Quest Journals
Journal of Medical and Dental Science Research
Volume 1 ~ Issue 2 (2014) pp: 04-06
ISSN(Online) : 2394-076X ISSN (Print):2394-0751
www.questjournals.org

Research Paper

Fnac of salivary gland lesion—study of 126 cases at a tertiary care center of national capital region india.

Dr.Uma Tayal[1], Dr.Malay Bajpai[2], Dr.Ankit Jain[3], Dr.J.S.Dhupia[4]
[1&2] Associate Professor, [3]Assistant Professor, [4]Professor Pathology Department Rama Medical College Hospital and Research Centre, Hapur

Received 10 December, 2014; **A**ccepted 25 December, 2014 © The author(s) 2014. Published with open access at **www.questjournals.org**

ABSTRACT:- Fine needle aspiration cytology (FNAC) of suspected salivary gland lesions has an established role in preoperative diagnosis and management of patients. However diverse morphological patterns and overlapping features make it a challenging job, to give a precise diagnosis at times. This study was aimed at evaluating salivary gland FNAC for sensitivity, specificity and diagnostic accuracy and to find out the problems during reporting of FNAC of salivary gland lesions and try to find out the possible solutions.

Keywords:- FNA salivary gland, problems in cytology of salivary gland

I. INTRODUCTION

Fine needle aspiration cytology (FNAC) of suspected salivary gland lesions has an established role in preoperative diagnosis and management of patients. It has acquired an edge over incisional biopsy and frozen section.[1]

The interpretation of FNA of suspected salivary gland lesions has to be done step by step. In the first place one has to decide whether the lesion is of salivary origin or a clinical mimic. The next step is to identify cells and their morphology to classify them into cystic, inflammatory or neoplastic process. This essentially eliminates unnecessary surgery in about one third of cases.

When FNA smears reveal classical features of one or the other tumour it becomes satisfying for a cytopathologist to designate benign or malignant nature of the neoplasm and further subtype it. However diverse morphological patterns and overlapping features thy name is salivary gland tumours. No two pleomorphic adenomas (PA) look alike. Thus it becomes a challenging job to give precise diagnosis at times.

II. MATERIAL AND METHODS

Present study was carried out in the Department of Pathology, RMCH&RC Hapur, retrospectively and prospectively during the period 2011 to 2014. In the present study, 126 cases of salivary gland swelling are included in which cytological and histological studies were done. Eight cases were excluded due to scanty, inadequate aspirate on FNAC; thus only 116 cases were included in this study and cytohistological correlation was made in 47 cases only and in the remaining 77 cases either cytology or histology was available. All patients were clinically evaluated by detailed history, clinical examination, and hematological and radiological investigations. FNA was performed from different sites of the salivary gland swelling using a 10 mL disposable syringe and 23/24-gauge needle without local anaesthesia. FNA air-dried smears were stained with Giemsa stain and wet smears fixed in 95% ethyl alcohol were stained with Papanicolaou stain. Paraffin embedded tissue sections obtained from salivary gland tissue were stained with haematoxylin and eosin and few special stains were performed whenever required.

Salivary gland lesions were studied under the three groups including nonneoplastic lesions and benign and malignant tumors.

III. RESULTS

In the present study, nonneoplastic lesions accounted for 50% (58/116), followed by 30.17% (35/116) benign tumours and 19.82% (23/116) malignant tumours.

Commonest gland involved was parotid (48.2%, 56/124), followed by submandibular gland (41.3%, 48/116) and minor salivary glands (10.3%, 12/116) whereas no case of sublingual salivary gland lesion was observed in the present study [to be calculated]. Age range for **nonneoplastic** lesions was 10 years to 65 years with commonest age group being 20 to 29 years. Male : female ratio was 4.32 : 1. Age range for **neoplastic lesions** was 18 years to 70 years with commonest age group for benign neoplasms being 30 to 42 years, and, for **malignant neoplasms**, it was 55 to 69 years. Male : female ratio was 0.39 : 1.

In **nonneoplastic lesions**, 32 lesions involved the submandibular gland (55.7%, 32/58), 18 lesions involved the parotid gland (31.8%, 18/58), and 8 lesions involved the minor salivary gland (12.5%, 8/58). Chronic sialadenitis was the commonest lesion 62.0%, 36/58) followed by benign cysts (15.5%, 9/58), suppurative sialadenitis (8.62%, 5/58), and tubercular sialadenitis (17.2%, 10/58).

