



## ROLE OF FNAC IN THE DIAGNOSIS OF SALIVARY GLAND TUMOURS

### Pathology

**Dr. Naima Aziz**

Associate Professor of Pathology, Gauhati Medical College, Guwahati

**Dr Roop Rekha Das\***

Assistant Professor of Pathology, Gauhati Medical College, Guwahati, \*Corresponding Author

**Dr Mayuri Saikia**

Post graduate trainee, Gauhati Medical College, Guwahati

### ABSTRACT

**Background:** Salivary gland tumours account for 1% to 5% of all head and neck tumours. Fine needle aspiration cytology (FNAC) is used as an initial diagnostic tool for salivary gland swelling. The aim of this study is to evaluate cytological spectrum of salivary gland tumours and its correlation with age, gender and anatomical site. We have done a retrospective study of FNAC for salivary gland tumours for a period of 1 year (2020-2021) in a tertiary care center of Northeast India. **Results:** Out of 23 cases of salivary gland tumours, we have found 65.2% benign lesions and 34.8% malignant tumours. The majority of benign lesions were seen in the age group of 31 to 40 years. The male to female ratio of salivary gland lesions was 1.9:1 and parotid gland (65.2%) was found to be the most commonly involved site. Pleomorphic adenoma was the most common benign tumour (52.2%) and mucoepidermoid carcinoma was the most common malignant tumour (17.4%) among all the neoplasms. **Conclusion:** Fine needle aspiration cytology is a rapid, cost-effective, and safe diagnostic procedure useful in the initial preoperative diagnosis of salivary gland tumours to plan for appropriate treatment. However, it should be correlated with histopathological confirmation.

### KEYWORDS

FNAC, mucoepidermoid carcinoma, pleomorphic adenoma, retrospective study, salivary gland.

### INTRODUCTION:

Salivary gland tumours are reported to present between 1% to 5% of all head and neck tumours. Of these, 75%-85% are found in the major salivary gland and 10-20% in the minor salivary gland with a ratio of 5:1<sup>(1)</sup>. Fine needle aspiration cytology is rapid, cost effective with overall good patient compliance and useful in the initial preoperative diagnosis of salivary gland lesions to plan for appropriate treatment<sup>(2)</sup>.

### AIMS AND OBJECTIVES

- 1) To evaluate cytological spectrum of salivary gland tumours.
- 2) To correlate with age, gender and anatomical site.

### MATERIALS AND METHODS

A 1 year retrospective study was conducted in a tertiary care hospital of Assam (September 2020 to 2021)

A total of 23 cytospins from salivary gland lesions were found in the study period. These smears were fixed in 95% isopropyl alcohol and stained with May Grunwald-Giemsa stain.

Out of 23 cases, 11 cases of resected specimens were received in the department of Pathology for histopathological examination. Formalin fixed specimens were processed routinely and stained with Haematoxylin and Eosin.

### Inclusion criteria

- All the FNAC smears of salivary gland tumours during the study period.
- Patients of all age groups and both sexes were included.

### Exclusion criteria

- Inadequate cellular material for cytological diagnosis.

### RESULTS

**Table 1: Distribution of salivary gland tumours**

Procedure	Benign	Malignant	Total no of cases
FNAC	15	8	23
Histopathology	6	4	10

In our study, we have found 65.2% benign lesions followed by 34.8% malignant lesions.

**Table 2: Age wise distribution of salivary gland tumours**

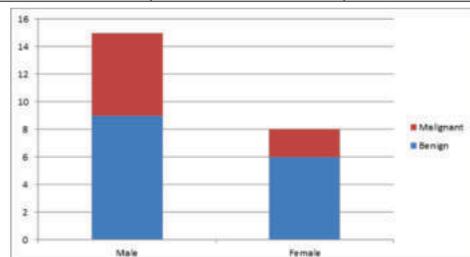
Age (years)	Benign	Malignant
10-20	1	0
21-30	2	1
31-40	5	0
41-50	3	1

51-60	2	2
61-70	1	3
71-80	1	1

In the present study, the majority of the benign salivary gland tumours were seen in the age group of 31 to 40 years. The malignant lesions were seen in the age group >60 years.

**Table 3: Sex wise distribution of salivary gland tumours**

Gender	Benign	Malignant
Male	9	6
Female	6	2

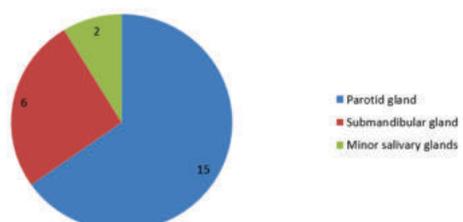


The male to female ratio of salivary gland lesions was 1.9:1 with slight male preponderance.

**Table 4: Distribution according to site**

Anatomical site	No of cases	Percentage
Parotid gland	15	65.2%
Submandibular gland	06	26.1%
Minor salivary glands	02	8.7%
Total	23	100%

**No of cases**



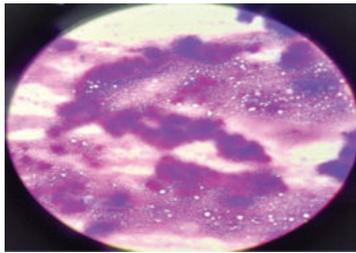
It was observed in the current study that parotid gland (65.2%) was the most commonly involved site followed by submandibular gland (26.1%).

