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Pleomorphic Adenoma of Parotid Gland: A Case Report & Review of Literature

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Abstract*: Overall salivary gland tumours are rare, comprising of less than 3% of overall head and neck neoplasms. Parotid gland is the most common site for the benign salivary gland neoplasm. Usually they are painless slow growing lesion involving the superficial or deep part of the gland and can severely affect the facial nerve functioning. Treatment mainly comprises of surgical excision with preservation of the facial nerve. A 28 year old female presented with painless swelling in the left parotid region since 2 years. The C.T. scan shows a hyperdense circumscribed mass involving the left parotid gland. On surgical exploration the neoplasm was resected and histopathologically diagnosed as Pleomorphic adenoma of parotid. It is of clinical significance to rule out other different benign and malignant neoplasm present in the parotid region for the proper diagnosis and management of these types of lesion encountered in routine dental practice*.

Keywords: *Pleomorphic adenoma, Benign tumour, parotid gland, parotidectomy.*

I. Introduction

Salivary gland neoplasms are very rare and comprise almost 3% of overall head and neck tumours.[1] Pleomorphic adenoma is the most common benign tumour encountered in salivary glands and accounting for approximately 60% of all the salivary gland neoplasms.[2]

The most common site for pleomorphic adenoma is parotid gland and form 60-70% of all the parotid tumours. Incidence of this tumour is about 2.4 in 1,00,000 per year. Although benign, size ranges from very small to enormously huge. Mostly females are affected with a ratio of 2:1.[3,4,5] In this case report we present a case report of pleomorphic adenoma involving the superficial lobe of parotid gland.

II. Case History

A 28 year old female came with a complaint of slowly growing painless mass on the left side of the face just below the ear region [Figure 1]. No significant medical history. On clinical examination the swelling was painless, measuring about 2cm x 3cm in size, situated in the lower pole of the left parotid gland [Figure1]. On palpation the swelling is well defined, non tender, soft to firm in consistency and not adherent to the underlying skin. No involvement of Facial nerve.

Computed tomography of the lesion showed a large well defined, encapsulated, homogenously hyperdense large mass measuring approximately 4cm×3cm, involving the left parotid gland [Figure 2].

Based on the clinical and radiological examination a provisional diagnosis of pleomorphic adenoma is considered. The lesion was surgically excised by superficial parotidectomy with the preservation of the facial nerve [Figure 3].

Macroscopically, specimen was irregular lobulated mass with well defined borders having irregular capsule [Figure 4].Further histopathological examination showed presence of thick fibrous dense capsule around the gland [Figure 5]. Higher magnification showed presence of myoepitheial and ductal cells arranged in form of cords and sheets along with myxoid areas [Figure 6]. Few areas showed the early chondroid like changes [Figure 7].

III. Discussion

Pleomorphic adenoma [P.A.] or benign mixed tumour is known to be most common salivary gland neoplasm. The most common site of occurrence is the parotid gland.[3,4,5] The P.A. of parotid gland is more common that the accessory salivary gland. The most common site for accessory gland P.A. observed is the palatal salivary glands.[6] Classical Parotid tumour present just below the lobule of the ear, above the angle of the mandible.[3,4] In present case the site of occurrence is concurrent with the literature [Figure 1].

Most commonly the P.A. occurs in the young and middle age group mainly between 3rd-4th decade of life with females, the most commonly affected.[7] Although the tumour is benign in nature but it can range from very small to very huge in size.[8,9]

Macroscopic features of the tumour shows mainly irregular, multinodular lesion with the bosselated surface with the complete or incomplete capsule like structure. The surface is firm in nature and presence of softness in nodule is suggestive of cystic degeneration of the lesion.[10] In our present case all the macroscopic features are concurrent with the literature reviewed [Figure 4].

The radiographic features are important in diagnosis of pleomorphic adenoma. Mostly the benign tumors shows an hyperdense image on the C.T. scan of the lesion.[11] In our case also a hyper dense image is present within the structure of the parotid gland [Figure 2]

Pathogenesis of P.A. is related to mainly involvement of myoepithelial cells and reserve cells present in the intercalated duct. It is proposed that these altered neoplastic cells are responsible for multidirectional differentiation of this mixed benign tumour.[12] Recently the molecular analysis of the tumour shows the involvement of pleomorphic adenoma gene (PLAG1) on chromosome 8 and various cytogenetic abnormalities of translocations involving 12q15.[13,14]

The histopathological spectrum of pleomorphic adenoma is variable and consists of primarily two components, stromal and cellular. The cellular components primarily comprised of glandular epithelium cells and myoepithelial cells. Myoepithelial cells show variation in shape ranging from angular or spindle shape, round with eccentric nuclei or hyalinised with eosinophillic cytoplasm (plasmacytoid) appearance.[15]

Extracellular stroma is prominent component of the P.A., can present very sparse to abundance and can show variable form: myxoid, chondroid, chondro-myxoid, hyaline, fibrous, sclero-hyaline and, very rarely, osseous and adipose.[12,16] Seifert subclassified P.A. on the basis of relative proportion of stromal and cellular components in to four subtypes.[17]

Type I : (stroma comprises 30–50% of the tumor),
Type II : (stroma comprises ~80% of the tumor),
Type III : (stroma comprises ~20–50% of the tumor) and
Type IV : (stroma attains similar proportion to that of type III, but there is focal monomorphic differentiation in the epithelial component). In our case also few areas showed the presence of chondroid like areas [Figure 7].

