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Pleomorphic adenoma of salivary gland.- Review article

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ABSTRACT
Pleomorphic adenoma, the most common benign neoplasm of salivary gland tumor, consists of epithelial (ductal and nonductal) and mesenchymal components. Its morphologic complexity results from differentiation of tumor cells into fibrous, hyalinized, myxoid, chondroid and osseous areas. The diagnosis is made by the clinical and histopathological examination. The treatment of pleomorphic adenoma is surgical excision. Malignant transformation, though rare, has been reported.

KEY WORDS
Pleomorphic adenoma, benign salivary gland tumour, ductal, myoepithelial, myxoid

INTRODUCTION
The term pleomorphic adenoma was suggested by Willis.[1] It was referred by different names like mixed tumor, enclavoma, branchioma, endothelioma, enchondroma, etc. in earlier years.[2] It is the most common benign salivary gland in children and adults. The morphological complexity, exists among the tumor between individuals and glands, and even within the same tumor, which actually explains the term 'pleomorphic adenoma'. The histopathologic features of pleomorphic adenoma are pathognomonic.[3] It has been postulated that rather than simultaneous proliferation of neoplastic epithelial and myoepithelial cells, a single cell with the potential to differentiate toward either epithelial or myoepithelial cells may be responsible for these tumors.It is almost universally agreed that this neoplasm is not a "mixed" tumor in the true sense of being teratomatous or derived from more than one primary tissue. Its morphological complexity is the result of the differentiation of tumor cells, and the fibrous, hyalinized, myxoid, chondroid, and even osseous areas are the result of metaplasia or are actually the products of the tumor cells.

HISTOGENESIS
Numerous theories have been proposed regarding the histogenesis of pleomorphic adenoma. It is related to the myoepithelial cells and to reserve cells in the intercalated duct. Neoplastically altered epithelial cells with the potential for multidirectional differentiation may be responsible for the tumor.[4]Pleomorphic adenomas have shown consistent cytogenetic abnormalities, chiefly involving the chromosome region 12q 13-15.[1] The putative pleomorphic adenoma gene (PLAG1) has been mapped to chromosome 8q12.[5]

CLINICAL FEATURES
Pleomorphic adenomas can occur at any age, but most common in young and middle-aged adults, between 30 to 60 years. The clinical behavior of this neoplasm in children is similar to that in adults. A slight female predilection is noticed (M: F – 4: 6). The parotid gland is the most common site of pleomorphic adenoma. Most reported pleomorphic adenoma of parotid gland occurs in the superficial lobe and present as a swelling on the ramus in front of the ear. The tumor is usually an irregular nodular lesion, firm in consistency, although areas of cystic

