CASE REPORT

Pleomorphic Adenoma of Minor Salivary Gland: Report of Two Cases

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ABSTRACT

Aim: To present two cases of pleomorphic adenoma (PA) of the minor salivary glands arising de novo in the hard palate and lower left labial mucosa.

Summary: PA most commonly affects the major salivary gland i.e parotid and found in females with 4-5th decade of life. The present case reports describe lesion in male patients in their 3rd decade, which were diagnosed as benign tumor of the salivary glands. The tumors were circumscribed, firm in consistency, located on the hard palate and left lower labial mucosa and characterized by slow growth. Complete excision was performed in both the cases. These were histopathologically diagnosed as pleomorphic adenoma of the minor salivary gland.

Keywords: Excision, Hard palate, Pleomorphic adenoma, Salivary gland tumors

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Date of Submission : 02-08-2011
Reviews Completed : 13-09-2011
Date of Acceptance : 30-11-2011

INTRODUCTION

Pleomorphic adenoma (PA) is the most common salivary gland neoplasm accounting for 60- 65% of all saliary gland tumors. It is the most frequently encountered and best described salivary gland tumor. It mainly affects women in their fourth to sixth decade of life, and has a natural history of asymptomatic slow growth over a long period.[1] It usually involves major salivary glands, most commonly being the tail of parotid. It may also involve minor salivary glands. Lips are commonly affected site, second only to the palate, and account for about 20-40 % of all intraoral PA. [2,3] The etiology of PA is unknown, but thought to be due to clonal chromosomal abnormalities with aberrations involving 8q12, 12q15 and PLAG gene.[4]

Histopathology of PA is diverse and characterized by heterogeneity of the morphological patterns which cause confusion and difficulty, particularly in small incisional biopsies. Areas of PA may resemble or may be identical to a range of other tumor types including polymorphous low grade adenocarcinoma, adenoid cystic carcinoma, basal cell adenoma, and epithelial-myoepithelial carcinoma. In addition, PAs may contain areas, or show metaplastic changes which resemble other tumor types which may lead to a misdiagnosis.[5] The pathologist must consider the site and the clinical history, but in some cases the characteristic morphological diversity of the lesion may only become apparent when the lesion has been excised and examined entirely.[6] Particular care is needed when examining incisional biopsies from intraoral sites like palate, a site at which any of these tumors could arise. Present paper discusses two cases of PA of the minor salivary glands arising de novo in hard palate and lower left labial mucosa.

CASE REPORT

Case 1

A 25 year old male referred to CSMMU, Lucknow (UP), India, for evaluation, presented with a gradually increasing painless swelling on the palate since six months, associated with dysphagia. On examination there was smooth elevated mass on the left side of the hard palate approaching the midline (Fig. 1). The tumor was approximately 2 x 3 cm in size and

extending anteriorly from left first premolar to the second permanent molar. The swelling was firm with an intact overlying mucosa. There was no significant lymph node enlargement in the neck. The medical history was unremarkable, and no other abnormalities were found on clinical examination. Root stumps of left first permanent molar were also evident and to rule out any periapical cystic lesion in this relation an orthopantomograph was advised. Orthopantomograph did not reveal any periapical lesion, so considering all these features provisional clinical diagnosis of minor salivary gland tumor was made. The patient was subjected to CT scan to evaluate the total extension of the tumor and the bone involvement. The scan revealed no bone involvement. The differential diagnosis included benign or malignant salivary gland tumor. To rule out any malignancy fine needle aspiration cytology (FNAC). FNAC of the lesion was performed and the smear revealed moderate cellularity comprising of benign mononuclear cells arranged in clumps and sheets at places. The background showed eosinophilic material and RBCs. No atypical cells were seen. The findings were consistent with a benign glandular lesion. The patient was operated under local anesthesia. The final diagnosis of pleomorphic adenoma was made on histopathological examination. The patient was followed for six months post operatively and did not have any recurrence or complication.