Surgical excision is the treatment of preference for P.A. and may vary from enucleation to superficial or total parotidectomy. Superficial parotidectomy along with adequate excision of capsule is the treatment of choice for the P.A. of the superficial lobe of parotid. [18,19] Because of the presence of incomplete and thin capsule, the tumour buds may be extended beyond the capsule and responsible for the high recurrence.[20] A recurrence rate of up to 40% was noticed in treated cases of P.A.[21] The recurrence is debatable and subjected to the treatment. The main casues for recurrence is believed to be the intra-operative tumour spillage and incomplete resection.[22]

Prognosis for P.A. is excellent with a cure rate of 95%. The malignant transformation rate is found to be 1.9-23.3%. [4] Two main metastatic variant, carcinoma ex pleomorphic adenoma and metastasizing benign mixed tumor are observed. [4]

Summary and Conclusion:

Pleomorphic adenoma mostly appears as slowly growing painless mass. A careful differential diagnosis should be considered to rule out the malignant salivary gland neoplasm occurring in the parotid region. A complete excision with a safe margin reduces the high recurrence rate for this benign neoplasm .Alarming signs like facial nerve involvement along with cystic degeneration in the neoplasm should be considered for early malignant changes. Present case report describes a case of P.A. with emphasis on the different differentials considered prior to sound diagnosis. At most care should be taken for avoid recurrence and malignant transformation.

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Figures:

Figure 1: Clinical photograph showing the swelling at the left parotid region

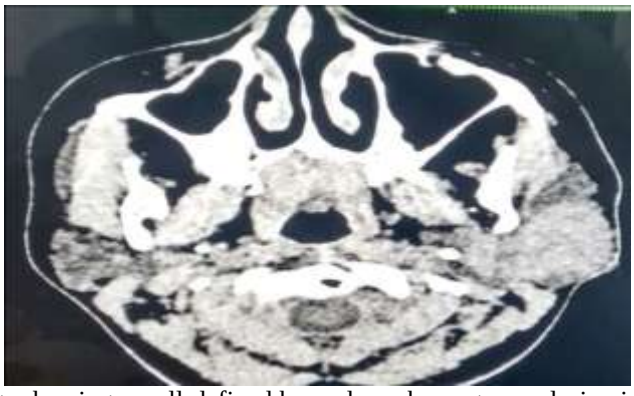

Figure 2: CT image showing a well-defined hyperdense homogenous lesion in the Parotid gland

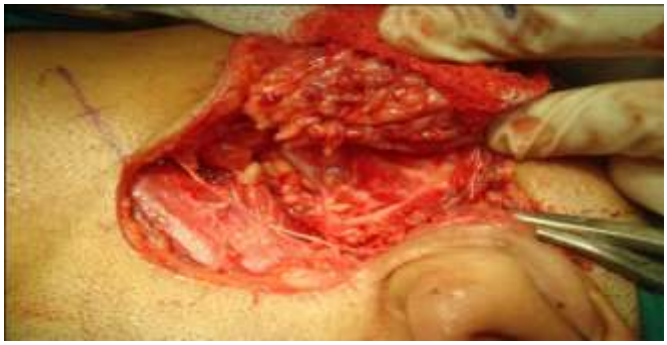

Figure 3: Intraoperative image showing the presence of neoplasm after surgical exposure

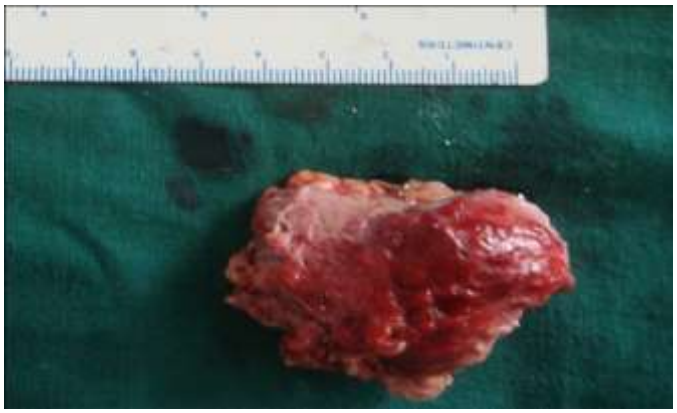

Figure 4: The surgical specimen showing lobulated appearance with typical bosselated surface.

