

EVALUATION OF FINE-NEEDLE ASPIRATION CYTOLOGY IN SALIVARY GLAND LESIONS AT TERTIARY CARE HOSPITAL

Dr. Indu Saxena^{1*}

1. Assistant Professor, Department of Pathology, JNU Institute of Medical Sciences and Research Centre, Jaipur

*Corresponding author - Dr. Indu Saxena

Email id -saxenaindu20@yahoo.com

Received: 15/10/2017

Revised: 03/12/2017

Accepted: 15/12/2017

ABSTRACT

Background: Pathological changes in salivary glands nowadays are commonly studied with FNAC. However, a wide variety of benign and malignant tumors of these glands were difficult to diagnose by imaging modality. Fine needle aspiration cytology (FNAC) of suspected salivary gland lesions has an edge in preoperative diagnosis over imaging modality. **Material & Methods:** The present prospective study was conducted at the department of pathology of our tertiary care hospital. The study duration was of one year from September 2016 to August 2017. A sample size of 50 was calculated at a 95% confidence interval at a 10% acceptable margin of error. Patients with swelling or lesions of salivary glands were included in the present study irrespective of age, sex, duration of history, and etiology. **Results:** In the present study a total of 50 patients with swelling or lesions of salivary glands were included in the present study irrespective of age, sex, duration of history, and etiology. In our study the patients were aged from 12 to 68 years, the mean age of the enrolled patients was 36 ± 4.89 years. Out of the total, the majority of study participants were male 58%, and 42% of study participants were female. On the FNAC findings, the most common interpretation was Pleomorphic adenoma among 20 cases. Myoepithelioma, Adenoid cystic carcinoma, and Adenocarcinoma NOS were found among 1 case respectively. Mucoepidermoid carcinoma was found in 2 cases. **Conclusion:** We concluded from the present study that Fine needle aspiration cytology findings can differentiate various salivary gland pathology. FNAC of the salivary gland is a safe and reliable diagnostic technique for the primary diagnosis of salivary gland pathology.

Keywords: FNAC, Histology, Salivary gland pathology.

INTRODUCTION

Since “A Salivary glands are a type of exocrine glands that produce saliva (1). There are three major salivary glands, parotid gland, submandibular gland, and sublingual glands, and several minor glands which are present throughout the oral cavity, nasopharynx region, and tracheobronchial tree (2). Various studies were reported that diseases of salivary glands are diverse in etiology ranging from the inflammatory etiology to a diverse category of benign and malignant neoplasms (3). Many of these salivary gland pathologies are rare and the

diagnostic methods available are also not optimal and less sensitive. The Inflammatory salivary gland lesions are common bacterial or viral in etiology (4). However, inflammatory salivary gland lesions can also be found in sialolithiasis, sialadenosis, and autoimmune disorders like Sjogren’s syndrome. The presence of calcifications and presence of vascularity is also commonly reported implications (5).

Pathological changes in salivary glands nowadays are commonly studied with ultrasonography. However, a wide variety of

benign and malignant tumours of these glands were difficult to diagnose by imaging modality (6). Fine needle aspiration cytology (FNAC) of suspected salivary gland lesions has an edge in preoperative diagnosis over imaging modality. The interpretation of FNAC of suspected salivary gland lesions was conducted in a stepwise manner (7). At first, the decision has to be taken whether the lesions are of salivary gland origin or not. This step eliminates unnecessary operations in about 30% of cases (8). Hence, the present study was conducted to evaluate fine-needle aspiration cytology in salivary gland lesions at tertiary care hospital

MATERIALS & METHODS

The present prospective study was conducted at the department of pathology of our tertiary care hospital. The study duration was of one year from September 2016 to August 2017. A sample size of 50 was calculated at a 95% confidence interval at a 10% acceptable margin of error. Patients with swelling or lesions of salivary glands were included in the present study irrespective of age, sex duration of history, and etiology. Clearance from Institutional Ethics Committee was taken before the start of the study.

Patients having coagulation disorders, post-operative patients, and patients who had only clinical suspicion of salivary gland pathology were excluded from the present study. The data were collected by predesigned performa along with general physical and clinical examination. FNAC was taken from different sites of the salivary gland swelling using a 10 mL disposable syringe with a 21/23- gauge needle. After that air-dried smears were stained with Giemsa stain, wet smears (fixed in 95% ethyl alcohol) were stained with Papanicolaou stain. Paraffin-embedded tissue sections were stained with hematoxylin and eosin. Salivary gland lesions were studied under the three groups including

non-neoplastic lesions and benign tumors and malignant tumors. Data analysis was carried out using SPSS v22. All tests were done at an alpha (level significance) of 5%; means a significant association was present if the p-value was less than 0.05.

RESULTS

In the present study, a total of 50 patients with swelling or lesions of salivary glands were included in the present study irrespective of age, sex duration of history, and etiology. In our study the patients were aged from 12 to 68 years, the mean age of the enrolled patients was 36 ± 4.89 years. Out of the total, the majority of study participants were male 58%, and 42% of study participants were female. On the FNAC findings, the most common interpretation was Pleomorphic adenoma among 20 cases. Myoepithelioma, Adenoid cystic carcinoma, and Adenocarcinoma NOS were found among 1 case respectively. Mucoepidermoid carcinoma was found in 2 cases. (Table 1)

Table 1: Distribution of study participants according to study parameters.

