| Mut FOR Reserves | Original Research Paper | Medical Science | | |
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| | Salivary Gland Mass Lesions - A Spectrum of Histopathological Findings | | | |
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| ABSTRACT Intro | duction: Salivary gland masses include broad spectrum of neoplastic and n | on-neoplastic lesions with variable | | |

cytological and histopathological appearance. **Methods:** All mass lesions of salivary glands received in surgical histopathology section were analysed retrospectively over 10 years period.

Results: Out of 122 resected mass lesions, majority were neoplastic (112 cases – 91.8%), benign neoplasms predominated (81 cases – 72.3%). Parotid gland was the commonest site (79.5%). For neoplastic lesions, FNAC showed sensitivity of 96.6% and specificity of 100%. Pleomorphic adenoma was the commonest tumour (67 cases - 59.8%) followed by mucoepidermoid carcinoma (16.9%) and adenoid cystic carcinoma (8.9%) **Conclusions**: Considering the rarity and vast spectrum of salivary gland masses, correlation of clinical, cytological and histopathological

features is essential.

KEYWORDS : Salivary gland tumor, Pleomorphic adenoma, Salivary gland F.N.A.C.

Introduction: Salivary gland lesions elicit considerable medical interest because of multifaceted clinical presentation, varied histological appearances and difficulty in predicting prognosis. Modern imaging techniques and F.N.A.C. cannot always differentiate between benign and malignant lesions. This study includes analysis of salivary gland mass lesions in a tertiary care hospital.

Material and Methods: All mass lesions of salivary gland excised surgically over 10 years period were studied retrospectively. Clinical information, radiology and gross features of the lesions were noted from records. Histopathology was reviewed by studying H & E stained slides. Special stains like PAS, Mucicarmine and F.N.A.C. slides were reviewed wherever available.

Results: Out of 59611 surgical specimens received over a period of 10 years, there were 148 salivary gland lesions of which 122 presented as mass lesions. Majority (112) were neoplastic, predominantly benign neoplasms. Benign lesions peaked in 4th decade of life where as malignant lesions occurred in 5th to 6th decade of life.

FNAC was available in 94 cases of which 82 showed cyto-histopathological correlation including all 7 non-neoplastic cases. For diagnosis of neoplastic lesions, FNAC showed sensitivity of 96.6% and specificity of 100%. The positive predictive value and negative predictive value for malignancy was 84.2% and 92.2% respectively. (Fig.1)



Fig. 1 - F.N.A.C. smear of Pleomorphic Adenoma showing plasmacytoid and spindle cells (PAP x 400)

Table 1: Distribution of neoplastic lesions as per site

| Type of neoplas- tic lesion | Parotid gland | Sub mandibular | Minor gland | No. of cases | % |
|----------------------------------|------------------|-------------------|----------------|--------------|-------|
| Pleomorphic adenoma (PA) | 59 | 05 | 03 | 67 | 59.8% |
| Basal cell ade- noma | 04 | 01 | - | 05 | 4.46% |
| Warthin's tumour | 04 | - | - | 04 | 3.57% |
| Cystadenoma | 02 | - | - | 02 | 1.79% |
| Lymphangioma | 02 | - | - | 02 | 1.79% |
| Angiomyoma | - | 01 | - | 01 | 0.89% |
| Total Benign | 71 | 07 | 03 | 81 | 72.3% |
| Mucoepidermoid carcinoma(MEC) | 11 | 03 | 05 | 19 | 16.9% |
| Adenoid cystic carcinoma(ACC) | 05 | 02 | 03 | 10 | 8.93% |

| Acinic cell carci- noma | 01 | - | - | 01 | 0.89% |
|----------------------------|----|----|----|-----|-------|
| Salivary duct carcinoma | 01 | - | - | 01 | 0.89% |
| Total Malignant | 18 | 05 | 08 | 31 | 27.7% |
| Total Neoplasms | 89 | 12 | 11 | 112 | 100% |



Fig. 2 - Histopathology of Pleomorphic Adenoma showing characteristic chondromyxoid stroma with epithelial cells (H and E x 100)



Fig. 3 - Histopathology of Mucoepidermoid Carcinoma showing cystic areas with mucin and intermediate cells (H and E x 100)

Discussion: Salivary gland neoplasms comprise less than 3% of Head and Neck neoplasms. Slight female preponderance observed in this study was comparable to study by Eveson et al¹.

