

Original article:

Ctytopathological study of major salivary glands gland in relation with clinical correlations

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Abstract:

Introduction: Salivary glands are exocrine organs responsible for production and secretion of saliva and consist of the parotid, submandibular, sublingual, and the minor glands that are numerous and widely distributed throughout the mouth and oropharynx

Methodology: It was prospective study carried out in our Department of Pathology for one year duration. The sample size was estimated with help of expert.

In our present study , cytological features of major salivary gland tumors diagnosed on FNAC were studied over a period of one year. Cytological and architectural patterns in smears were compared with histopathological features in cases where the specimens were available with a note on the age, sex and presenting complaints. Stastistical analysis was carried out with expert using SPSS statistical software , version 17.

Results: A total of 100 salivary gland FNACs were done, 70 patients were clinically suspected to be neoplasms. The peak incidence was in the third to fourth decade of life with a female preponderance. Parotid was the most commonly affected gland (78 %) with pleomorphic adenoma and mucoepidermoid carcinoma (9.02 %) being the most common benign and malignant tumors respectively.

Conclusion: The high accuracy, sensitivity, and specificity of FNAC confirm that preoperative cytology is a useful, quick, reliable diagnostic technique for rapid and early diagnosis

Introduction:

Salivary glands are exocrine organs responsible for production and secretion of saliva and consist of the parotid, submandibular, sublingual, and the minor glands that are numerous and widely distributed throughout the mouth and oropharynx [1]. Salivary glands neoplasms account for 6% of all head and neck tumors [1]. Fine needle aspiration cytology (FNAC) is a useful method for evaluating suspicious salivary glands lesions due to its low cost, minimum morbidity, rapid turnaround time, high specificity, and sensitivity [2]. By cytological examination, lesions can be divided into inflammatory, reactive, benign, or malignant and, if possible, specific diagnosis is given which helps the clinicians in planning the management of the lesion [3]. With this view , present study was planned to correlate the Ctytopathological study of major salivary glands gland in relation with clinical correlations .

Methodology:

It was prospective study carried out in our Department of Pathology for one year duration. The sample size was estimated with help of expert.

In our present study , cytological features of major salivary gland tumors diagnosed on FNAC were studied over a period of one year. Cytological and architectural patterns in smears were compared with histopathological features in cases where the specimens were available with a note on the age, sex and presenting complaints. Statistical analysis was carried out with expert using SPSS statistical software , version 17.

Results:

A total of 100 salivary gland FNACs were done, 70 patients were clinically suspected to be neoplasms. The peak incidence was in the third to fourth decade of life with a female preponderance. Parotid was the most commonly affected gland (78 %) with pleomorphic adenoma and mucoepidermoid carcinoma (9.02 %) being the most common benign and malignant tumors respectively. The diagnostic accuracy of FNAC was 97.01%. Warthins tumor was misdiagnosed and was associated with a strong smoking history.

Discussion:

Fine-needle aspiration cytology (FNAC) is used as the main initial diagnostic investigation for lumps in the head and neck region. Major salivary glands and some minor salivary glands are easily accessible; therefore, they are optimal targets for FNAC.

Cytology focuses at the cellular level on the structure, function and biochemical characteristics whereas cytomorphometric analysis is a qualitative and quantitative measurement of nuclear area, cytoplasmic area and nuclear to cytoplasmic ratio of normal cells.

The principles of cytology are applied in diagnostic pathology diagnosis to observe the significance in the difference between normal and diseased cells. Fine needle aspirations (FNAs) are the most common cyto-methodology in salivary gland pathology practice.^[4]FNA is a cytological method that is used to describe the morphological findings of individual cells, groups of cells, and microparticles in tissue from samples that were acquired using a needle.^[3] The conventional biopsy procedure has a possible risk of intraoperative tumor cell implantation and damage to the facial nerve in parotid gland pathologies.^[4] FNAs are minimally invasive, simple, cost-effective, and minimal risk procedure than conventional biopsy procedure. Schröder *et al.* mentioned that FNAs have a minimal incidence of complication, have a reduced risk of tumor cell implantation (<1%). In addition, complications from surgical procedures such as hemorrhage, facial nerve damage and inflammatory reaction at the surgical site are rare.^[5]

The three major salivary gland tissues are the parotid, submandibular, and sublingual. The normal cytological characteristics of salivary gland tissue are studied from the unintentional aspiration of normal tissue while aspirating abnormal tissue. FNAs of the normal salivary gland aspirate shows glandular (i.e., acinic cells), ductal elements, adipose tissue and scattered inflammatory cells. The acinic cells are either serous or mucous. The acinic cells are seen as cohesive ball like/grape-like arrangements, whereas ductal elements are identified as cohesive orderly sheets or more rarely as tubules and elongated myoepithelial cells attached to the epithelial elements.^[7] Acinic cells appear as a background field of bare nuclei. The acinic cells are composed of pyramidal cells that have uniform eccentric nuclei, and cytoplasm of serous cells is finely granular, foamy or vacuolated compared to the cytoplasm of ductal

elements. Whereas ductal cells appear crowded, are smaller than acinar cells, and have less cytoplasm. When the nuclei of the ductal cells lose their cytoplasm, it is easy to misdiagnose these cells as lymphocytes.^[1]

In responding to the call for detection of aspiration cytology diagnosis, oral and maxillofacial pathologists are expected to be knowledgeable of the cytological details of both normal as well as pathological conditions. Several excellent case studies and reviews have been previously published concerning the fine needle cytology diagnosis of various salivary gland pathologies.

Conclusion:

The high accuracy, sensitivity, and specificity of FNAC confirm that preoperative cytology is a useful, quick, reliable diagnostic technique for rapid and early diagnosis

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