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Original Research Paper

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CYTOMORPHOLOGICAL SPECTRUM OF SALIVARY GLAND LESIONS: A ONE YEAR STUDY

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ABSTRACT FNAC has a good sensitivity, specificity and accuracy in early diagnosis and management of salivary gland lesions. The present study was carried out on 65 patients presenting with palpable enlarged salivary mass or nodule in the Cytopathology section over a period of one year from January 2019 to December 2019 with the aim of categorizing the lesions among females and males, studying age incidence & site. Most common age group involved was 41-50 years and male showed predominance over females. Parotid gland was the commonest gland involved. Pleomorphic adenoma (38.4%), mucoepidermoid carcinoma (6.1%), sialadenitis (4.6%) were the most common benign, malignant and inflammatory lesions respectively in the present study. FNAC for palpable salivary gland lesions is a diagnostic and therapeutic asset.

KEYWORDS : Salivary, FNAC, Pleomorphic Adenoma, Mucoepidermoid

INTRODUCTION

Salivary gland lesions comprise 2-6.5% of all head and neck neoplasms in adults[1] and 2% of overall tumors in human.[2]The common clinical presentation is enlarged mass usually seen in major salivary glands like parotid, submandibular & sublingual glands whereas it is less common in minor salivary glands in lip, cheek, palate, oral cavity & lacrimal glands. Such an enlarged mass or nodule is easily accessible for FNAC. In 1847, the use of Aspiration Cytology for salivary lesions was reported for the first time by Kun and the procedure was reintroduced in 1930 by Martin and Ellis, while Eneroth et al promoted the use of FNAC in head and neck region specifically in salivary glands, in 1950 & 1960.[3,4] FNAC is being widely used for both major and minor salivary gland lesions and it can differentiate between neoplastic and non-neoplastic lesions.[5] Although salivary gland lesions form a minority of cases , they present with marked diversity upon FNAC in the form of simple cysts like mucocele or retention cyst, Inflammatory lesions like acute or chronic sialadenitis, benign neoplasms like pleomorphic adenoma, basal cell adenoma or Warthin's tumor and malignant neoplasms like mucoepidermoid carcinoma, acinic cell carcinoma or adenoid cystic carcinoma.[6] Although cytomorphological features of most of the lesions are predictable, various confounding cytological factors make some FNA smears difficult to interprete.[4]In developing countries like India, where malnutrition , poverty and lack of awareness are major issues, patients seek medical facilities very late and so chances of malignancy are high as compared to developed countries.[7,8]

FNAC is preferred over biopsies for salivary lesions as it is easily accessible, chances of spillage, recurrence and capsular infiltration are minimal. Also Cell Blocks can be prepared in the same setting. Also ancillary techniques can be performed thereafteron Cell Blocks.[6]

The present study was undertaken to study age, sex, site wise distribution and the cytomorphological spectrum of salivary gland lesions in Tertiary Care Center of Estern Vidarbh, Maharashtra, India.

MATERIAL AND METHODS

The present study was carried out on patients presenting with palpable enlarged mass or nodule in the Cytopathology section over a period of one year from January 2019 to December 2019 in Tertiary Care Hospital. Patients were referred from ENT, Medicine and Surgery OPD. A total of 65 cases were studied with detailed clinical history, clinical examination and an Ultrasound or CT imaging if available and prior consent was taken from all the patients. FNAC was performed by using 5 ml plastic disposable syringe and disposable 23 guage needles. Three slides were made from aspirated material, two were fixed with 85% isopropyl alcohol and stained with Haematoxylene & Eosin and Papaniculou stains, while third slide was air dried and stained with May Grunwald Giemsa stain. Special stains like PAS, Zeihl Neelsen were also studied. FNA results were obtained after correlation with clinical history and radiological findings and then compared with the findings of other studies in the literature.

RESULTS

A total of 65 cases of salivary gland lesions were obtained in the Department of Cyto-pathology over a period of 1 year between January 2019 and December 2019. All the 65 patients underwent a diagnostic FNAC in Cytopathology Section. In the present study, age range of patients varied from 14 to 80 years. Youngest patient (14 year old) was diagnosed with sialadenitis and oldest (80 year old) was diagnosed with pleomorphic adenoma on FNAC. Majority of patients (27.6%) were noted in the age group 41-50 years followed by the age group 21-30 years (16.9%) as shown in table 1. In the present study, males (35/65) showed predominance over females (30/65) with sex ratio 1.1:1.