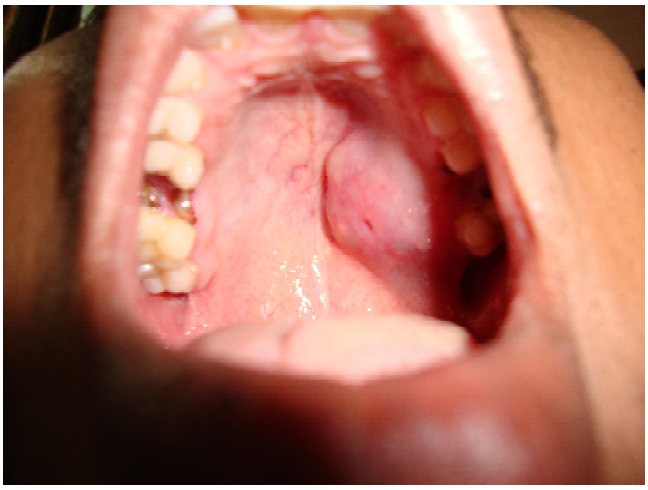

Figure 1: Smooth elevated mass on the left side of hard palate.

Case 2

A 22 year-old male patient presented to Department of Oral Pathology, CSMMU, Lucknow with complain of painless swelling in the lower left labial mucosa since 3 months. His medical and family history were not relevant. Clinical examination revealed a mass of approximately 1.5 x 0.7 cm in dimension, having a lobulated appearance, soft consistency and non-fluctuat. No hyperemia or change of color was observed on the mucosal surface (Fig. 2). Furthermore, systemic examination did not reveal any abnormality. Based on the clinical features, a provisional diagnosis of fibroma was made. The differential diagnosis included mucocele, lipoma and schwannoma. After obtaining an informed consent from the patient, an excisional biopsy was performed under local anesthesia by means of a transverse incision parallel to the superior and inferior border of the lesion.

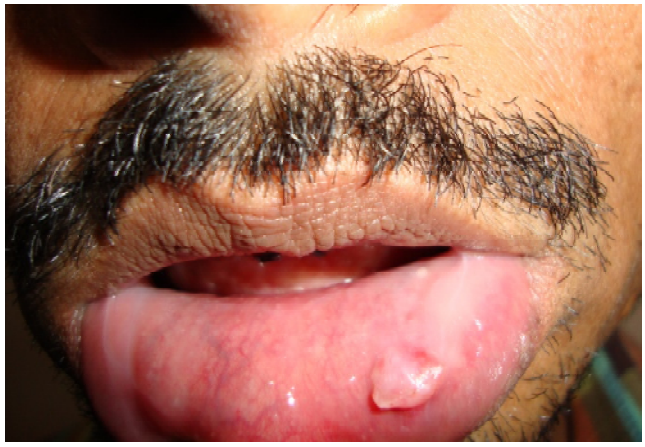

Figure 2: Small lobulated mass on the lower left labial mucosa

Histopathological examination revealed a neoplasm with a fibrous connective tissue capsule, nests of polygonal shaped epithelial cells forming ducts and tubules containing eosinophilic coagulum (Fig. 3). Areas of myxoid, chondroid (Fig. 4) and hyalinized eosinophilic connective tissue were also evident. Ductal structures showed lumina lined by single layer of epithelium surrounded by darker staining angular myoepithelial cells. The overall features were suggestive of pleomorphic adenoma. The patient did not come back for follow up.

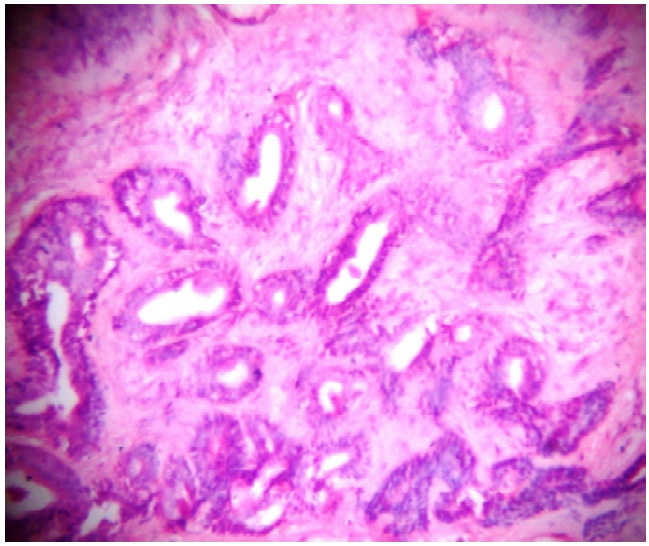

Figure 3: Photomicrograph showing ductal structures with eosinophillic coagulum

DISCUSSION

PA is a slow-growing benign salivary gland tumor, most commonly arising in the parotid gland. The commonest site