In **neoplastic lesions**, most commonly involved site was the parotid gland (66.8%) followed by submandibular gland (20.9%) and minor salivary gland (12.3%). In **benign tumours**, pleomorphic adenoma accounted for maximum number of cases (67.4%), followed by monomorphic adenoma (26.8%), haemangioma (4.3%), and Warthin's tumour (1.5%). In **malignant lesions**, mucoepidermoid carcinoma was the most common malignant tumour (44.2%) followed by malignant mixed tumour (19.72), acinic cell carcinoma (18.0%), adenoid cystic carcinoma (8.5%), and adenocarcinoma (9.58%). In the present study, both cytology and histology were carried out in 47 cases only and a correlation was done for sensitivity, specificity, and diagnostic accuracy.

In **nonneoplastic lesions,** the specific diagnosis of all 58 cases of FNAC was correlated with histopathological findings. In **benign tumours** cytological diagnosis of 55 cases was consistent with histopathological diagnosis. In Three cases,histopathology report was in discordance .Two cases reported as pleomorphic adenoma,pleomorphic adenoma with atypia. and one case as Warthin's tumor on FNAC turn to basal cell adenoma,low grade mucoepidermoid carcinoma and low grade mucoepidermoid carcinoma, respectively, on histopathologica examination. In **malignant group**, cytological diagnosis of 21 cases was consistent with histopathological diagnosis. In 2 cases cytological diagnosis of malignant mixed tumors turns to pleomorphic adenoma on histopathological examination.

III. DISCUSSION

In the diagnosis of salivary gland lesions, FNAC has gained the popularity as diagnostic tool due to its low cost and safe procedure with minimal risk to the patient [2] and aid to the clinicians in the management planning. The rate of unsatisfactory samples on FNAC is varied from 3% to 12% [3]. In present study it was 6.4%. This difference may be due to inaccessibility of the lesion and sampling errors.

In the present study most common nonneoplastic lesion was chronic sialadenitis followed by benign cyst and most of the nonneoplastic lesions involved the submandibular gland and this similar finding is also observed by Atula et al. [4]. In the present study, benign neoplasms accounted for 35 cases(30.17%) . The rate of benign neoplasm was lower than other reports which ranged from 49 to 83% [5].the reason may lack of awareness of the patient. We observed the pleomorphic adenoma as the commonest benign neoplasm followed by monomorphic adenoma and the predominance of these two benign neoplasms was similar to those previously reported number of studies . Various authors have reported that the incidence of malignant tumours ranged from 15% to 32% [6,7], and in the present study it accounted for 19.8 % whereas Nguansangiam et al. have found the lower rate of malignant neoplasms [8]. In our study, the most common malignant salivary gland tumor was mucoepidermoid carcinoma which accounted for of all malignant neoplasms followed by malignant mixed tumours. As compared to this, Nguansangiam et al. have found that lymphoma is the commonest primary malignant salivary gland tumors followed by mucoepidermoid carcinoma [8]. Parotid gland was observed as the commonest site of salivary gland neoplasms of all salivary gland neoplasms involved the parotid gland in this series.

In the present study it was found that, diagnosis of low grade mucoepidermoid carcinoma is difficult because it may be misdiagnosed as chronic sialadenitis, Warthin's tumor, mucous retention cysts, and adenomatoid hyperplasia of the mucous salivary gland . also our cytological report of cellular pleomorphic adenoma with atypia turned out to be basal cell adenoma. Low grade mucoepidermoid carcinoma and pleomorphic adenoma need to be differentiated as it is a recognized pitfall and as also encountered in the present study. It needs to be emphasized that sampling and genuine problems do occur in typing of salivary gland neoplasms. [9]

In our study the overall sensitivity , specificity and positive predictive value is 93.6%,91.3% and 95.6% respectively 97.1%, 88.2%, and 97.1%, respectively indicating good results compared with those previously reported in various studies [10].