Cytological type	No. of cases
Sialadenosis	6%
Sialadenitis	24%
Non-neoplastic cysts	18%
Pleomorphic adenoma	40%
Myoepithelioma	2%
Basal cell adenoma	2%
Mucoepidermoid carcinoma	4%
Adenoid cystic carcinoma	2%
Adenocarcinoma NOS	2%

In the present study, based on the frequency of neoplastic lesions of salivary glands, the most common pathological lesions were benign (90%) on FNAC findings. Out of the total cases, no malignant lesions were found in the age group less than 40 years. Most of the lesions were found in an age group of more than 40 years. Out of the total cases, no malignant lesions were

found in the female group. Most of the lesions were found in the male group. (Table 2)

In the present study, based on the frequency of neoplastic lesions of salivary glands and site of occurrence, benign lesions like pleomorphic adenoma were reported predominantly among parotid gland and submandibular glands. Myoepithelioma and Basal cell adenoma were

found among lesions of minor salivary glands 1 case respectively. Mucoepidermoid carcinoma was reported predominantly among parotid gland and submandibular glands 1 case respectively. 1 case of Adenoid cystic carcinoma was reported among lesions of submandibular glands. 1 case of Adenocarcinoma NOS was reported among lesions of the parotid gland. (Table 3)

Table 2: Distribution of study participants based upon frequency of neoplastic lesions of salivary glands.

Parameters		Benign tumors	Malignant tumors
Age	< 40 years	42%	0%
	> 40 years	48%	10%
Gender	Male	50%	10%
	Female	40%	0%

Table 3: Distribution of study participants based upon frequency of neoplastic lesions of salivary glands and site of occurrence.

Cytological type	No. of cases	Parotid gland	Submandibular gland	Minor salivary glands
Pleomorphic adenoma	40%	28%	12%	0%
Myoepithelioma	2%	0%	0%	2%
Basal cell adenoma	2%	0%	0%	2%
Mucoepidermoid carcinoma	4%	2%	2%	0%
Adenoid cystic carcinoma	2%	0%	2%	0%
Adenocarcinoma NOS	2%	2%	0%	0%

DISCUSSION

In the present study, a total of 50 patients with swelling or lesions of salivary glands were included in the present study irrespective of age, sex duration of history, and etiology. In our study the patients were aged from 12 to 68 years, the mean age of the enrolled patients was 36 ± 4.89 years. Out of the total, the majority of study participants were male 58%, and 42% of study participants were female. On the FNAC findings, the most common interpretation was Pleomorphic adenoma among 20 cases. Myoepithelioma, Adenoid cystic carcinoma, and Adenocarcinoma NOS were found among 1 case respectively. Mucoepidermoid carcinoma was

found in 2 cases. Similar results were obtained in a study conducted by C M Eneroth et al among patients of salivary gland pathology and reported similar findings to the present study among the majority of patients of salivary gland pathology (9). Similar results were obtained in a study conducted by Shilpa H et al among patients of salivary gland pathology and reported similar findings to the present study among the majority of patients of salivary gland pathology (10).

In the present study, based on the frequency of neoplastic lesions of salivary glands, the most common pathological lesions were benign (90%) on FNAC findings. Out of the total cases, no malignant lesions were found in the age group

less than 40 years. Most of the lesions were found in an age group of more than 40 years. Out of the total cases, no malignant lesions were found in the female group. Most of the lesions were found in the male group. Similar results were obtained in a study conducted by Ashraf Aet al among patients of salivary gland pathology and reported similar findings to the present study among the majority of patients of salivary gland pathology (11). Similar results were obtained in a study conducted by M Kotwal et al among patients of salivary gland pathology and reported similar findings to the present study among the majority of patients of salivary gland pathology (12).

In the present study, based on the frequency of neoplastic lesions of salivary glands and site of occurrence, benign lesions like pleomorphic adenoma were reported predominantly among parotid gland and submandibular glands. Myoepithelioma and Basal cell adenoma were found among lesions of minor salivary glands 1 case respectively. Mucoepidermoid carcinoma was reported predominantly among parotid gland and submandibular glands 1 case respectively. 1 case of Adenoid cystic carcinoma was reported among lesions of submandibular glands. 1 case of Adenocarcinoma NOS was reported among lesions of the parotid gland. Similar results were obtained in a study conducted by Kanwar D et al among patients of salivary gland pathology and reported similar findings to the present study among the majority of patients of salivary gland pathology (13). Similar results were obtained in a study conducted by A Singh et al among patients of salivary gland pathology and reported similar findings to the present study among the majority of patients of salivary gland pathology (14).

CONCLUSION

We concluded from the present study that Fine needle aspiration cytology findings can

differentiate various salivary gland pathology. FNAC of the salivary gland is a safe and reliable diagnostic technique for the primary diagnosis of salivary gland pathology. Lastly, every clinician who uses Fine needle aspiration cytology for diagnosis must be aware of the limitations of the modality.

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