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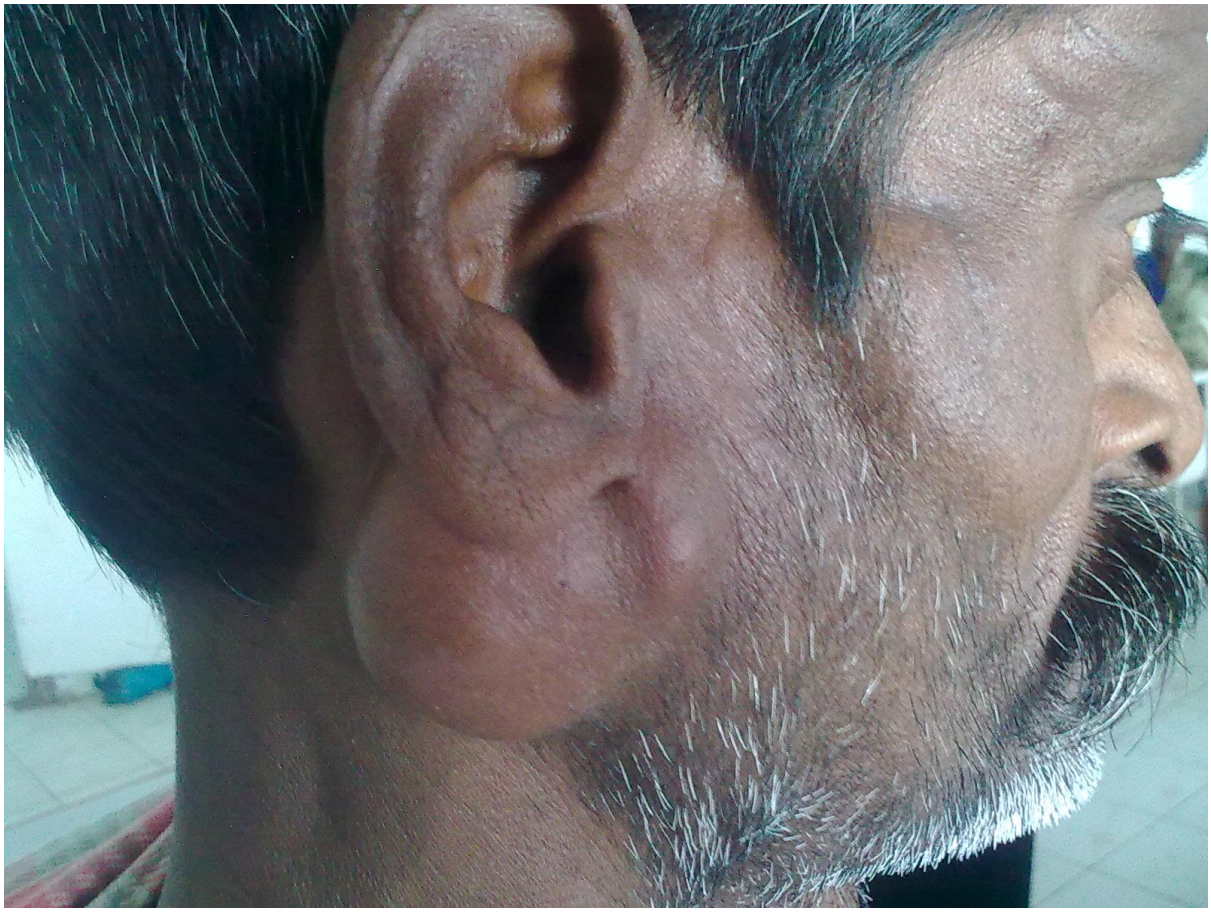
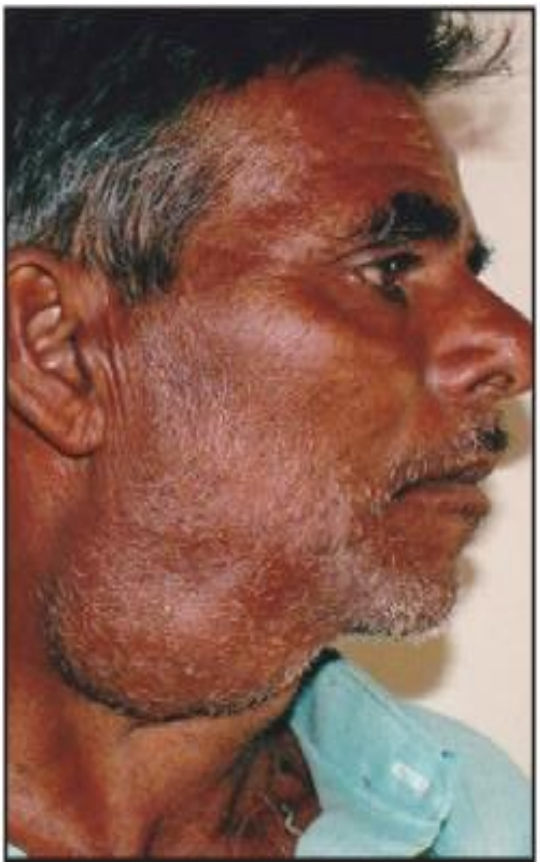
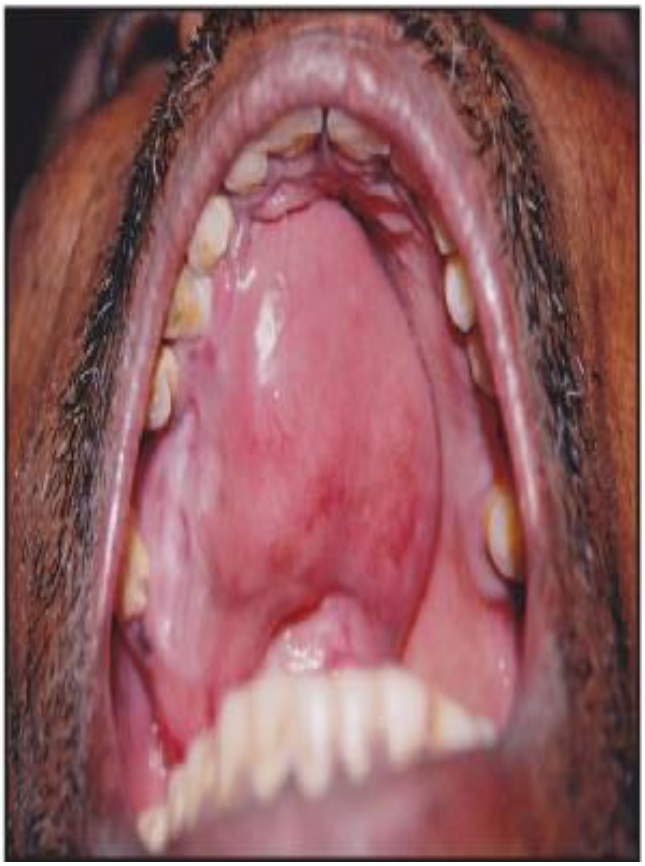
degeneration may be palpated if superficial, and does not show fixation. Its occurrence in sublingual gland is rare. Approximately 8% of pleomorphic adenomas involve the minor salivary glands, and the palate is the most common site (60% - 65%) of involvement. The history presented by the patient is usually that of a small, painless, quiescent nodule, which slowly begins to increase in size, sometimes showing intermittent growth. The skin seldom ulcerates, even though this neoplasm may reach larger size, lesions having been recorded which weighed several kilograms. The palatal pleomorphic adenoma may appear fixed to the underlying bone, but is not invasive. In other sites, the tumor is usually freely moveable and easily palpated. Recurrent lesions however, occur as multiple nodules and are less mobile than the original neoplasm.