**Table 5: Cytological spectrum of salivary gland lesion**

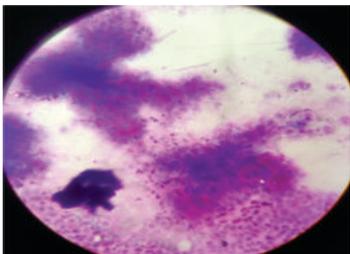
Categories	Cytological diagnosis	No of cases	Percentage
Benign	Pleomorphic adenoma	12	52.2%
	Warthins tumour	2	8.7%
	Schwannoma	1	4.3%
Malignant	Mucoepidermoid carcinoma	4	17.5%
	Adenoid cystic carcinoma	2	8.7%
	Acinic cell carcinoma	1	4.3%
	Suspicious for malignant cells	1	4.3%

Among benign tumours of salivary gland in the present study, Pleomorphic adenoma was the most common tumour comprising 52.2% of all neoplasms followed by warthins tumour. Out of 8 cases of malignant tumours, mucoepidermoid carcinoma was most commonly found followed by adenoid cystic carcinoma.

**Photographs**



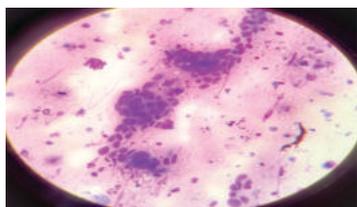
**Low power view of pleomorphic adenoma showing abundant chondromyxoid stroma**



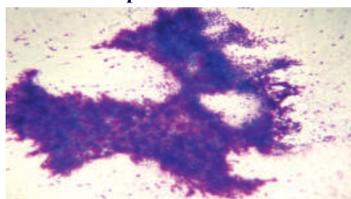
**High power pleomorphic adenoma showing epithelial cells embedded in a fibrillary chondromyxoid stroma**



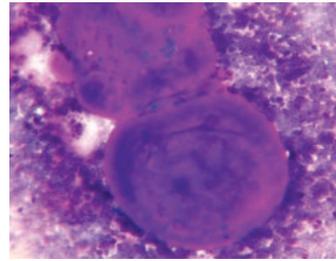
**Low power view of mucoepidermoid carcinoma**



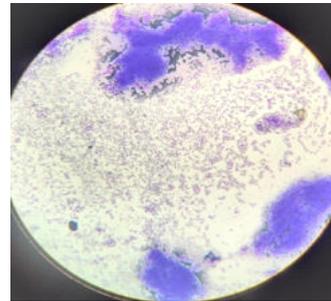
**High power view of mucoepidermoid carcinoma**



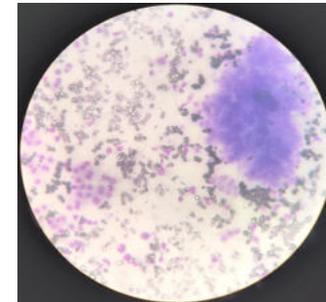
**Low power view of adenoid cystic carcinoma**



**High power view of adenoid cystic carcinoma showing hyaline globules**



**Low power view of acinic cell carcinoma**



**High power view of acinic cell carcinoma showing cells with oncocyte like cytoplasm and many naked nuclei**

**DISCUSSION:**

FNAC is a simple, cost effective and useful diagnostic procedure. It helps the surgeon in planning the extent of surgery.

In the present study, the age range is of 10 to 80 years with a mean age of 42.9 years. Males were more in number as compared to females. Other studies conducted by R. Gupta et al<sup>(3)</sup>, Omhare et al<sup>(4)</sup> and Choudhury et al<sup>(5)</sup> are concordant with our study.

In the present study, the most common site involvement was parotid gland with a frequency of 65.2%, which is concordant with other studies done by Ito et al<sup>(7)</sup>, Sandhu VK et al<sup>(6)</sup>, I Alsanie et al<sup>(9)</sup>, Tahoun N et al<sup>(10)</sup>

In the current study, among benign tumours of salivary gland, Pleomorphic adenoma was the most common tumour comprising 52.2% of all neoplasms. This is concordant with other study done by Ito et al<sup>(7)</sup>, who reported the incidence of Pleomorphic adenoma as 54.2%. Warthins tumour was seen in 8.7% of all neoplasm, which is in concordance with other study done by Shetty A et al<sup>(8)</sup> with 10.7% of cases.

In the present study, Mucoepidermoid carcinoma was the most common malignant tumour comprising of 17.5% followed by adenoid cystic carcinoma constituting 8.7% of all neoplasms. These are concordant with other studies done by Ito et al<sup>(7)</sup>, I Alsanie et al<sup>(9)</sup>. However, some studies have found adenoid cystic carcinoma was the most common malignant tumour followed by mucoepidermoid carcinoma.

**CONCLUSIONS:**

Fine needle aspiration cytology is a rapid, cost-effective, and safe diagnostic procedure for the primary categorization of salivary gland lesions into non neoplastic, benign and malignant lesions. It can be used as a first-line investigation to evaluate patients with various

salivary gland lesions. However, histopathological diagnosis remains the gold standard.

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