



Cytomorphology of Salivary Glandular Lesions – A Hospital Based Study

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ABSTRACT

FNAC has now been accepted by head and neck surgeons as an excellent, though challenging primary method of evaluating space occupying lesions of the salivary glands. A three years retrospective study was carried out in the Pathology department of Jorhat Medical College and Hospital to analyse the nature of salivary gland lesions encountered in a tertiary care centre along with their cytomorphologic findings as well as correlation with histologic findings wherever possible. A total of 57 cases were studied and commonest age group was 3rd to 4th decade. The commonest gland involved was parotid glands (71.5%). Benign lesions comprised the majority (78.9%), pleomorphic adenoma being the commonest lesion. Mucoepidermoid carcinoma was found to be the commonest malignant lesion.

KEYWORDS

Cytomorphology, pleomorphic adenoma, mucoepidermoid carcinoma

Introduction

The salivary gland system comprises three pairs of major glands (parotid, submandibular, and sublingual) and about 500 to 1000 lobules of minor glands dispersed in the submucosa of the oral cavity [1]. Salivary glands neoplasms account for 6% of all head and neck tumors [2]. FNAC is first line of investigation in assessment of Salivary gland lesions. The characteristic cytologic features of the common salivary gland lesions are well-delineated in literature. However due to some degree of overlap in the cytomorphology and few pitfalls, the diagnosis at times becomes challenging. Nevertheless FNAC of salivary gland tumors gives fairly accurate results in experienced hands.

A swelling involving the salivary glands may be as a result of inflammation, cyst or neoplasms. Many salivary gland lesions, such as lymphoepithelial cysts or granulomatous disease, may not need surgical intervention. FNAC provides with valuable information which helps in appropriate management of the lesion.

The present study was designed to analyse the nature of salivary gland lesions encountered in a tertiary care centre along with their cytomorphologic findings as well as correlation with histologic findings wherever possible.

Materials & Methods

The present study was carried out in the department of Pathology, Jorhat Medical College, retrospectively for three years from January 2013 to December 2015. Patients who presented with palpable enlargement or lump in salivary gland were selected for study. FNAC was performed after taking informed consent from the patient. The swelling was then palpated and under aseptic precautions, a 10 cc syringe with a 23 gauge needle was introduced into the nodule. The material was aspirated and smeared onto clean glass slides. The slides were stained with Pap (papanicolau) and MGG (May Grunwald's Giemsa) respectively. The resected salivary gland tumors were received in histopathology section, formalin fixed, processed and stained with H&E (haematoxylin and eosin). The cytological and histopathological stained slides were studied, analysed and were correlated accordingly.

Results and Observations

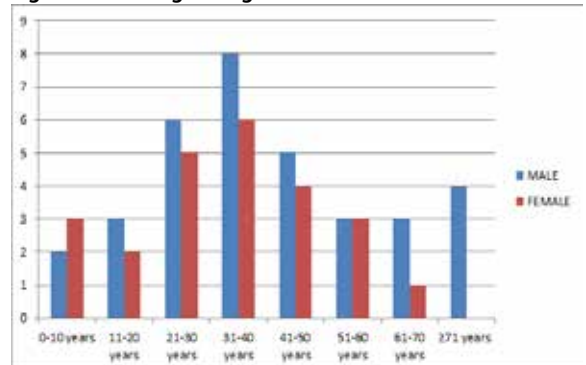
The study included 34 males and 23 females with male to female ratio of 1.4:1. The most common age of presentation was 3rd to 4th decade and commonest gland involved was pa-

rotid gland. Among the 57 cases 41 cases had histopathological correlation.

Table 1. showing the age distribution of the cases.

AGE GROUP(Years)	MALE	FEMALE	TOTAL (%)
0-10	2	3	5(8.7%)
11-20	3	2	5(8.7%)
21-30	6	5	11(19.2%)
31-40	8	6	14(24.5%)
41-50	5	4	9(15.7%)
51-60	3	3	6(10.5%)
61-70	3	1	4(7.01%)
71 and above	4	0	4(7.01%)
	34(59.6%)	23(40.3%)	57

Figure1. showing the age distribution of the total cases.



Out of the 57 cytological smears, non neoplastic lesions were seen in 23 cases. Out of them, 09 cases were chronic sialadenitis, 03 were granulomatous inflammation, 03 were non specific inflammation, 04 were cystic lesions and 04 cases were inadequate or unsatisfactory for evaluation. Benign salivary gland tumors were seen in 22 cases; out of which 15 cases were pleomorphic adenoma, 03 cases were Warthin's tumor, and 04 cases were basal cell adenoma.