Table 1: Age and sex wise distribution of salivary gland lesions (n=65)

Age Group	Male	Female	Total	%
11-20	05	00	05	7.6
21-30	06	05	11	16.9
31-40	03	06	09	13.8
41-50	11	07	18	27.6

51-60	06	07	13	0.2
61-70	03	03	06	9.2
71-80	01	02	03	4.6
Total	**35**	**30**	**65**	**100**

Table 2 : Site wise distribution of salivary gland lesions (n=65)

Site	Right	Left	Bilateral	Total	%
Parotid	20	14	-	34	52.3
Submandibular	12	11	01	24	36.9
Lip	-	-	-	04	6.1
Sublingual	-	-	-	02	3.0
Cheek	00	01	-	01	1.5
Total				**65**	**100**

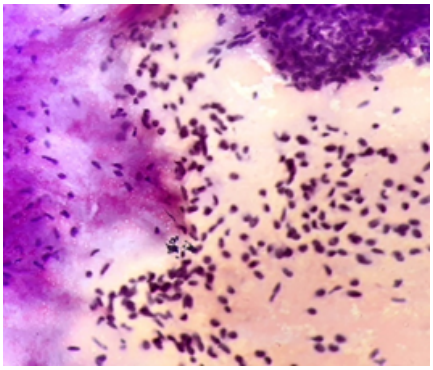
In the present study, the most common site for the lesions was parotid region (52.3%) predominantly on right side. It was followed by submandibular region (36.9%) majority on the right side.

Table 3: Distribution of salivary gland lesions (n=65)

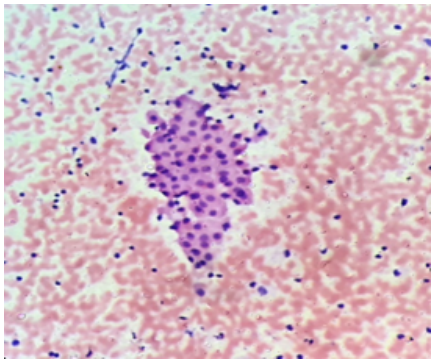
Lesions	Number	%
Non neoplastic	**29**	**44.6**
Sialadenosis	03	4.6
Sialadenitis	15	23.1
Benign Cystic Lesions	11	16.9
Neoplastic	**36**	**55.3**
Benign	**28**	**43.0**
Pleomorphic Adenoma	25	38.4
Basal Cell Adenoma	01	1.5
Warthin Tumor	01	1.5
Oncocytoma	01	1.5
Malignant	**08**	**12.3**
Adenoid Cystic Carcinoma	01	1.5
Acinic Cell Carcinoma	02	3.0
Mucoepidermoid Carcinoma	04	6.1
Carcinoma Ex Pleomorphic Adenoma	01	1.5

In the present study, salivary gland lesions were differentiated into non-neoplastic and neoplastic (benign & malignant) lesions. Neoplastic lesions (55.3%) were more than non-neoplastic lesions. Among non-neoplastic lesions, majority cases were of sialadenitis (23.1%) followed by benign cystic lesions (16.9%). Among neoplastic lesions, benign neoplasms (43.0%) were more common than malignant (12.3%). Among benign tumors, pleomorphic adenoma (38.4%) was the commonest (Figure 1A) followed by basal cell adenoma (1.5%) and Warthin's tumor (1.5%) (Figure 1B). While among malignant tumors, majority cases were of mucoepidermoid carcinoma (Figure 1D) (6.1%) followed by acinic cell carcinoma (Figure 1C) (3.0%) and carcinoma ex pleomorphic adenoma (1.5%) which was the case of recurrence after 6 years as shown in table 3.

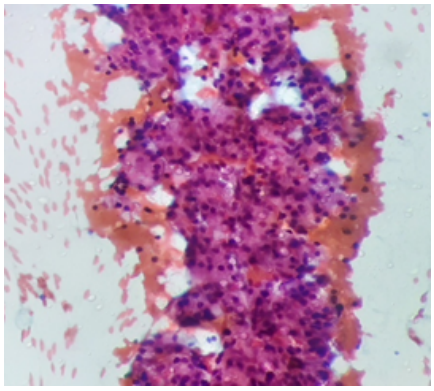
Figure 1: Photomicrographs of Salivary Gland Lesions



