1.5% in the first 5 years, 9.5% after 15 years).¹⁴

Defects resulting from maxillectomy may be the root cause of oroantral communication, which can further interfere chewing, swallowing, speaking, and facial aesthetics. Numerous issues, including hyper-nasal speech, nasal fluid leaks, a high risk of aspiration, and decreased masticatory function, can arise from postsurgical maxillary abnormalities. Utilizing obturators, prosthodontists may play an essential role in the rehabilitation of these abnormalities. For these patients to recover, addressing the maxillary abnormalities with prosthodontics or surgery is essential. An intraoral examination identified a fully edentulous maxillary arch and a surgical defect on the hard palate.¹⁵

In our patient, after altering the maxillary stock tray to ensure a better impression, the mandibular impressions were made using an irreversible hydrocolloid impression substance, and the maxillary impressions were obtained using the Impression compound. Study casts were created by pouring dental stone type IV onto these impressions. Using cold-cure acrylic resin on the primary cast, a unique tray was created. All of the fault areas were border moulded using a green stick compound, and polyvinyl siloxane was used to capture the final impression. To create the master cast, an extra-hard type IV dental stone was put into the imprint.

Occlusion rims were made and the centric jaw relation was recorded. The recorded jaw relation was articulated and the teeth setting was done. To guarantee appropriate occlusion with the mandibular teeth, a pleasing appearance, and support for the underlying tissues, acrylic denture teeth were arranged and wax try was done in the patient's mouth. The obturator was then polished, finished, and processed by conventional protocols. Pressure indicator paste was used to mark any regions of high-pressure during insertion. After the patient received instructions on how to take care of and use the obturator, the denture was put in the mouth. After the patient underwent testing for phonetics and deglutition, it was found to have significantly improved. (Figure 4 A-G)

Conclusion:

Palatal tumors are uncommon and may have various histopathological types. The key to diagnosis and the prevention of a larger degree of misdiagnosis is a thorough understanding of the distinct appearances of salivary gland tumors.

