

A Study on Cytological Spectrum of Salivary Gland Lesions with Histological Correlation in a Tertiary Care Institute.

Dr. Divija. K¹, Dr. B. Anuradha², Dr.A.Venkata Lakshmi³, Dr.C.Sujatha⁴

1(Resident, Department of Pathology, Sri Venkateswara Medical College, Tirupati ,India.)

2(Professor and Head, Department of Pathology, Sri Venkateswara Medical College, Tirupati ,India)

3(Professor, Department of Pathology ,Sri Venkateswara Medical College, Tirupati ,India)

4(Assistant Professor, Department of Pathology, Sri Venkateswara Medical College, Tirupati ,India)

Corresponding author: Dr.B.Anuradha

Abstract: FNAC of salivary gland lesions has an established role in preoperative diagnosis and management of patients. Although clinical and radiological parameters help to narrow the differential diagnosis , cytological diagnosis is required to plan appropriate treatment. The aim of the present study is to evaluate the varied cytological spectrum of salivary gland lesions and correlate with age, gender, anatomical site and histopathology.

Key Words: fnac , salivary gland

Date of Submission: 25-02-2019

Date of acceptance: 11-03-2019

I. Introduction

Salivary gland tumors account for 2-6.5% of head and neck tumours ⁽¹⁾ . Fine Needle Aspiration Cytology is cost effective, rapid with good patient compliance. Salivary glands are superficially located and easily accessible. FNAC will be very useful in the initial preoperative diagnosis of salivary gland lesions to plan appropriate treatment ⁽²⁾.

II. Aims And Objectives

To evaluate varied cytological spectrum of salivary gland lesions.

To correlate with age, gender, anatomical site and histopathology .

III. Material And Methods

A prospective study was conducted in a tertiary care hospital in South India from January 2016 to June 2018. A total of 128 cytosmears from salivary gland lesions were studied in the two and half years of study period. The complete clinical history was obtained from the patient, swelling was examined and FNA was done under aseptic conditions, cytosmears were fixed in 95% isopropyl alcohol with acetone and stained with Hematoxylin and Eosin.

Out of the 128 salivary gland lesions in 29 cases resected specimens of salivary gland were received in the department of Pathology for histopathological examination. Formalin fixed salivary gland specimens were processed routinely and multiple sections each measuring 3-5 micron thickness were obtained and stained with Hematoxylin and Eosin.

All the cytosmears were classified into three groups : non neoplastic lesions, benign and malignant tumours. These cases were correlated with histopathological diagnosis wherever specimens were available.

Inclusion Criteria:

All cytosmears of salivary gland lesions during the study period.

Exclusion Criteria:

Smears with an inadequate aspirate.

Patients who have not consented for the study.

IV. Results

Table 1: Distribution of salivary gland lesions

	Non neoplastic	Benign	Malignant	Total no received
FNAC smears	65	49	14	128
Histopathology	3	20	6	29

All the salivary gland lesions were correlated with age, gender, anatomical site and histopathology wherever available.

Age and sex wise distribution of salivary gland lesions on FNAC: (Table 2)

It was observed in the present study that majority of the salivary gland lesions were seen in the age group of 41-50 years followed by 31-40 years. The malignant salivary gland tumors are seen in age group > 40 years. The male to female ratio of salivary gland neoplasms is 1:1.1 with slight increase in female patients.

Table 2 : Age and sex wise distribution of salivary gland lesions

AGE(years)	Non neoplastic lesions		Benign tumours		Malignant tumours		Total
	Male	Female	Male	Female	Male	Female	
0-20	2	3	1	1	0	2	9
21-30	0	5	4	8	0	0	17
31-40	9	6	5	7	0	1	28
41-50	8	5	6	5	2	2	29
51-60	12	3	3	3	1	0	22
61-70	7	2	1	4	3	0	17
71-80	2	1	1	0	3	0	7

Anatomical distribution of salivary gland lesions (Table 3)

The parotid gland (84.37%) was the most commonly involved site followed by submandibular gland(13.28%) and minor salivary glands(2.34%).

Table3: Anatomical distribution of salivary gland lesions

Anatomical site	Number of lesions	Percentage
Parotid gland	108	84.37%
Submandibular gland	17	13.28%
Minor salivary glands	3	2.34%
Total	128	100%

Spectrum of salivary gland lesions on FNAC (Table 4)

All the salivary gland lesions on cytological examination were divided into three groups namely non neoplastic lesions , benign and malignant tumors. In the present study the non neoplastic lesions were more common (50.78%) followed by benign tumors (38.28%) and malignant tumors (10.95%). Of the 128 cases, sialadenitis was the most common lesion (24.60%) in the non neoplastic category. Pleomorphic adenoma was most common among the benign tumors (36.71%) followed by Warthins tumors (1.56%) . Among the malignant tumors of salivary gland mucoepidermoid carcinoma was most common (5.46%) followed by adenoid cystic carcinoma (2.34%).