Facial nerve involvement and pain are rare.[1] If neglected, pleomorphic adenoma can grow to grotesque proportion. About 10% of the reported pleomorphic adenoma' develop within the deep lobe of the gland beneath the facial nerve. A few lesions grow in a medial direction between the ascending ramus and stylomandibular ligament resulting in dumbbell shaped tumor that appears as a mass of the lateral pharyngeal wall or soft palate. Pleomorphic adenoma' of minor salivary gland commonly occur in the palate (50%), upper lips (27%) and buccal mucosa (17%).







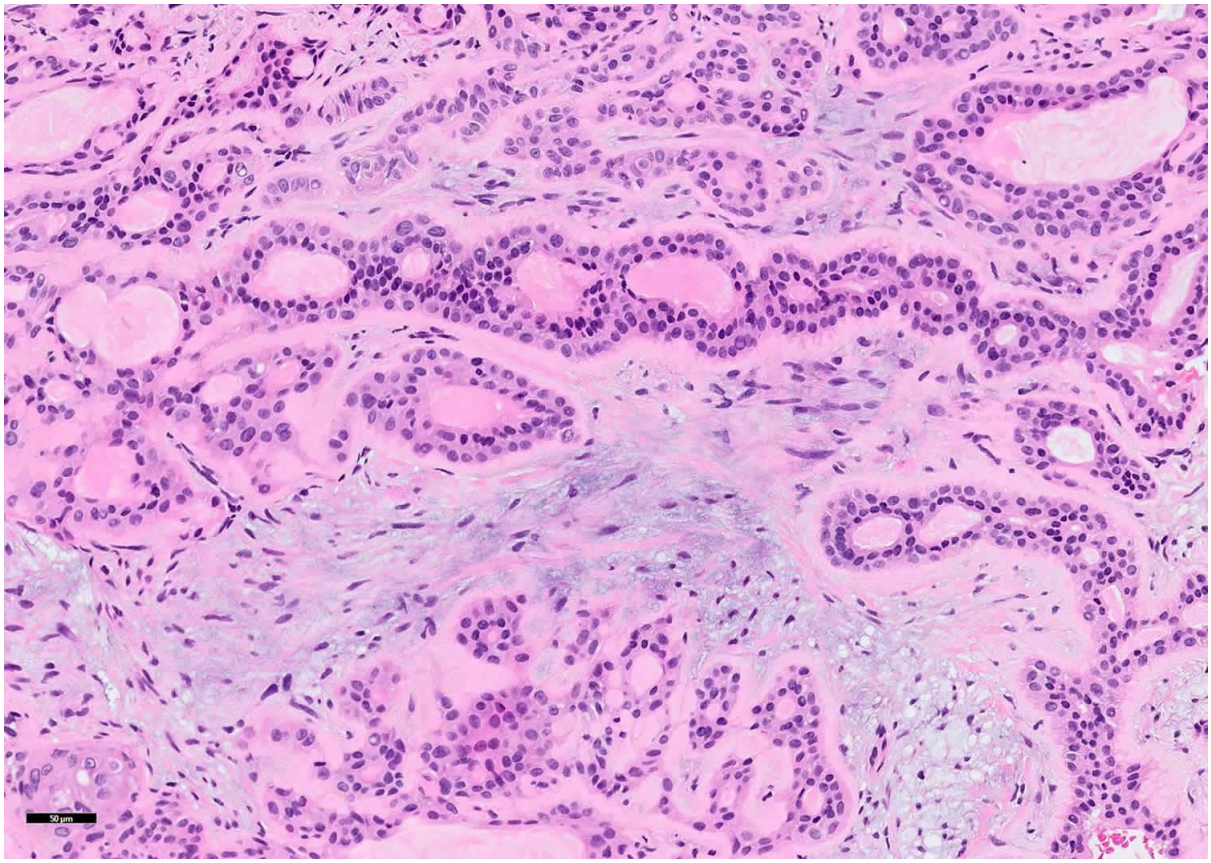
HISTOLOGICAL FEATURES

Macroscopic features: Pleomorphic adenomas generally appear an irregular to ovoid mass with well defined borders. The neoplasm in major glands either have an incomplete fibrous capsule or are unencapsulated, whereas in the minor glands these are unencapsulated. The cut surface may be rubbery, fleshy, mucoid, or glistening with a homogenous tan or white colour. Areas of haemorrhage and infarction may be noted occasionally.

Microscopic features: Pleomorphic adenoma, microscopically is characterized by variable diverse structural patterns. It consists of glandular epithelium and mesenchymal like tissue. The neoplasm is categorized in to following types:[6]

a) principally myxoid,
b) myxoid and cellular in equal proportion,
c) predominantly cellular and
d) extremely cellular.

The epithelial component form ducts and small cysts that contain an eosinophilic coagulum. The epithelium may also occur as small cellular rests, sheets of cells, anastomosing cords and foci of keratinizing squamous, mucous or spindle shaped cells.[1] The myoepithelial cells have variable morphologies like angular or spindle shape, rounded with eccentric nuclei and hyalinized eosinophilic cytoplasm resembling plasma cells (hyaline cells). Accumulation of mucoid material around the myoepithelial cells give a myxoid pattern.[5] Vacuolar degeneration results in cartilaginous appearance. Foci of hyalinization, bone and even fat can be noted. When highly cellular, it is referred to as ‘cellular adenoma’. When myoepithelial cells predominate, it is referred to as ‘myoepithelioma’.[7]



TREATMENT AND PROGNOSIS

The treatment of pleomorphic adenoma is surgical excision.[1,4] For pleomorphic adenoma' of superficial lobe of parotid gland, superficial parotidectomy with preservation of facial nerve is done. For tumors of deep lobe total parotidectomy is necessary. Intraoral lesions can be treated more conservatively byextracapsularexcision. Submandibular tumors are treated by total removal of gland with tumor (Bradley).[8]

Prognosis is excellent with a cure rate of 95%. The tumor is radio resistant. So, radiotherapy is not indicated. Frey syndrome is one of the rare complications after parotidectomy. Malignant transformation, though rare, has been reported in about 5% of cases. Carcinomas ex pleomorphic adenoma and metastasizing benign mixed tumor are two variants of this tumor undergoing malignant transformation.

CONCLUSION

Pleomorphic adenoma, though a benign tumor of salivary gland, should be diagnosed at an early stage and surgically excised. When involving parotid gland, precaution should be taken to preserve facial nerve, if possible. Care must be taken to remove the lesion entirely to avoid recurrence and malignant transformation.

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