A CASE OF A Huge Submandibular Pleomorphic Adenoma
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Citation

Abstract
Pleomorphic adenoma is the most common salivary gland tumor and submandibular pleomorphic adenoma accounts for only 8% of them. They are seen in middle aged women and present as a painless slowly growing mass. Large masses appear heterogeneous on imaging secondary to hemorrhage, necrosis and cystic changes. Lobulated contour of the tumor favors the diagnosis of pleomorphic adenoma and they appear as multiple adjacent masses rather than single on CT scan. Treatment is essentially surgical with post operative radiotherapy is advisable in larger masses to prevent recurrence.

CASE HISTORY
A 30 yrs old female presented with history of swelling over front of the neck from last 6 yrs gradually increasing to present size. (Fig.1) On examination the large lobulated swelling was seen over front of neck, predominantly on left side and extending into the left submandibular region up to the angle of the mandible. On palpation it was firm to hard in consistency. The patient was referred to radiology department, CSS Hospital, Meerut for ultrasound examination of neck. On ultrasound examination there was a large heterogeneous predominantly echogenic mass seen overlying left side of neck extending up to angle of mandible. Multiple echogenic nodules and anechoic areas were seen within it. (Fig.2) Left submandibular gland was not seen separately from the mass. Both parotid glands and right submandibular gland were normal. No lymphadenopathy detected in the neck. Both sided carotid arteries and jugular veins were normal, no evidence of thrombosis seen within them. On ultrasound possibility of a large mass arising from the left submandibular gland was kept and CT scan neck was advised. CT scan of neck showed a large hypodense heterogeneously enhancing mass in the left submandibular space extending higher outside the parotid space in the subcutaneous plane and lower down anterior to visceral space displacing the trachea and thyroid gland to right side and carotid vessels posteriorly. Left submandibular gland was enlarged and not completely separately seen from the mass. (Fig.3, 4 & 5) The patient was operated at ENT department, CSS Hospital and a large encapsulated mass well separated from the surrounding tissue was removed. (Fig.6) Post operative histopathological examination of specimen confirmed the diagnosis of pleomorphic adenoma arising from the submandibular gland.

Figure 1
Fig. 1 Clinical photograph of the patient showing large neck mass, predominantly on left side of neck extending in the submandibular region
**Figure 2**
Fig.2 USG of the left submandibular region shows a large heterogeneous mass with multiple anechoic and echogenic areas seen within it.

**Figure 3**
Fig.3 Non-contrast axial CT scan at the level of left submandibular gland shows left submandibular gland is enlarged and large hypodense mass arising from it.

**Figure 4**
Fig.4 Contrast enhanced axial CT scan at the same level as above mentioned shows heterogeneous enhancement of the mass with lobulated contour.

**Figure 5**
Fig.5 Contrast enhanced axial CT scan at the level of thyroid cartilage showing mass anterior to visceral space displacing the trachea and thyroid gland to right side and carotid vessels posteriorly and heterogeneous enhancement with few cystic areas and calcification within it.
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**DISCUSSION**

Pleomorphic adenoma (benign mixed tumor) is the most common salivary gland tumor and represents 70-80% of all benign tumors of the major salivary glands. Of all the pleomorphic adenomas over 85% occur in the parotid gland, 8% occur in the submandibular gland, and 6.5% occur in the minor salivary glands and 0.5% in the sublingual glands. The submandibular gland is involved in only 5% to 10% of the salivary gland tumors, and pleomorphic adenoma (PA) is the most common tumor affecting it. Sarcomatous transformation is seen in only 2-5% of cases and is usually associated with tumors that have been present for 10-15 years. Tumors arising in the minor salivary gland account for 22% of all salivary gland neoplasm. Majority of them are malignant with only 18% being benign. Of the benign tumors pleomorphic adenoma is the commonest. The most common site of a pleomorphic adenoma of the minor salivary gland is the palate followed by lip, buccal mucosa, floor of mouth, tongue, tonsil, pharynx, retromolar area and nasal cavity.

Pleomorphic adenomas are usually seen in middle aged women and present as a painless slowly growing mass. The lesions are usually solitary, ovoid, well demarcated masses. The larger tumors may have pedunculated outgrowths from the main lesion that grossly simulate multiple masses.

On ultrasound they are seen as well defined rounded hypoechoic lesions with lobulated or bosselated contour and may have posterior acoustic enhancement. They may appear heterogeneous secondary to hemorrhage, calcification, and necrosis as seen our case. CT scan is an important diagnostic tool in these tumors because it helps in determining the extent of disease, local spread and also helps to some extent in determining the type of tumor. Presence of intact fat plane helps in distinguishing benign tumors from malignant. Most small tumors are smoothly marginated, spherical having higher attenuation value than surrounding normal gland however low attenuation area mimicking cyst may be seen. The larger masses most often have a heterogeneous appearance with sites of low attenuation representing areas of necrosis, old hemorrhage and cystic changes as seen our case. Localized areas of increased attenuation most often represent sites of recent hemorrhage. Dystrophic calcifications or ossification can occasionally be seen scattered throughout the tumor. Our case showed a single calcific focus. The larger tumors tend to develop a lobulated contour that, when present, is highly suggestive of the diagnosis as seen in our case. Such a lobulated mass on CT appears as multiple adjacent masses rather than a solitary lesion. CT shows well defined enhancing soft tissue mass. Contrast enhanced MR imaging delineates tumor margins better, necrotic and cystic areas can be differentiated from enhancing mass, also skull base invasion and vessel involvement can be better depicted. High grade tumor have intermediate to low signal intensity on all pulse sequences while low grade tumors are dark on T1W and bright on T2W images. The treatment of pleomorphic adenoma is essentially surgical. Though these benign tumors are apparently well encapsulated, resection of the tumor with an adequate margin of grossly normal surrounding tissue is...
necessary to prevent local recurrence as these tumors are known to have microscopic pseudopod like extension into the surrounding tissue due to “dehiscences” in the false capsule. Postoperative radiotherapy to the parapharyngeal space could possibly reduce the recurrence rate in such tumors. It is unusual that despite of such a large mass of long duration which seemed to be originate from left submandibular gland on imaging, turned out to be benign pleomorphic adenoma of submandibular gland.

References
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