Table4: Cytological Spectrum of salivary gland lesions

	Diagnosis	No .of cases	
Non neoplastic	Sialadenitis	31	24.60%
	Sialadenosis	10	7.93%
	Abscess	6	4.6%
	Benign cystic lesion	18	14.06%
Benign	Pleomorphic adenoma	47	36.71%
	Warthins tumor	2	1.56%
Malignant	Mucoepidermoid carcinoma	7	5.46%
	Adenoid cystic carcinoma	3	2.34%
	Plasma cell neoplasm	1	0.78%
	Squamous cell carcinoma/deposits	2	1.56%
	Suspicious for malignant cells	1	0.78%
Total		128	100%

Out of the 128 salivary gland lesions in 29 cases resected specimens of salivary gland were received in the department of Pathology for histopathological examination. The cytological diagnosis of these 29 cases was correlated with the histopathology. On histopathological examination the salivary gland lesions were divided into three groups namely non-neoplastic (10.33%), benign (68.94%) and malignant (20.67%). On comparing the cytological diagnosis with histopathology diagnosis there was 75.86% concordance for all the salivary gland lesions. The concordance percentage of non neoplastic lesions is 33.33%, of benign tumors is 94.11% and that of malignant tumors is 100%.

V. Discussion

The aim of FNAC is to distinguish non neoplastic lesions from neoplastic lesions and to further subtype wherever possible. Fnc diagnosis is required to plan appropriate treatment ranging from conservative surgery for non neoplastic lesions, wide local excision for benign lesions, radical surgery for malignant lesions and chemotherapy, radiotherapy for metastasis.

A stepwise approach in FNAC of salivary gland lesions start from clinical examination and microscopic examination of smears.

Non neoplastic lesions

In the current study non neoplastic lesions constituted 50.78% of the cases. Studies conducted by Sandhu VK et al⁽¹⁾, Singh Nanda et al⁽³⁾ and Rajwanshi et al⁽⁴⁾ revealed 46.66%, 55.9% and 66.8% respectively (table 5). Sialadenitis was most commonly seen in 47.69% of cases followed by benign cystic lesions (27.69%). Similar results were obtained in other studies done by Sandhu VK et al⁽¹⁾ and Singh Nanda et al⁽³⁾ revealing that the most common non neoplastic lesion in salivary gland as sialadenitis. The age range of non neoplastic salivary gland lesions was from 10 to 80 years. The parotid gland was the most commonly affected site followed by submandibular gland and minor salivary gland.

Table 5 : Comparison of percentage of non neoplastic lesions.

	Non neoplastic lesions
Present study	50.78%
Sandhu VK et al	46.66%
Singh Nanda et al	55.9%
Rajwanshi et al	66.8%

Benign tumors

Among the benign tumors of salivary gland, pleomorphic adenoma was the most common comprising 74.63% of all neoplasms and 95.91% of benign neoplasms. This is in concordance with studies done by Sandhu VK et al⁽¹⁾ who reported the incidence of pleomorphic adenoma as 77.5% of all neoplasms and 93.93% of benign neoplasms.

Warthins tumor was seen in 3.22% of all neoplasms in the present study, which is in concordance with the study done by Sandhu VK et al⁽¹⁾ where warthins tumor comprised 5% of neoplasms and Shetty A et al⁽⁵⁾ with 10.7% of cases.

Malignant tumors

Mucoepidermoid carcinoma was the most common malignant tumor in the present study constituting 11.29% of all neoplasms and 53.84% of malignant neoplasms followed by adenoid cystic carcinoma constituting 4.83% of all neoplasms of salivary gland. Similar result were observed by Shetty A et al⁽⁵⁾ who reported 10.7% of cases as mucoepidermoid carcinoma in their study.

Adenoid cystic carcinoma is second most common malignant neoplasm in the present study. Sandhu VK et al⁽¹⁾ reported adenoid cystic carcinoma as the most common neoplasm in their study.

VI. Conclusion

The present study highlights FNAC as a simple rapid, safe and minimally invasive procedure for diagnosis of salivary gland lesions. Adequate sampling, quality of smear preparation and experience of pathologist in accurate diagnosis in majority of the salivary gland lesions can help in choosing appropriate treatment.

References

- [1]. Sandhu VK, Sharma U, Singh N, Puri A. Cytological spectrum of salivary gland lesions and their correlation with epidemiological parameters. *J Oral Maxillofac Pathol* 2017;21:203-10.
- [2]. Kotwal M, Gaikwad S, Patil R, Munshi M, Bobhate S. FNAC of salivary gland – A useful tool in preoperative diagnosis or a cytopathologist’s riddle?. *Journal of Cytology* 2007;24(2):85-88.
- [3]. Singh Nanda KD, Mehta A, Nanda J. Fine needle aspiration cytology; A reliable tool in diagnosis of salivary gland lesions. *J Oral Pathol Med* 2012;41:106-12.
- [4]. Rajwanshi A, Gupta K, Gupta N, Shukla R, Srinivasan R, Nijhawan R, et al. Fine needle aspiration cytology of salivary glands: Diagnostic pitfalls – Revisited. *Diagn Cytopathol* 2006;34:580-4.
- [5]. Shetty A, Geethamani V. Role of fine needle aspiration cytology in the diagnosis of major salivary gland tumors: A study with histological and clinical correlation. *J Oral Maxillofac Pathol* 2016;20:224-9.

Dr.B.Anuradha. “A Study on Cytological Spectrum of Salivary Gland Lesions with Histological Correlation In A Tertiary Care Institute.” *OSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, vol. 18, no. 3, 2019, pp 06-09.