



## CLINICOPATHOLOGICAL STUDY OF SALIVARY GLAND TUMOURS IN A TERTIARY CARE HOSPITAL IN CENTRAL INDIA

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### ABSTRACT

Salivary gland tumours are a relatively rare and morphologically diverse group of lesions, thus are highly prone to diagnostic confusion. Worldwide reports show difference in incidence, prevalence and histological type of this tumours. Location, age and gender distribution of salivary gland tumours vary depending on race and geographical conditions.

### OBJECTIVE

- 1) To study the clinicopathological findings in Salivary Gland Tumours
- 2) To study various surgical modalities of treatment undertaken for salivary gland tumours

**RESULTS:** Pleomorphic Adenoma (77.27%) was the most common benign tumour followed by warthins tumour (9.09%). Mucoepidermoid carcinoma was the most common malignant tumour in parotid gland. In our study Ultrasonography was found to had Sensitivity of 52.63% and Specificity of 95.45% And Fine needle aspiration cytology had sensitivity of 78.95% and specificity of 90.90% **CONCLUSION:** FNAC continues to be a reliable diagnostic technique in hands of an experienced cytopathologist. Ultrasonography is a reliable radiological first line investigations for salivary gland tumours.

**KEYWORDS :** salivary gland tumours, pleomorphic adenoma, parotidectomy, facial nerve palsy

### INTRODUCTION

Tumour of the salivary gland represent 2-4 percent of head and neck neoplasms and they are broadly categorized into benign and malignant epithelial tumours, soft tissue tumours and hematolymphoid tumours. 70 percent of these salivary gland tumours originate in parotid gland, 8 percent arise in submandibular gland and 22 percent in minor salivary gland.<sup>1</sup>

Salivary gland tumours involving parotid or submandibular glands usually has presentation as progressing mass lesion. This can be accompanied by neural manifestations like facial nerve paralysis or pain, if the tumour is malignant. Tumors of minor salivary gland, usually has a presentation as a submucosal intraoral mass, which frequently ulcerates. Clinical features which raise suspicion for malignancy are ipsilateral facial nerve palsy, rapid growth of tumour, pain, tumor fixation to the overlying skin or underlying muscle, and presence of cervical lymphadenopathy.<sup>2</sup>

Although benign and malignant salivary gland tumors often have a similar sonographic appearance, several sonographic features, including a heterogeneous echotexture, indistinct margins, regional lymph node enlargement, and absence of distal acoustic enhancement, have been reported to be more frequently associated with malignancy.<sup>3</sup>

Estimation of prognosis and decision on the optimal treatments need to be improved because of the rarity of this disease and pathological diversity

### MATERIALS AND METHODS

The current study work represents prospective study carried out on 45 cases of salivary gland swelling attending the department of ENT in a tertiary care centre in central India with adequate diagnostic and treatment facilities during the period of October 2019 to October 2021. Subjects were included in the study with the following inclusion and exclusion criteria.

### Inclusion Criteria

All patient with salivary gland masses presented in ENT OPD

### Exclusion Criteria

- 1) Inflammatory lesions
- 2) Patient not willing /not giving consent for surgery
- 3) Patient medically unfit for surgery

Ethical approval was taken from the institutional ethical committee. All the patients were subjected to keen history taking and clinical examination, ultrasonography and if required were subjected to CT/MRI, along with cytological examination, based on FNAC finding surgical management was planned, patients were explained about the procedure to be undertaken and written informed consent was taken for surgery. Post operative histopathological diagnosis was considered as the gold standard, correlation of ultrasonographic and cytological diagnosis of benign and malignant tumours was done with histopathological diagnosis. Sensitivity, specificity, positive predictive value and negative predictive value of fine needle aspiration cytology and ultrasonography was determined.

### RESULTS

Age range was from 15 to 74 years and median age being 39 years. Mean age was 42.67  $\pm$  17.38. There were 28 (62.2 %) male and 17 (37.8 %) female. Male to female ratio being 1.64:1.