Table 2. showing the distribution of non- neoplastic lesions.

Non neoplastic	Male	Female	Total
Chronic Sialadenitis	06	03	09
Granulomatous Inflammation	01	02	03
Cyst	03	01	04
Non specific inflammatory	03	00	03
Unsatisfactory/ Specimen inadequate	03	01	04
TOTAL	16	07	23

Figure2. showing the distribution of non- neoplastic lesions.

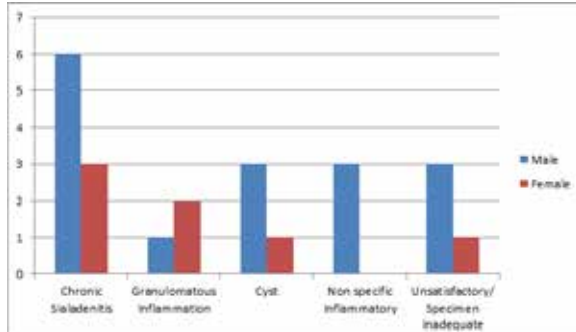
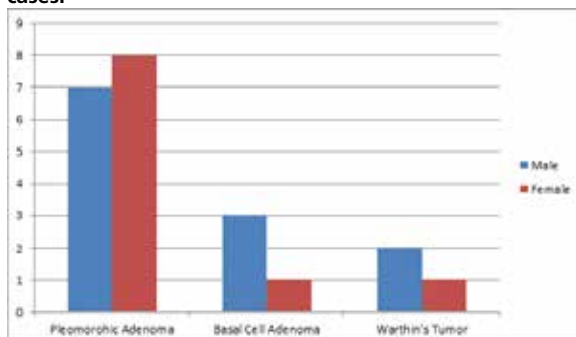


Table3. Showing the distribution of the benign cases.

Benign	Male	Female	Total
Pleomorphic adenoma adenoma Adenoma	07	08	15
Basal Cell Adenoma	03	01	04
Warthins Tumor	02	01	03
TOTAL	12	10	22

Figure3. showing the type and sex distribution of benign cases.



Malignant salivary gland tumors were seen in 12 cases. Amongst them, Mucoepidermoid carcinoma was reported in 05 cases, Adenoid cystic carcinoma in 03 cases, Acinic cell carcinoma in 02 cases and Adenocarcinoma in 02 cases. Out of the 22 benign cases, 15 cases were cytologically diagnosed as pleomorphic adenoma. Among them 12 cases were subsequently confirmed by histopathological examination. Out of 03 cases reported as Warthin's tumor in cytology, 02 were confirmed by histopathology and one turned out to be Mucoepidermoid carcinoma. Out of 04 cases reported as basal cell adenoma in cytology, 03 were confirmed by histopathology.

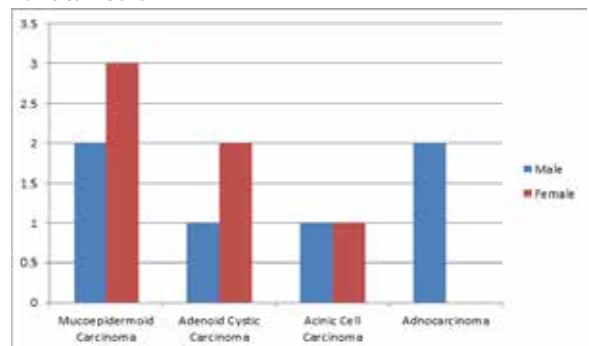
Among 05 cases given as mucoepidermoid carcinoma in cytology, 03 cases were confirmed by histopathology, one case was diagnosed as salivary duct carcinoma and one was lost to follow up. 3 cases of adenoid cystic carcinoma, two cases of Acinic cell carcinoma diagnosed by cytology were later confirmed by histopathology.

Of the 22 cases of non neoplastic lesions diagnosed by cytology, 16 were confirmed with histopathology. Two cases were reported as cystic lesions in cytology but one was found to be mucoepidermoid carcinoma and the other cystadenoma by histopathology.

