Original Research Article

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Parotid gland tumors: clinical experience at tertiary care center

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ABSTRACT

Background: The objective of this study is to evaluate the diagnostic accuracy of FNAC in parotid gland lesions and it's correlation with HPE, for better management of patient.

Methods: A total of 46 FNAC were done of parotid gland lesion in Pathology department of GMCH from 2016 to 2018. Out of 46 patients of parotid gland lesions 44 were surgically resected by ENT Dept GMCH and formalin fixed specimen were sent to Pathology department and slides were prepared. The cytology and HPE stained slides were studied and correlated clinically.

Results: The cytology features of 44 cases are correlated with HPE. In cytology study: pleomorphic adenoma in 31, benign cystic lesion in 07, basal cell adenoma in 01, mucoepidermoid carcinoma in 04 and adenocystic carcinoma in 01. In HPE study: pleomorphic adenoma in 28, benign cystic lesion in 04, basal cell adenoma in 02 and warthin's tumor in 02, adenocystic carcinoma in 02, mucoepidermoid carcinoma in 03, acinic cell carcinoma in 01, carcinoma of EX pleomorphic adenoma in 01 and cystadeno carcinoma in 02. The sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy are respectively 55.55%, 100%, 100%, 89.74% and 90.90%. **Conclusions:** FNAC of the parotid gland is safe and reliable technique in the primary diagnosis of salivary gland lesion. Although, sensitivity of this test has some limitation and to differentiate specific malignant lesion. This study has shown that FNAC has low sensitivity, high specificity, diagnostic accuracy, simple and cost effective for the patients of parotid gland lesion.

Keywords: Parotid gland lesion, FNAC, HPE, Sensitivity, Specificity, PPV, NPV

INTRODUCTION

Fine needle aspiration cytology (FNAC) is simple, time saving, accurate and cost-effective to the patients. Salivary gland tumours are not common and they covered only 2-7% of all the head and neck tumours, because of their superficial appearance, easy accessibility and high diagnostic accuracy makes FNAC a popular method for evaluation. Previous studies shows that 64-80% tumors occur in the parotid glands, 7-11% occur in the submandibular, less than 1% occur in the sublingual and 9-

23% occur in the minor salivary glands. Parotid gland is the most commonly affected salivary gland. Studies shows that the sensitivity of FNAC varied from 50-100%, the specificity varied from 90-100% and that the diagnostic accuracy varied from 80-100%. Hence, FNAC proves to be simple and accurate method for diagnosis of salivary gland lesions. Hence, the current study was done to know the diagnostic accuracy, sensitivity, specificity of FNAC in diagnosing particularly parotid gland lesions which helps in appropriate therapeutic management.

METHODS

Study design: Prospective study

Study place: Geetanjali Medical College and Hospital, Udaipur, Rajasthan, India

Study period: July, 2016 to July, 2018

The patients who came to ENT OPD with complaint of parotid region swellings (lesion) were including in the study. After obtaining the willful consent from the patients to undergo this study, they were sent to pathology department, where swelling was palpated and fixed, under aseptic precautions, a 10 cc syringe with a 23 gauge needle was introduced into the swelling. The material was aspirated and smeared onto clean glass slides. The methanol fixed smears were stained with Pap (papanicolau), H&E (haematoxylin and eosin) and MGG (May Grunwald's Giemsa) respectively. histopathology, surgically resected and formalin fixed specimens were sent to pathology department, processed and stained with H&E (haematoxylin and eosin) for histopathological examination. The cytological and Histopathological stained slides were studied, analysed and were correlated clinically.

Statistical analysis:

Formulae

Sensitivity = a/a+c; Specificity = d/b+d; Diagnostic Accuracy = a+d/total/

RESULTS

FNA was performed on 46 patients with palpable swelling of parotid gland. Among these, histopathological correlations were available for 44 cases. All the cases occurred in the age group of 10-90 years. Most common age of presentation was 2nd to 3rd decade. Male to female ratio of lesion was 1.19:1, as shown in Table 1. There were 39 (84.78%) benign lesions and 05 (15.21%) malignant lesions.

Table 1: Age distribution.

Age group	Male	Female	Cases
0-20	02	03	05
20-40	13	07	20
41-60	08	07	15
61-80	02	03	05
81-100	00	01	01
Total	25	21	46

M:F = 1.19:1.

On FNAC Out of the 44 cases, 31 were pleomorphic adenomas, 07 were benign cystic lesions, 01 was basal cell adenoma 04 were mucoepidermoid carcinomas and

01 adenocystic carcinoma as shown in Table 2 and 3. pleomorphic adenoma was the most common benign lesion were as mucoepidermoid carcinoma was the most common malignant lesion.

Table 2: Benign lesions diagnosed on FNAC.

Pleomorphic adenoma	31
Benign cystic lesion	07
Basal cell adenoma	01
Total	39

Table 3: Malignant lesions diagnosed on FNAC.

Mucoepidermoid carcinoma	04
Adenocystic carcinoma	01
Total	05

Table 4: Benign lesions diagnosed on HPE.

Pleomorphic adenoma	28
Benign cystic lesion	04
Basal cell adenoma	02
Warthin's tumor	01
Total	35

Table 5: Malignant lesions diagnosed on HPE.

