

A cytopathological study of salivary gland lesions with histopathological correlation at tertiary health care center

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Abstract

Background: Fine needle aspiration cytology (FNAC) has been widely used as a diagnostic tool for the management of various head and neck lesions. **Aims and Objectives:** To study salivary gland lesions with histopathological correlation at tertiary health care center. **Methodology:** After approval from the institutional ethical committee a cross-sectional study was carried out in the department of Pathology at the tertiary health care center during the year January 2016 to January 2017 in the patients presented with Salivary gland lesions. The Statistical analysis done by MEDCALC software. Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value was calculated. **Result:** On cytology the most common benign lesion was Pleomorphic adenoma-60.82%, Chronic sialadenitis, 10.31%, Warthim's tumor-4.12% and Malignant Lesion-Mucoepidermoid carcinoma- 9.28%, Acinic cell carcinoma- 5.15%, Neuroblastoma - 2.06% respectively. On histology the most common lesion was Pleomorphic adenoma-59.79%, Sialadenosis-6.19%. Basal cell adenoma-5.15%, in Malignant lesion -Mucoepidermoid carcinoma-9.28%, Acinic cell carcinoma-5.15%, Myoepithelioma-4.12%. Sensitivity with 95% CI was 98.67% (92.79% to 99.97%), Specificity -86.36 % (65.09% to 97.09%), Positive Predictive Value-96.10% (89.60% to 98.60%), Negative Predictive Value-95.00 % (72.92% to 99.26%). **Conclusion:** It can be concluded from our study that the most common lesion on cytology and histology was Pleomorphic adenoma, cytology in our study was having high sensitivity and specificity so it should used for the screening of the all salivary gland tumor for better therapeutic approach

Key Words: Salivary gland, Cytology and Histology of Salivary gland, Warthim's tumor.

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INTRODUCTION

Fine needle aspiration cytology (FNAC) has been widely used as a diagnostic tool for the management of various head and neck lesions¹. It is a minimally invasive, easy to perform technique. The smear evaluation is immediate

and the procedure can be repeated many times to obtain more tissues for diagnosis or special investigations^{2,3}. Salivary gland neoplasms comprise of 3%-10% of head and neck tumours⁴. Since FNAC can differentiate inflammatory lesions from neoplastic conditions, lymphomas from epithelial malignancies and primary tumours from secondary tumours⁵, patients with salivary gland lesions should undergo FNAC screening investigation and thereby patients can be planned for next step of therapeutic approach.

MATERIAL AND METHODS

After approval from the institutional ethical committee a cross-sectional study was carried out in the department of Pathology at the tertiary health care center during the year January 2016 to January 2017 in the patients presented with Salivary gland lesions. All the patients with salivary

gland lesions in all age group, except immune compromised, terminally ill and who doesn't given consent were excluded from the study. During one year period after written and explained consent there were 97 patients with the salivary gland lesions were included into the study. The patient first undergone FNAC of the lesion and later on biopsy of the lesion, all the samples and specimen were stained with standard pathological protocols. The Statistical analysis done by MEDCALC software. Sensitivity, Specificity, Positive Predictive Value, Negative Predictive Value was calculated.

RESULT

Table 1: Distribution of the patients as per the Cytological diagnosis

Benign Lesion		
Pleomorphic adenoma	59	60.82%
Chronic sialadenitis	10	10.31%
Warthim's tumor	4	4.12%
Cystic lesion	4	4.12%
Benign parotid tumor	3	3.09%
Total benign lesion	77	79.38%
Malignant Lesion		
Mucoepidermoid carcinoma	9	9.28%
Acinic cell carcinoma	5	5.15%
Neuroblastoma	2	2.06%
Metastatic deposit	2	2.06%
Malignant unclassified	1	1.03%
Carcinoma ex pleomorphic adenoma	1	1.03%
Total malignant lesion	20	20.62%
Total	97	100%

On cytology the most common benign lesion was Pleomorphic adenoma-60.82%, Chronic sialadenitis 10.31%, Warthim's tumor-4.12% and Malignant Lesion - Mucoepidermoid carcinoma- 9.28%, Acinic cell carcinoma- 5.15%, Neuroblastoma - 2.06% respectively.