Distribution of neoplasms in benign (72.30%) and malignant (27.7%) as seen in this study was also noted by Vargas et al² and Satko et al³. Parotid was the commonest site (79.46%) in our study. This is in conformity with many other studies such as Bashir et al⁴, Vargas et al², Eveson et al³ etc. Waldron et al⁵ and Neely et al⁶ reported Mucoepidermoid carcinoma and palate as commonest malignancy and site respectively. In our study, palate was involved in 6 cases and Mucoepidermoid carcinoma occurred in 5 cases.

In this study 93.84% of cases were asymptomatic. Pain, facial palsy, adherence to surrounding structures, epidermal involvement and presence of lymphadenopathy has been suggested as indicator of malignancy by Neway et al⁷. We noted that 17 out of 31 malignant cases presented with such features.

Imaging modalities like USG and/or CT scan were available in 22 cases. Discrepancy in radiological diagnosis was observed in 3 cases. Damitriu et al⁸ have stated that echogenicity of tumour, vascularity and borders of the lesion have limited utility in differentiating benign from malignant.

On cyto-histopathological correlation, 15 out of 87 cases showed discordance. Four of benign neoplasms diagnosed as non-neoplastic owing to cystic nature of these tumours. Five false negative cases included 4 cases of ACC and one MEC. Focally present characteristic hyaline globules of ACC were missed leading to diagnosis of PA in 3 cases and basal cell adenoma in one. Lack of atypia and definitive squamous or mucocytes and mucinous background mimicking myxoid stroma led to misdiagnosis of MEC as PA⁹. False positive cases included 3 cases of PA which were labelled as MEC, ACC and myoepithelial carcinoma. Presence of extensive squamous metaplasia and hyaline globules were the reasons in two of these cases. Histological non-concordance was seen in 3 cases. Angiomyoma can have areas with fat cells¹⁰ and its representation in FNAC smears can pose a problem. Anita Omhare et al¹¹ reported PPV of 88.2% and NPV of 97.1% for malignancy, comparable to our study.

PA was the commonest tumour like other studies (Fig. 1, 2) Parotid was involved in 88.06% of cases; similar (70.9%) was observed by Ito et al¹¹. A sole case occurring in deep lobe of parotid presented as parapharyngeal mass. Seifert et al¹² have classified PA in 3 histological subtypes based on cellular and stromal elements. This study included 49.25% of stroma rich, 29.85% of cell rich and 20.90% of classic variants.

There were 4 cases of Warthin's tumour; 3 of them showed association with smoking as seen by others¹³. Out of 5 cases of Basal cell adenoma, one showed membraneous variant on histology. This variant is known to have a high tumour recurrence rate of 25-37%¹³. Both the cases of cystadenoma occurred in parotid gland and were unicystic in nature unlike usual multicystic tumours¹⁴. There were two cases of lymphangiomas, both occurring in parotid and in paediatric age group. A sole case of angiomyoma presented as submandibular swelling in 61 year old female. Angiomyoma are rare and mainly involve submandibular gland¹⁵.

Mucoepidermoid carcinoma (19 cases) was the commonest malignant tumour in our study (Fig. 3), majority (11) occurring in parotid. 73.88% were grade I followed by grade II in 4 cases and grade III in one case. A study by Goode et al¹⁶ have indicated that older age, tumour size, pain, parasthesia and higher grade of tumour correlated with worse behaviour. There was sole case of pigmented MEC presenting as an asymptomatic lip mass in a 43 year old female. In literature only 4 such cases have been reported and presence of melanin does not seem to alter the behaviour¹⁷.

We observed 10 cases of adenoid cystic carcinoma, 50% of them occurring in minor salivary glands. Szanto et al¹⁸ have graded ACC based on patterns (tubular/ cribriform/ solid) and nuclear features. In our study, 70% of tumours belonged to grade I, 20% were grade II and 10 % were grade III. Tumour size more than 4 cm, grade III, involvement of resection margins and metastasis have been considered ominous signs. Sur et al¹⁹ have reported perineural invasion in 30% of cases similar to our results.

Salivary gland duct carcinoma presented as ulcerated painful mass lesion in a 38 year old male in the right parotid region. On histopathology, presence of glandular structures with fenestrated appearance helped to differentiate salivary duct carcinoma from adenocarcinoma. It is an aggressive tumour and almost half develop local recurrence²⁰. A case of acinic carcinoma presented as an asymptomatic mass in the right parotid of a 46 year old male. Acinic cell carcinoma represents 2% of salivary gland tumours, 90% of arise in parotid gland and carries an excellent prognosis^{21, 22}

Considering the rarity and vast spectrum of tumours and tumour like lesions of salivary glands, correlation of clinical, cytological and histopathological features is essential for accurate diagnosis and proper management.

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