Benign tumours were present in 22 (48.88%) patients out of 45 and 23 (51.11%) had malignant tumors, both having male preponderance. Mean age for benign tumours was 37.36  $\pm$  16.12 years and for malignant tumours mean age of presentation was 47.74  $\pm$  17.36.

Parotid gland tumours were most common in both benign and malignant category. There were 34(75.55%) patients with parotid gland tumours, out of which 19(55.88%) were benign and 15(44.11%) were malignant. Of total, there were 6(17.64%) patients with submandibular gland tumour, out of which 3 (50%) were benign and 3 (50%) were malignant. There were 4 patients with minor salivary gland (8.88%) tumour and all of which were malignant (100%). In sublingual gland tumour presentation, the tumour was malignant tumor in 1 patient (100%).

We have found that majority of the tumours were firm in

consistency, followed by hard and soft. There were 32 (72%) firm tumours, out of which 19 were benign and 13 were malignant. 11 (24%) tumours were hard, out of which 3 were benign and 8 were malignant.

Cytological assessment revealed that frequency of Pleomorphic Adenoma (PA) was 20(48.78%), thus being the most common benign tumour. Frequency of warthin's tumour (WT) tumour was 2 (4.87%), Benign Cyst(BEC) was 1(2.41%), Basal cell Adenoma(BCA) was 1 (2.41%). On histopathological examination, frequency of mucoepidermoid carcinoma (MEC) was 11(24.44%), adenoid cystic carcinoma(ADC) was 5(11.11%) adenocarcinoma(AD) was 2(4.44%), acinic cell carcinoma(ACC) was 2(4.44%), secretory carcinoma(SC) was 1(2.22%), myoepithelial carcinoma(MYEC) was 1(2.22%), basal cell adenocarcinoma(BCAC) was 1(2.22%)."

In our study Ultrasonography was found to have Sensitivity of 52.63% and Specificity of 95.45% and Ppv-90.90%, Npv-70%, Accuracy-75.61%. Fine needle aspiration cytology, had sensitivity of 78.95% and specificity of 90.90%, positive predictive value of 88.23% and negative predictive value of 83.33% accuracy of 85.37%

Surgical modality used was superficial parotidectomy in 27 (60%) patients, total parotidectomy in 7(15.6%), salivary gland excision (11.1%) and wide local excision in 4 (8.9). One patient underwent submandibular gland excision with neck dissection.

Majority (82.2%) of the patients did not have any significant post operative complications. 3 patients had facial nerve paralysis (6.6%) in malignant cases, wound infection was seen in 2 patient (4.4%), marginal mandibular nerve palsy was seen in 2 patients (4.4%) and fistula was seen in 1 (2.2%). All malignancy patients were referred for post operative radiotherapy.

## DISCUSSION

Overall mean age of presentation was  $42.67 \pm 17.38$ . Age range for benign tumour was 15-71 years with mean age being  $37.36 \pm 16.12$  years and for malignant tumours, age of presentation ranges from 24-74 years with mean age of presentation being  $47.74 \pm 17.36$  years. This was consistent with the studies carried out by Laishram RS et al<sup>2</sup>, where the mean age for benign and malignant tumours was 40.2 years and 46.86 years respectively.

Male population was predominant in both benign and malignant category patients. Overall, there were 28 (62.2 %) male and 17 (37.8 %) female, with male to female ratio being 1.64:1. Study carried out by thotambailu am et al<sup>4</sup>, showed male to female ratio of 1.

It was found that 22 (48%) patients out of 45 had benign tumours and 23 (51.11%) had malignant tumours, prevalence of malignant tumour was more compared to benign tumour. We have found that parotid gland tumours were most common in both benign and malignant category. There were multiple studies confirming this finding like a study by Laishram RS et al<sup>2</sup>, there were 34(75.55%) patients with parotid gland tumours, out of which 19 (55.88) were benign and 15(44.11%) were malignant.