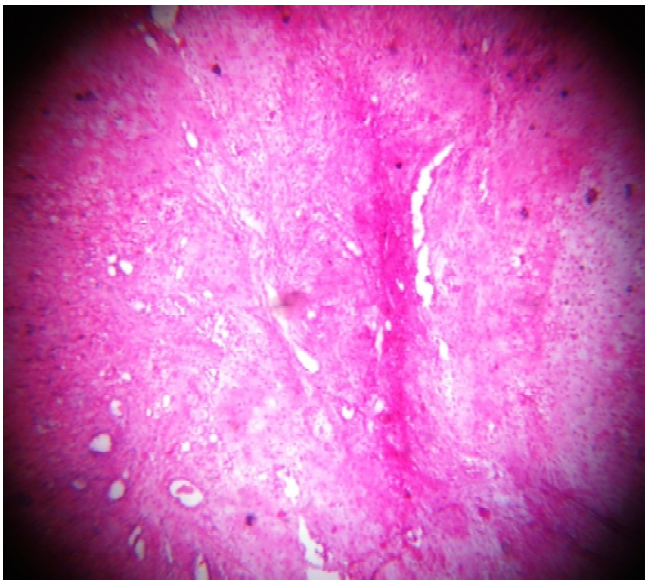

Figure 4: Photomicrograph showing chondroid area and ductal structure under 4x magnification.

of occurrence of this tumor in minor salivary glands is the palate followed by lip, buccal mucosa, floor of the mouth, tongue, tonsil, pharynx, retromolar area and nasal cavity.[7,8] Females are more commonly affected than males and the peak incidence is in the fourth and fifth decade.[9,10] PA is the most common salivary gland tumor and is also the most common minor gland lesion representing 40% of intraoral tumors and about 50% of those on the palate.[11] Kroll and Hick[12] reviewed 4042 cases of PAs of the salivary glands. Of these, 445 originated in the minor salivary glands, only 16.9% were located in the upper lip and 2.9% in lower lip.[12] However, one of the present case reports featured PA located on the lower lip of male patient. Ellis and Auclair[13] reviewed 6,880 cases of PA in Armed Forces Institute of Pathology (AFIP). A total of about 20% cases involved the minor salivary glands of which palatal lesions were most common comprising of 711 cases. Although lip was the second most common intraoral site with 297 cases, amongst which lower lip consisted of only 20 cases, followed by cheek with 126 cases, and retromolar area being the least involved site with only 3 cases.[13] Minor salivary gland tumors present as painless slow growing, soft or firm masses, with most having a nodular, exophytic component. Ulceration of the nodular mass may occur, but the presence of ulcer provides no clue to the invasiveness of the tumor. Those that are soft on palpation usually have large cystic cavities and an abundance of mucin. The more solid tumors, especially PA with bone and cartilage formation, are firm on palpation. Mixed tumors of the hard palate are not movable; however those on other sites are mobile. Palatal mixed tumors are usually seen on the lateral aspect of the palate, and seldom cross the midline. Differentiation between benign and malignant tumors is not possible without histopathology. However, suspicion of malignancy necessitates a biopsy before surgical treatment.[13]

The cytological features of PA are usually quite characteristic and show monomorphic cells loosely cohesive and arranged in clusters or flat sheets and tubules. Presence of chondroidmyxoid stroma is of critical diagnostic value.[14] Based on these features the differential diagnosis includes well differentiated adenoid cystic carcinoma and low grade mucoepidermoid carcinoma. These can be ruled out on the basis of cytological details. The cells in PA will not show any malignant feature like high nuclear cytoplasmic ratio, prominent nucleoli and mitotic figures. The adenoid cystic carcinoma will mostly show the presence of homogenous basement membrane substance and low grade mucoepidermoid will reveal mucin and extensive squamous metaplasia.[15]