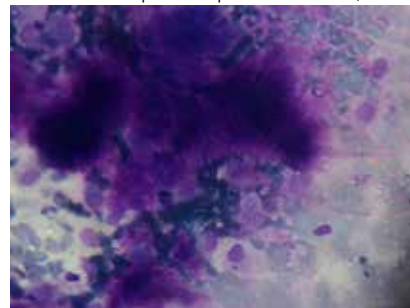
Table 4. showing the types and sex distribution of malignant tumours

Malignant	Male	Female	Total
Mucoepidermoid Carcinoma	02	03	05
Adenoid Cystic Carcinoma	01	02	03
Acinic Cell Carcinoma	01	01	02
Adenocarcinoma	02	00	02
TOTAL	06	06	12

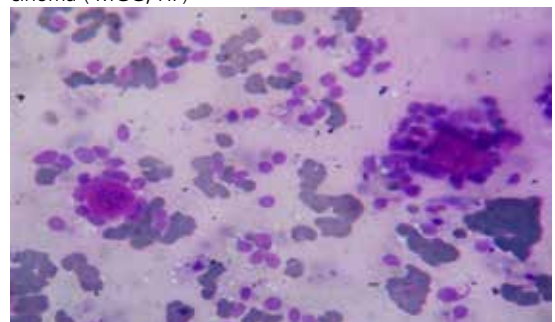
Figure 4. Showing the types and sex distribution of malignant tumours.



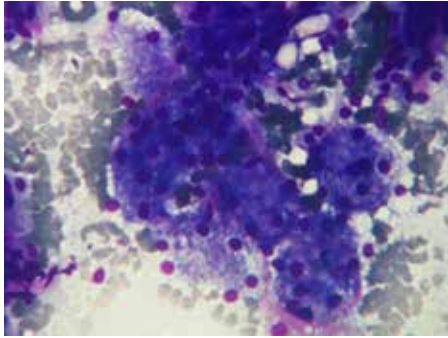
Photomicrograph 1 showing the fibrillary stroma with epithelial cells of pleomorphic adenoma (MGG, HP)



Photomicrograph 2 showing the small uniform epithelial cells along with hyaline stromal globules of adenoid cystic carcinoma (MGG, HP)



Photomicrograph 3 showing the bland cohesive vacuolated cells adherent to thin fibrovascular stroma in acinic cell carcinoma (MGG, HP)



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 [3].

Majority of the lesion occurred during the age interval of 15-60 years, with M: F ratio is 1.4:1, with most common age of presentation being 3rd to 4th decade of life. The most common presenting complain was painless, progressive swelling. In present study, 71.5% of the salivary gland lesions occurred in parotid glands, 20.5% occurred in submandibular glands, and 08% occurred in minor salivary gland. Parotid gland was the most common salivary gland involved. The rate of unsatisfactory samples in the present study was 07% which was in concordance with other studies [4-7].

The rate of benign (including non-neoplastic) lesion in this study is 78.9%, in accordance with other studies ranging from 43% to 89% [8-10]. The most common benign lesion reported in present study is pleomorphic adenoma that was correlated with various other previously reported studies [8-10]. The rate of occurrence of malignant lesion in this study is 21%, in relation with other studies that reported the occurrence of malignant lesion between 14% - 35% [11]. One of the common non-neoplastic lesion was chronic sialadenitis followed by benign cystic lesion and non specific inflammatory lesions. Mucoepidermoid carcinoma is the most common malignant lesion reported in this study that is correlated with Nguansangiam et al [11].

Diagnosis of low grade mucoepidermoid carcinoma requires histology for confirmation as it may be misdiagnosed as Warthin's tumor, chronic sialadenitis and pleomorphic adenoma [12] as observed in the present study.

In present study benign lesion were relatively more common than malignant lesion as correlated with various other studies [13-15].

Mukunyadzi [16] [2002] stated that in any cystic lesions, the residual mass, following initial aspiration, should be reaspirated and careful search for a mixture of mucous cells and intermediate cells should avoid the misdiagnosis of mucoepidermoid carcinoma. Al- Khafaji et al [17] stated that most common false negative interpretation of mucoepidermoid carcinoma is due to dilution of tumor cells by mucoid fluid and bland looking intermediate cells.

CONCLUSION

FNAC of the salivary gland tumours is advantageous both for the patients and the clinicians because of its quick results, accuracy, cost-effectiveness, and lack of complications to the patient. Compared to excisional biopsy, FNA is safer, faster and less tumor seeding spread. Though sometimes specimen inadequacy, lack of experience of the interpreter can be a limiting factor, nevertheless FNAC is a reliable method in experienced hands.

Acknowledgement

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