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Figures

Figure 1

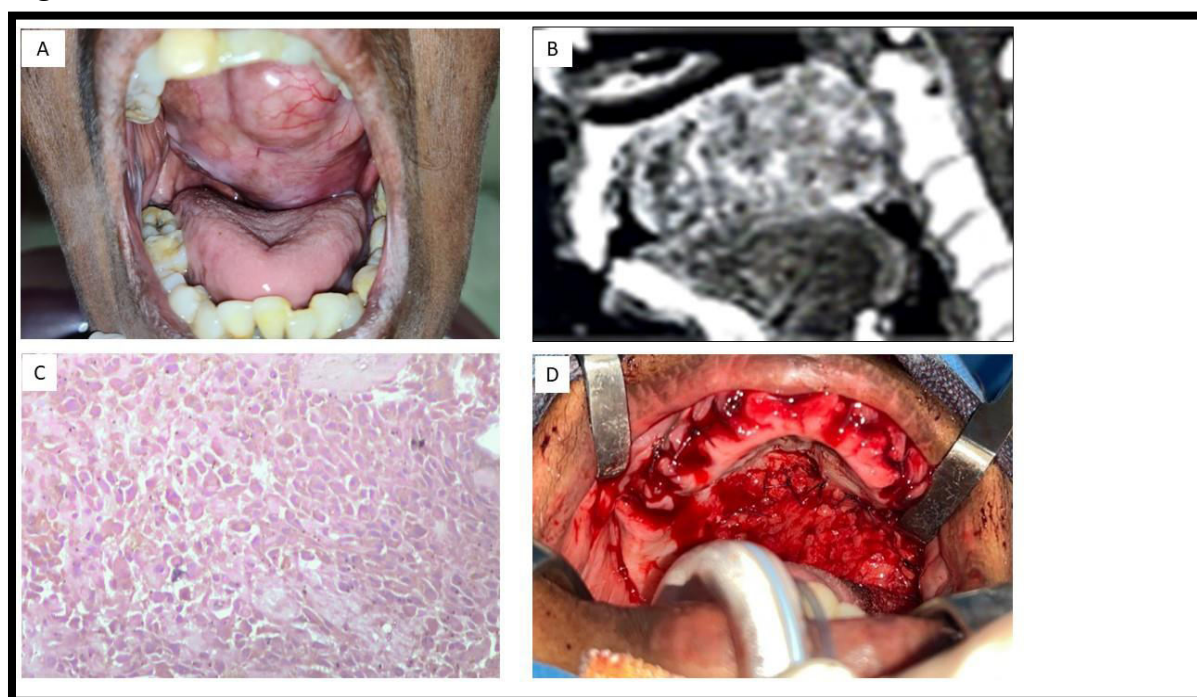


Figure 2

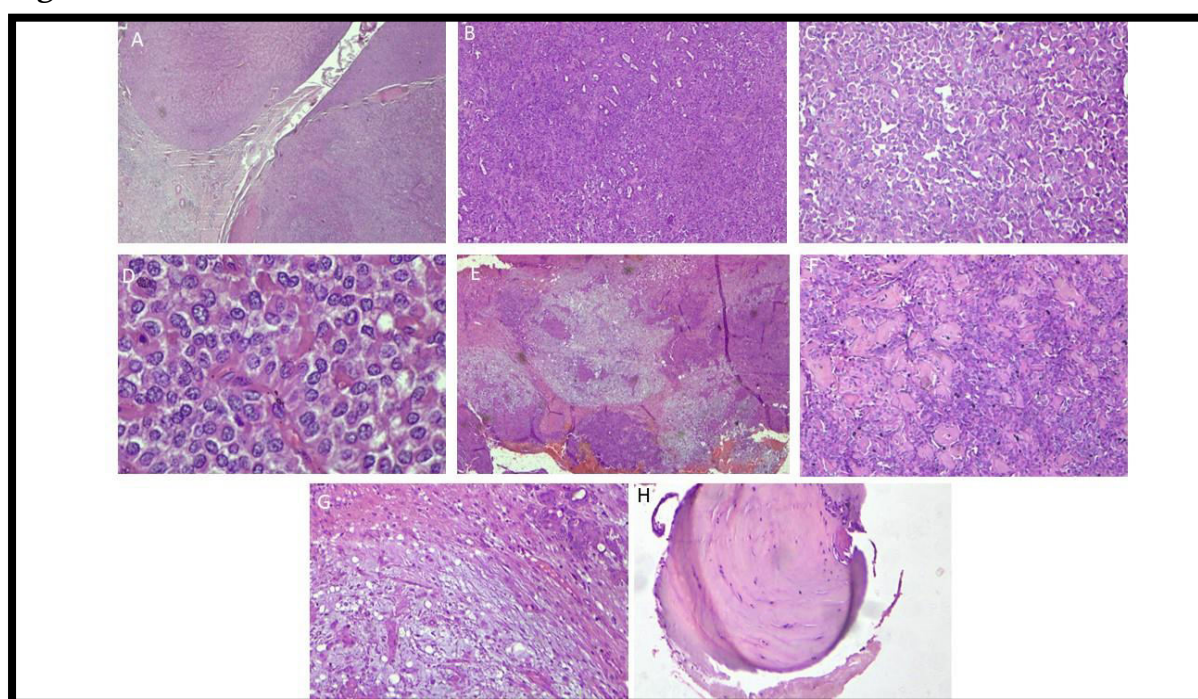


Figure 3

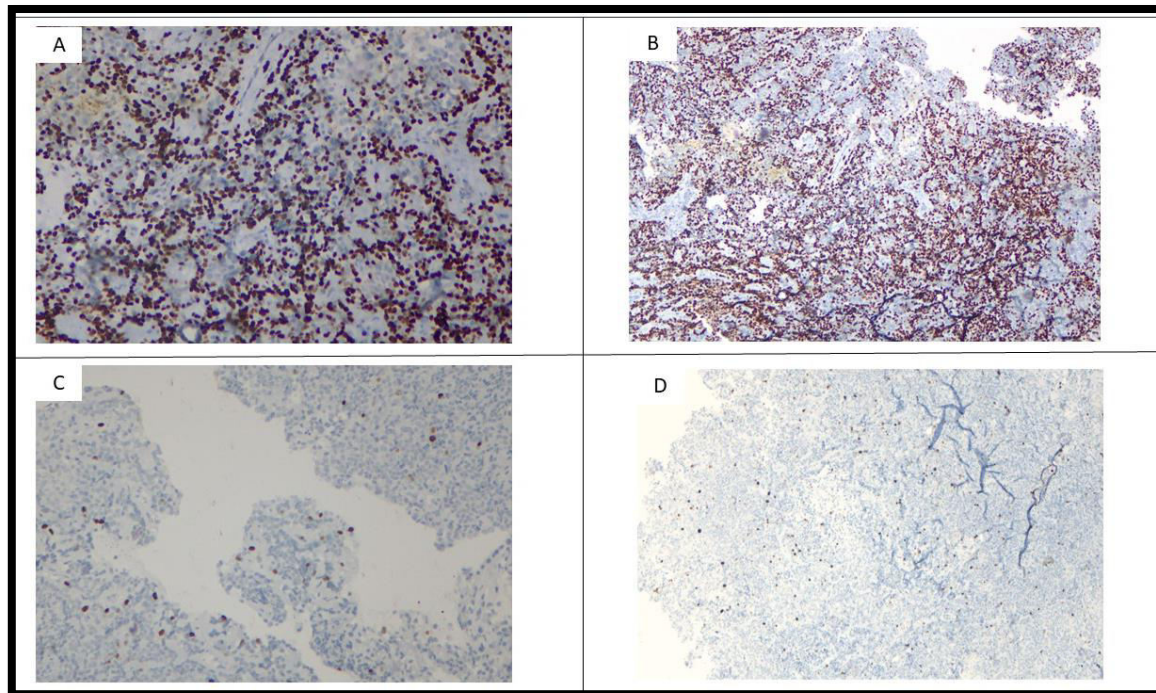


Figure 4

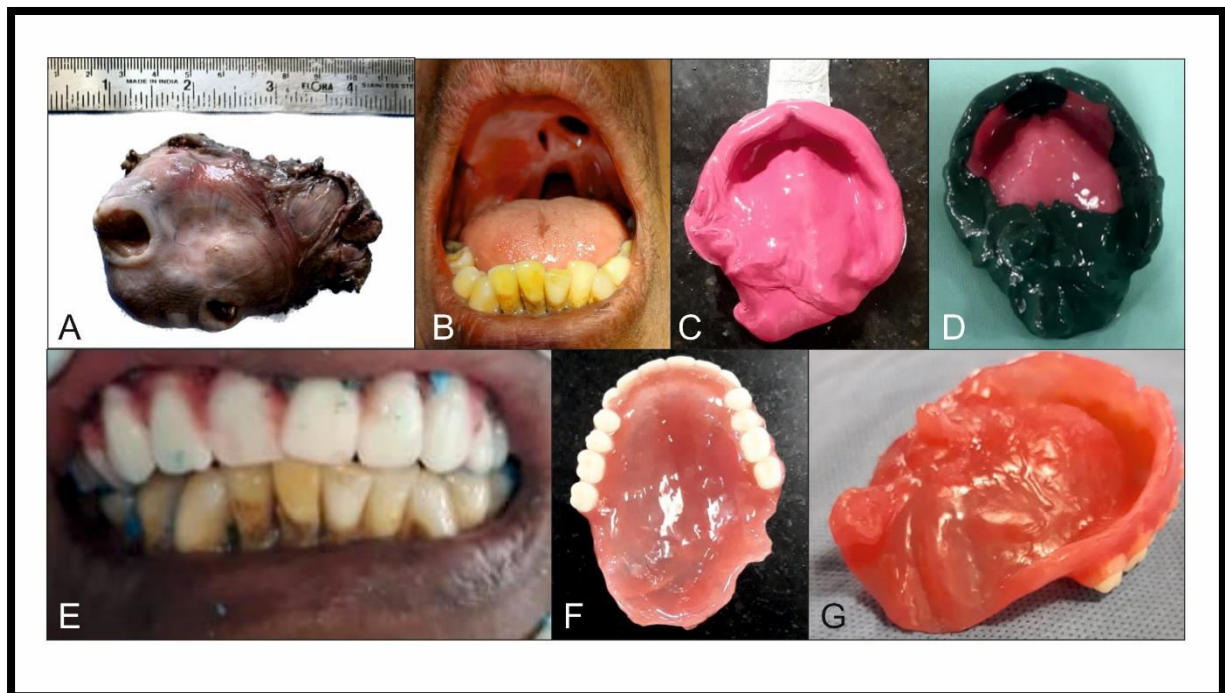


Figure Legends

Figure 1: (A) Photograph shows swelling extending from anterior hard palate up to soft palate. (B) CT reveals well defined soft tissue mass arising from left fossa of Rosenmuller extending to oral cavity. (C&D) (H&E 40x) Photomicrograph shows sheets and islands of plasmacytoid and myoepithelial cells

Figure 2: (A, B) Neoplastic cells showing positive for p63. (C, D) Neoplastic cells showing low proliferative index for Ki-67.

Figure 3 (H&E 2x and 4x)(A-C) Photomicrograph shows neoplastic cells arranged in ductal pattern, sheets and islands. (H&E 40x)(D)Photomicrograph displaying plasmacytoid myoepithelial cells with eccentrically placed nuclei cells. (H&E 10x) (E-G) Stroma is densely collagenous with myxoid and chondroid areas. (H&E 10x) (H) Photomicrograph shows osteoid areas

Figure 4 : Photomicrograph shows A.Excised specimen, B. Maxillary palatal defect, C. primary impression, D. Border moulding done with covering all the extension of the defect, E. Wax Tryin, F. Final denture with obturator, G.Processed denture intaglio surface