Table 2: Distribution of the patients as per the histological diagnosis

Benign lesion		
Pleomorphic adenoma	58	59.79%
Sialadenosis	6	6.19%
Basal cell adenoma	5	5.15%
Warthim's tumor	3	3.09%
Benign lymphoepithelial cyst	2	2.06%
Mucocele	1	1.03%
Total benign lesion	75	77.32%
Malignant lesion		
Mucoepidermoid carcinoma	9	9.28%
Acinic cell carcinoma	5	5.15%
Myoepithelioma	4	4.12%
Infiltrating salivary duct carcinoma	2	2.06%
Metastatic deposit	1	1.03%
Neuroblastoma	1	1.03%
Total malignant lesion	22	22.68%
Total	97	100.00%

On histology the most common lesion was Pleomorphic adenoma-59.79%, Sialadenosis-6.19% Basal cell adenoma-5.15%, in Malignant lesion -Mucoepidermoid carcinoma-9.28%, Acinic cell carcinoma-5.15%, Myoepithelioma-4.12%.

Table 3: Distribution of the patients as per the Cytology and Histology

Cytology	Histology		Total
	Benign	Malignant	
Benign	74	3	77
Malignant	1	19	20
Total	75	22	97

Table 4: Distribution of the patients as per the Sensitivity and Specificity

Statistic	Formula	Value	95% CI
Sensitivity	$\frac{a}{a+b}$	98.67%	92.79% to
			99.97%
Specificity	$\frac{d}{c+d}$	86.36 %	65.09% to
			97.09%
Positive Predictive Value	$\frac{a}{a+c}$	96.10%	89.60% to
			98.60%
Negative Predictive Value	$\frac{d}{b+d}$	95.00 %	72.92% to
			99.26%

From above table it is clear that Sensitivity with 95% CI was 98.67% (92.79% to 99.97%), Specificity -86.36 % (65.09% to 97.09%), Positive Predictive Value-96.10% (89.60% to 98.60%), Negative Predictive Value-95.00 % (72.92% to 99.26%).

DISCUSSION

Fine needle aspiration cytology (FNAC) is accurate, simple, and cost-effective for the patient. Salivary gland tumours are rare and they account for only⁶⁻⁷. 5% of all the head and neck tumours, their superficial location, easy accessibility and high diagnostic accuracy makes FNAC a popular method for evaluation. Among the entire salivary gland lesion, 64-80% occur in the parotid glands,⁸⁻⁹ 11% occur in the sub-mandibular, less than 1% occur in the sublingual and 9-23% occur in the minor salivary glands¹⁰. A review of the various recent studies shows that the diagnostic sensitivity of FNAC varied from 81-100%, that the specificity varied from 94-100% and that the diagnostic accuracy varied from 61- 80%^{11,12,13} In our study we have seen that On cytology the most common benign lesion was Pleomorphic adenoma-60.82%, Chronic sialadenitis, 10.31%, Warthim's tumor-4.12% and Malignant Lesion -Mucoepidermoid carcinoma-9.28%, Acinic cell carcinoma- 5.15%, Neuroblastoma - 2.06% respectively. On histology the most common lesion was Pleomorphic adenoma-59.79%, Sialadenosis-6.19% Basal cell adenoma-5.15%, in Malignant lesion -

Mucoepidermoid carcinoma-9.28%, Acinic cell carcinoma-5.15%, Myoepithelioma-4.12%. Sensitivity with 95% CI was 98.67% (92.79% to 99.97%), Specificity -86.36 % (65.09% to 97.09%), Positive Predictive Value-96.10% (89.60% to 98.60%), Negative Predictive Value-95.00 % (72.92% to 99.26%). These findings are similar to Panchal Upasana¹⁴ Panchal Upasana they found The cytological features of 120 cases were studied and following lesions were observed in FNAC study of 120 cases: Pleomorphic adenoma were in 76, chronic sialadenitis in 16, Warthin's tumour in 4, Cystic lesion in 5, Mucoepidermoid carcinoma in 6, Acinic cell carcinoma in 3, Carcinoma EX pleomorphic adenoma in 3, metastatic deposits in 2, benign parotid tumour in 2 and malignant tumour (unspecified) in 2, Neuroblastoma in 1. Out of 120 cases histo-pathologies of 87 cases were available and out of which 75 cases were correlated in both cytology and histology. The sensitivity, specificity and diagnostic accuracy, positive predictive value, negative predictive value of present study is 89.29%, 91.67%, 86.21%, 96.15% and 78.57% respectively.

CONCLUSION

It can be concluded from our study that the most common lesion on cytology and histology was Pleomorphic adenoma, cytology in our study was having high sensitivity and specificity so it should be used for the screening of the all salivary gland tumor for better therapeutic approach

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