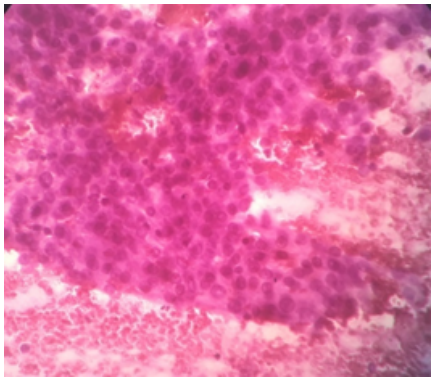
A) Pleomorphic Adenoma: Chondromyxoid stroma, epithelial and mesenchymal components (200X, MGG stain)



B) Warthin's Tumor: Clusters of oncocytes with mature lymphocytes in the dirty background (200X, PAP stain)



C) Acinic Cell Carcinoma: Overlapping clusters of acinar cells with bland nuclei (100X, PAP stain)



D) Mucoepidermoid Carcinoma: Sheets of intermediate squamous cells with intermingled mucin filled cells. (200X, H & E stain)

DISCUSSION

The present study was a retrospective study and a total of 65 cases were studied. FNAC of salivary glands is being used very commonly as a preoperative diagnostic tool. It is well tolerated and readily accepted by patients as they get report within a short span. We studied a total of 65 cases of salivary gland lesions and above results were obtained. These results were compared with various studies in the literature. In the present study, the age range was 14-80 years with sex ratio 1.1:1. While study done by Singh A et al[9] observed age range 8-69 years with sex ratio 1:1.4 and Fereshteh AM et al [4] noted age range 14-76 years which was comparable. Majority of patients were noted in the age group of 41-50 years (27.6%) while other studies [8,9,10,11] noted the commonest age group of 21-40 years. In the present study, males (35/65) showed predominance over females (30/65) while in other studies like Linen MW et al[10], Khandekar MM et al[1] and Fereshteh AM et al.[4]

In the present study, majority of cases presented with parotid

gland (55.3%) involvement followed by submandibular gland (36.9%) and minor salivary gland (lip, cheek, palate). Similar observations were made by studies conducted by Singh A et al [9], Gao N et al [13], Ashraf A et al [14]& Khandekar MM et al [1].

In the present study, neoplastic salivary gland lesions (55.3%) were more common than non-neoplastic lesions (44.6%). Among neoplastic lesions, 77.7% (n=36) were benign neoplasms and 22.2% (n=36) were malignant neoplasms. These findings were similar to the findings in studies done by Singh A et al [9](78.3% benign vs 21.6% malignant) , Hughes KV et al [15] (80% benign vs 20% malignant), Cajulis RS et al [16] (75.9% benign vs 14.6% malignant). Among benign neoplastic lesions, the present study observed pleomorphic adenoma as the commonest neoplasm which was similarly found in studies done by Khandekar MM et al [1] , Singh A et al [9] and Chatterjee MT et al[17]. In the present study, among malignant lesions, majority of cases were mucoepidermoid carcinoma followed by acinic cell carcinoma and adenoid cystic carcinoma which was similar to the findings of study done by Khandekar MM et al1 while other studies like Singh A et al[7], Chatterjee MT et al [17], Stewart CJ et al[18].

In this study, among non-neoplastic lesions, sialadenitis (23.1%) was the commonest lesion which was comparable to Singh A et al[9] while Goh YH et al[19] showed 53.7%, which is very high and Ashraf A et al [14] showed 12% in their studies.

CONCLUSION

FNAC is a safe, simple, reliable, cost-effective and well tolerated preoperative procedure with minimal morbidity carried out in the outpatient department yielding accurate diagnosis of inflammatory, benign and malignant salivary gland lesions. Among benign neoplasm, pleomorphic adenoma is the commonest lesion while among malignant neoplasms mucoepidermoid carcinoma forms the majority and the common non neoplastic lesions are sialadenitis. FNAC can be used preoperatively to avoid unnecessary surgeries and the discomfort to open biopsy. So, this simple and time saving procedure is a boon for both clinicians and anxious patients as malignancy in suspicious cases gets ruled out within no time. FNAC is preferred over biopsies for salivary lesions as it is easily accessible, chances of spillage, recurrence and capsular infiltration are minimal. Also Cell Blocks can be prepared in the same setting. Also ancillary techniques can be performed thereafter on Cell Blocks. FNAC for palpable salivary gland lesions is a diagnostic and therapeutic asset.

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