PA has to be distinguished from chrondroid syringoma, monomorphic salivary gland adenomas, myxoma, myxoid lipoma and myxoid neurofibroma. The chrondroid syringoma is difficult to differentiate from mixed tumor unless adjacent salivary tissue is included in the specimen. Monomorphic salivary gland adenomas usually do not have characteristic myxochondroid structures. The rest are mesenchymal neoplasms that do not reveal any typical epithelial structures which help in the confirmation of pleomorphic adenoma.[13] PA comprises of a mixture of epithelial, myoepithelial and stromal mesenchymal components. Epithelial cells may form solid sheets, tubules, ducts, acini or trabeculae. Foci of squamous metaplasia, keratin formation, oncocytic metaplasia, mucous gland formation, sebaceous differentiation can be seen. The myoepithelial cells produce the mesenchymal stromal component that may be myxoid, chondroid or hyalinized. Small crystals like tyrosin, oxalate can also be seen.[13] The histopathological variations seen in PA leads to resemblance to other tumors which have been illustrated in Table 1.

Immunohistochemical methods have been extensively used to study mixed tumors in recent years. Myoepithelial cells in mixed tumor have been shown to be immunoreactive for keratin, S-100 protein, GFAP (glial fibrillary acidic protein), actin, and vimentin. Ductal epithelial cells have been strongly immunoreactive for cytokeratin and moderately reactive for anti epithelial membrane antigen and carcino embryonic antigen.[16] According to Regezi,[17] immunoreactivities of S-100 protein and GFAP in 33 cases of salivary gland tumor was observed and all 17 PAs showed strong positive reactions to S-100 protein and GFAP compared to only weak reactions for S-100 in adenoid cystic caricinoma. Therefore, S-100 and GFAP may be helpful markers in differentiating PA and adenoid cystic carcinoma.[17]

PA affecting minor salivary gland are best treated by total excision that includes a rim of surrounding tissue i.e wide resection with negative margins, frequently recommended as an optimal choice, because almost half of all tumors originating from minor salivary glands are proclaimed as malignant. Fine-

Table 1: Diverse cytological features seen in the histopathology of the pleomorphic adenoma

Cellular features	Differential diagnosis
Mucous or goblet cells	Mucoepidermoid carcinoma
Cribriform pattern	Adenoid cystic carcinoma
Ducts with clear cells at periphery	Epithelial myoepithelial carcinoma
Sheets of basaloid cells	Basal cell adenoma
Chondroid area	Chondroid syringioma, chondrosarcoma
Spindle myoepithelial cells	Sarcoma or soft tissue tumor
Keratin	Squamous cell carcinoma
Oncocytic metaplasia	Oncocytoma
Myxoid areas in stroma	Myxoma, myxomatous degeneration in neural tumors

needle aspiration or incisional biopsy is suggested before the definitive surgery. Review of literature revealed that numerous authors have emphasized on the management of PA. Speight and Barrett[11] stated partial or formal superficial parotidectomy as the treatment of choice and found that resulted in low morbidity and recurrence rates. However, even while using this technique the surgical specimen is not fully surrounded by normal gland and exposed tumor capsule is usually encountered on the deep aspect where tumor has been dissected from the facial nerve. Provided this capsule is intact, tumor does not recur. This observation led to the development of extracapsular dissection as a treatment. In this approach, the tumor and its capsule are carefully dissected from the adjacent parotid gland. This approach is associated with low rates of morbidity (facial nerve damage and Frey's syndrome) and shows recurrence rates of 2%.[11] Numerous authors have discussed the surgical treatment of these tumors including Krolls *et al.,*[18]who asserted that inefficient first surgical intervention was the main cause of recurrences. However, Dongre *et al*.[19] propounded that simple excision was the only treatment for it. Disadvantages of wide excision of extra-major salivary gland pleomorphic adenoma may be summarized as cosmetic care particularly for upper and lower lips, eyes, and face in general, and probability of injury to functional structures of head and neck such as upper and lower lip, and palate. However, we offer wide excision for the treatment of extra-major salivary gland pleomorphic adenoma especially for the selected cases.

CONCLUSION

Tumors of the minor salivary glands are uncommon among entire salivary glands tumors. Histologically, PApresents with immense variety of cells, architectures and morphological characteristics. Since PA is the most frequent salivary gland neoplasia and can resemble other salivary gland tumors, the knowledge about these variations is essential for a correct diagnosis.

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