Mucoepidermoid carcinoma	03
Adenocystic carcinoma	02
Cystadeno carcinoma	02
Acinic cell carcinoma	01
Carcinoma of ex pleomorphic adenoma	01
Total	09

On histological examination out of 44 cases, 28 cases were diagnosed as pleomorphic adenoma, 04 were benign cystic lesions, 02 were basal cell adenoma, 01 was warthims tumor, 03 were mucoepidermoid carcinoma, 02 were adenocystic carcinoma, 01 was in cystadeno carcinoma, 01 was carcinoma EX pleomorphic adenoma and 01 was acinic cell carcinoma as shown in Table 4 and 5.

Table 6: Sensitivity and specificity.

	Positi	ive Negative		
Benign	05 (a)	00 (b)	05	
Malignant	04 (c)	35 (d)	39	
Total	09	35	44	
Concitivity-	0/010- 5	55 55% Specificity	- d/b d-	100%

Sensitivity= a/a+c= 55.55%; Specificity= d/b+d= 100%: Diagnostic accuracy= 90.90%.

The sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy are respectively 55.55%, 100%, 100%, 89.74% and 90.90% as shown in Table 6.



Figure 1: Pleomorphic adenoma showing myxoid stromal tissue with admixed epithelial cells in.

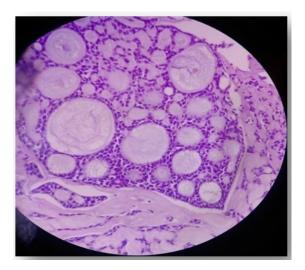


Figure 2: Adenoid cystic carcinoma showing the figure typically shows cribriform pattern and sclerotic stroma.

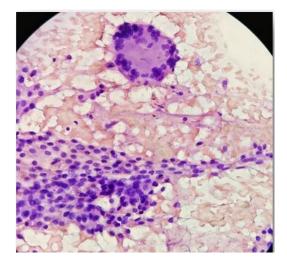


Figure 3: Mucoepidermoid carcinoma showing intermediate cells with abundant vacuolated cytoplasm.

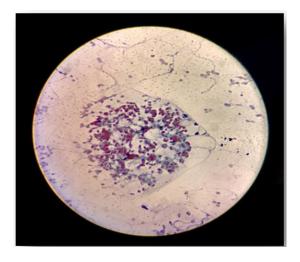


Figure 4: Acinic cell carcinoma showing loosely cohesive cluster of malignant cells with abundant cytoplasm and pleomorphic nucleoli.

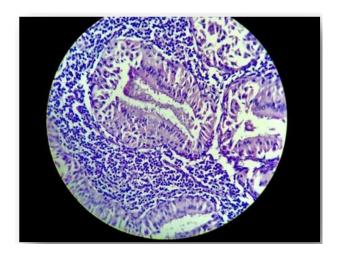


Figure 5: Warthin's tumour showing the epithelium is tall and oxyphilic. The stroma beneath contains monotonous dense inflammatory infiltrate.



Figure 6: Preoperative photograph.



Figure 7: Intraoperative photograph.

DISCUSSION

FNAC has been proved as an important diagnostic tool in the diagnosis of salivary gland lesions, due to its safe procedure, cost-effectiveness lower rate of complication to the patient and aid to clinician in therapeutic management.⁴

Majority of the lesion occurred during the age interval of 09-89 years, with M: F ratio is 1.19:1, with most common age of presentation being 2nd to 3rd decade of life. 1,5-6 The most common presenting complain was painless, progressive swelling. The rate of benign lesion in this study is 88.63%, in concordance with other studies ranging from 43-89%. The rate of occurrence of malignant lesion in this study is 11.36%, in relation with other studies that reported the occurrence of malignant lesion between 10-35%. The most common benign lesion reported in present study is pleomorphic adenoma.²⁻³ Whereas mucoepidermoid carcinoma is the most common malignant lesion reported in this study that was correlated with various other previously reported studies. 11,12 In present study benign lesion were relatively more common than malignant lesion as correlated with various other studies. 13-15

The sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy are respectively 55.55%, 100%, 100%, 89.74% and 90.90% that is correlated with various other previously reported studies, shown in Table 7.²⁻³

Table 7: Cytohistological correlation of present study with previous study.

	No. of cases	Sensitivity (%)	Specificity (%)	Diagnostic accuracy (%)
Javadi ²	65	57.9	97.8	86
Tessy ³	61	56.3	97.7	86.7
Jayaram ¹⁶	53	90	95	73.6
Rehman ¹⁷	50	78	53.28	88.57
Present study	44	55.55	100	90.90

CONCLUSION

FNAC continues to be a reliable diagnostic technique. FNAC of the parotid gland tumours is advantageous both for the patients and the clinicians because of its quick results, accuracy, cost-effectiveness, time consuming and lack of complications to the patient. FNAC of the parotid gland lesions has low sensitivity but it is highly accurate and specific though the rate of characterization of specific type of tumor is lower, due to variable cytomorphology. In such cases, histopathological examination may be used for accurate diagnosis.

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Ethical approval: The study was approved by the

Institutional Ethics Committee

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