In our study, Pleomorphic Adenoma was the commonest benign tumour found in 17 cases (37.8 %). Similar findings were also depicted in studies carried out by by saldhana et al<sup>5</sup> where it was 61%, 55.12% in Laishram et al<sup>2</sup>, 47.06% in Chatterjee T et al<sup>6</sup>.

Warthin tumour was the 2<sup>nd</sup> commonest benign tumours as quoted by Chung et al<sup>7</sup>. Similar findings were also seen in

study by, Laishram RS et al<sup>2</sup>. In our study, we have come across two cases of warthin tumour and both involved parotid gland.

In our study, there were 6(17.64%) patients with submandibular gland tumour, out of which 3 (50%) were benign and 3 (50%) were malignant. Pleomorphic adenoma was seen in 2 of the cases and basal cell adenoma in 1 case of this submandibular gland benign lesions, adenoid cystic carcinoma and adenocarcinoma was seen in malignant cases. Consistent with studies by Bhattacharya N et al<sup>8</sup>, 2004 he studied 370 Submandibular gland malignancy, out of which 47% of patients had adenoid cystic carcinoma and 22% patients having mucoepidermoid carcinoma.

In our study, there were 4 patients with minor salivary gland (8.88%) tumour, all of which were malignant (100%). This is consistent with study by Lopes<sup>9</sup> et al which has reported a higher prevalence of malignant tumours in minor salivary glands.

In our study there was one case of sublingual gland involvement with adenoid cystic carcinoma (2.22%), suggesting low prevalence of the sublingual gland tumours. Same is seen in studies by Eveson et al<sup>10</sup>, who observed 1 sublingual tumour to 100 parotid tumours.

Out of total 23 malignant tumours, in our study 11 were mucoepidermoid tumours, which was the most common tumour in malignant category. Similar results were seen in study by Laishram RS et al<sup>2</sup>, in his study out of 22 cases of malignant lesions, mucoepidermoid carcinoma affected 7 cases.

The palate was the most common site of minor salivary gland tumour in our study, consistent with study of Adeyimi et al<sup>11</sup>.

In our study Maximum (88.88%) patients presented with slowly growing progressive swelling as the manifestation, few presented with swelling over palate. In a study by sharma M<sup>12</sup>, the history of gradually enlarging palpable masses of variable duration was noted with the majority of cases showing a duration of 6 months to 5 years.

The common Ultrasonographic characteristics of parotid masses include shape, margin, echogenicity, echotexture, and vascularization. Ultrasonographic diagnosis correlated in 75% of cases with HPE; a sensitivity of 80% and a specificity of 76.9% in detecting tumoral lesions, with a positive predictive value of 84.2% and a negative predictive value of 71.4% in study carried out by petrovan<sup>13</sup> in 2015. In our study Ultrasonography was found to have Sensitivity of 52.63% and Specificity of 95.45% and Ppv-90.90%, Npv-70%, Accuracy-75.61%.

Fine needle aspiration cytology had sensitivity of 78.95%, which was lower compared to other studies, while specificity was 90.91% and it was higher compared to previous studies. In a study carried out by Tushar et al<sup>14</sup>, sensitivity was 97.4% and specificity was 71.4%, with 93.4 % of accuracy.

## CONCLUSION

FNAC continues to be a reliable diagnostic technique in hands of an experienced cytopathologist. The sensitivity of diagnosis of malignant lesions is high, though the rate of tumour type specific characterization is lower, due to variable cytomorphology. Ultrasonography can definitely differentiate an inflammatory and infectious lesion from a neoplastic lesion, In case of parotid, it can also give us extent of the involvement in relation to deep lobe of parotid guiding our further plan of management. Thus, it is a reliable radiological first line investigations for salivary tumours. The advantage is that it is comparatively easy to use, non ionizing, & less expensive and available.

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