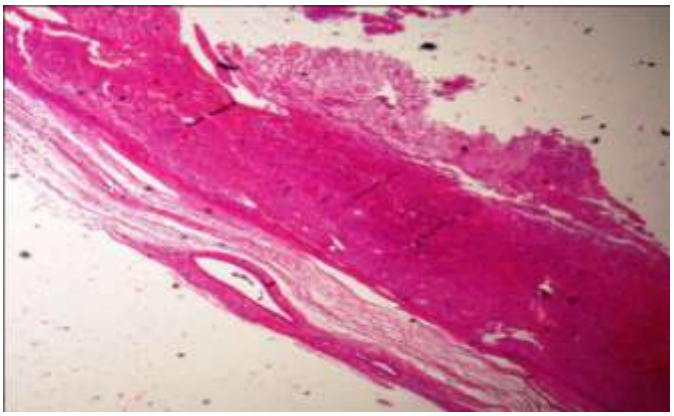

Figure 5: photomicrograph showing thick fibrous dense capsule like condensation (10X)

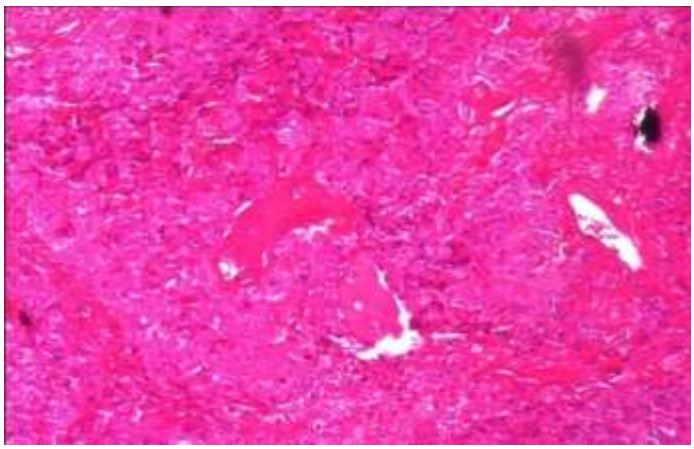

Figure 6: photomicrograph showing proliferation of myoepithelial cells (40x)

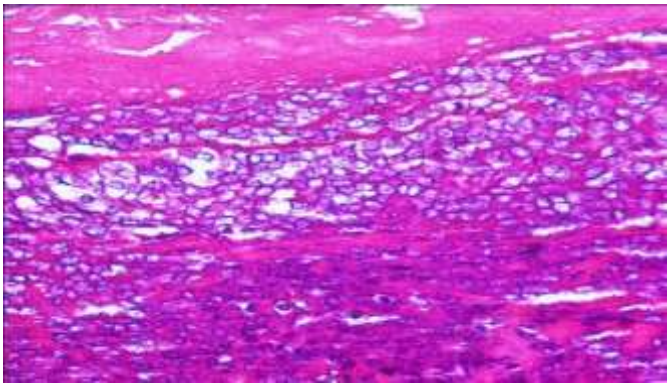

Figure 7: photomicrograph showing cartilage like areas (40x)

Tables:

		Infective lesions	Neoplastic	Non-neoplasic, Non-infectious			
				Sialolithiasis	Chronic recurrent parotitis	Sjogren's syndrome	Other conditions (sialedinosis, sarcoidosis)
Pain		+	Absent (benign, non infiltrating lumps)	+/-	+	+	-
Pus		+	-	-	-	-	-
Surrounding tissue involved		Inflammatory signs redness & warmth	Absent, if present suggestive of malignancy	-	Present	-	-
		Transitory Lymphadenopathy present	-	-	-	-	-
Swelling	Location	Unilateral, diffuse Except bilateral viral parotitis	Unilateral focal (single or multiple mass)	Unilateral	Alternate, unilateral or bilateral	Unilateral or bilateral	bilateral
	Onset	Rapid (hours)	Fast/ indolent (weeks to months)	Very fast (at meal times)	Fast	Fast/indolent	indolent
	Size fluctuations with meals	No	No	Yes	Yes	No	No
	Duration	Variable	Persistent	variable	Swelling last days to week	Swelling last from week to months	persistent
Systemic symptoms		Absent or Fever (low to high) Malaise	Absent or Fever (low)	Absent	Absent	Xeroptha lmia	As underlying systemic condition
Critical signs		Dyspneia, trismus	Facial nerve paralysis, pain , trismus, skin ulceration, Cervical lymphadenopathy	Absent	Absent	Absent	absent

Table 1: Table showing different differential diagnosis considered for parotid swelling