Diagnostic problems in FNA cytology of salivary glands are discussed by various authors, based on a *very* large series of cases. Their vast experience proves utility of FNAC in salivary glands beyond doubt. It is further stated that if established diagnostic criteria are present and are strictly observed, a high level of accuracy can be achieved. There remains however, a proportion of problematic cases - depending on level of experience, continued desire to better oneself and acceptance of limitations. In such cases the uncertainty must be openly conveyed to the surgeon, rather than issuing a misleading report that will lead to inappropriate surgery. Lastly every clinician who uses FNAC must be aware of the limitations of the method.

Table: differences between basal cell adenoma and cellular Pleomorphic adenoma[11]

	Basal cell adenoma	**Cellular pleomorphic adenoma**
Extracellular matrix	Amorphous, homogenous stroma surrounding neoplastic cells	Fibrillary myxoid to chondroid stroma admixed with spindle cells
Cellular features	Tightly cohesive sheets, small cells ,round to oval nuclei with finely granular chromatin	Loosely cohesive sheets , intermediate size cells, round to oval nuclei with finely granular chromatin
Background	Naked nuclei	Plasmacytoid cells

IV. CONCLUSION

Pleomorphic adenoma and mucoepidermoid carcinoma both are common in occurrence and create problems in diagnosis. Certain guidelines can be formed in order to avoid the pitfalls to a certain extent. It is prudent on occasions to limit the FNA report to differential diagnosis. Communication and co-operation between a clinician and a cytopathologist can solve the riddle. The high accuracy, sensitivity, and specificity of FNAC confirm that preoperative cytology is a useful, quick, reliable diagnostic technique for rapid and early diagnosis and we also conclude that it is simple and cost-effective diagnostic tool suitable for developing countries

REFERENCE

[1] Kotwal M, gaikwad S, patil R, munshi M. Fnac of salivary gland- a useful tool in preoperative diagnosis or a cytopathologist's riddle?.journal of cytology 2007;24(2) : 85-88

[2] Qizilbash AH., Sianos J, Young JEM., Archibald SD. Fine needle aspiration biopsy cytology of major salivary glands. Acta Cytol 1985; 29: 503-12

[3] Omhare A, singh Sk, nigam JS, Sharma A. cytohistopathological study of salivary glnad lesions in bundelkhand region , uttar Pradesh, india.pathology reaseach international 2014 Volume 2014 (2014), Article ID 804265,5 pages

[4] Atula T, Grenman R, Laippala P. Fine-needle aspiration cytology of submandibular gland lesions. The Journal of Laryngology & Otology. 1995;109(9):853–858

[5] Choudhury AA, Sultana T, Siddique BH, Amin ASA. Diagnosis of parotid gland mass by the fine needle aspiration cytology (FNAC) and its histopathological correlation—2 years study in BSMMU, Dhaka. Bangabandhu Sheikh Mujib Medical University Journal. 2011;4(2):65–69.

[6] Boccato P, Altavilla G, Blandamura S. Fine needle aspiration biopsy of salivary gland lesions: a reappraisal of pitfalls and problems. Acta Cytologica. 1998;42(4):888–898

[7] Das DK, Petkar MA, Al-Mane NM, Sheikh ZA, Mallik MK, Anim JT. Role of fine needle aspiration cytology in the diagnosis of swellings in the salivary gland regions: a study of 712 cases. Medical Principles and Practice. 2004;13(2):95–106.

[8] Nguansangiam S, Jesdapatarakul S, Dhanarak N, Sosrisakorn K. Accuracy of fine needle aspiration cytology of salivary gland lesions: routine diagnostic experience in Bangkok, Thailand. Asian Pacific Journal of Cancer Prevention. 2012;13(4):1583–

[9] Verma K, Kapila K. Role of fine needle aspiration cytology in diagnosis of pleomorphic adenomas.

[10] O'Dwyer P, Farrar WB, James AG, Finkelmeier W, McCabe DP. Needle aspiration biopsy of major salivary gland tumors: its value. Cancer. 1986;57:554–557

[11] Elsheikh T M. Salivary gland aspiration cytopathology. In: Atkinson B, Silverman J, editors. Atlas of difficult diagnoses in cytopathology. 1st ed. New York: WB Saunders Company; 1998. p. 451-80

Name and Address of the Author— Dr.uma Tayal
D-325, Shastri nagar Meerut Mob. No. 09456420003
e-mail—umatayal25@gmail.com