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Fine needle aspiration cytology a reliable tool for diagnosis of salivary glands tumour

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Abstract

In the diagnosis of salivary gland tumours FNAC is a widely used, safe inexpensive and relatively non traumatic procedure that can quickly provide important information. It is a well-accepted method in the preoperative evaluation in most of head and neck tumours. The aim of the study was to evaluate the spectrum of salivary gland tumours in tertiary care centre by using FANC. Total 208 samples were collected from salivary gland swelling in which 74 benign and 46 malignant tumours were reported. Pleomorphic adenoma were most commonly found benign and mucoepidermoid carcinoma were most commonly found malignant lesions in the study. It is concluded that Fine-needle aspiration cytology is a good preliminary, inexpensive, sensitive and well tolerated technique for the preoperative diagnosis of most of the salivary gland tumours Along with clinical and radiological finding.

Keywords: FNAC, Salivary glands, Tumour, Technique, Diagnosis

1. Introduction

Salivary gland tumours shows a range of morphological as well as clinical diversity between different tumour types. IT constitutes about 2-6.5% of all head and neck neoplasm in adults and they present as enlarged masses which are usually accessible for FNAC [1-3] The diagnostic use of needle aspiration technique as a new instrument was first described in 1847 by Kun. Fine needle aspiration cytology (FNAC) was introduced in 1920's and soon it gained wide acceptance among clinicians due to ease of its performance and rapidity of diagnosis [4]. FNAC is now a widely used, safe and relatively nontraumatic procedure that can quickly provide important information. It can be performed at the time of initial consultation. FNAC is a simple, inexpensive, and atraumatic method for preoperative assessment of tumours, lymph nodes, and other lesions in the head and neck. It is a safe procedure requiring minimal equipment, with a very low risk of cancer cell implantation. To avoid incisional or needle biopsy techniques because complications likes fistula formation or of tumour implantation in case of neoplasm which are not occur with FNAC [5, 6]. FNAC can be used both as a diagnostic test and as a screening tool to triage patients into different treatment groups i.e. surgical or medical management Cytology can clearly distinguish between salivary and non salivary lesions, benign and malignant lesions, so also specific and non-specific inflammation. It helps in proper planning for proper management & avoiding unnecessary surgical implementation. The present study is a retrospective study to evaluate and analysed of various salivary gland malignancy by using FNAC.

2. Materials and methods

Present study was carried out in the Department of Pathology in a tertiary care hospital retrospectively during the period of Jan 2013 to June 2016. In the present study, 208 cases of various salivary glands lesions and swelling were included in which 138 were from male patients and 70 were from female pts. Age ranged from 11 years to 70 years. Cytological studies carry out by using FANC. Detailed history, clinical examination, and all routine investigations were taken placed in all patients.

The swelling was palpated and fixed with the thumb and the index finger of one hand. With taking aseptic precautions, a 10 cc syringe with a 22-25 gauge needle was introduced into the nodule.

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The material was aspirated and smeared onto clean glass slides. The air dried and ethanol fixed smears were stained with MGG stain (May Grunwald's Giemsa). In cases of fluid aspiration, slides were prepared from the centrifuged sediment. The stained cytological slides were studied, analysed and correlated.

3. Results

Total no of 208 salivary glands samples taken by FNAC were examined. Parotid was the most common involved gland. Results are divided in inflammatory, benign and malignant conditions. Most number of cases were seen in the parotid gland (69.2%), the sub-mandibular gland (25.9%), and the minor salivary glands were (4.8%) and (%) respectively. There were (42.3%) inflammatory lesions, (35.5%) benign and (22.1%) malignant lisions. Most common benign lesion were pleomorphic adenomas (PA), (30.7%) were Warthin's tumours (WT), mucoepidermoid carcinomas (MEC) (6.7%) were most common malignant tumours.

Table 1: Salivary gland involve

S. No	Salivary gland	Freq.	%
1.	Parotid gland	144	69.2
2.	Submandibular	54	25.9
3.	Other salivary gland	10	4.8

Table 2: Inflammatory conditions

S. No	Inflammatory cases	Freq.	%
1.	Abscess	6	2.8
2.	Cystic lesions	4	1.9
3.	Nonspecific inflammation	6	2.8
4.	Acute sialadinitis	24	11.5
5.	Chronic sialadinitis	48	23.0

Table 3: Benign tumour

S. No.	Name of tumour	Freq.	%
1.	Pleomorphic adenoma	64	30.7
2.	Wherthins tumour	10	4.8

Table 4: Malignant tumour

S. no.	Name of tumour	Freq.	%
1.	Mucoepidemoid carcinoma	14	6.7
2.	Adenocarcinoma	12	5.7
3.	Adenocystic carcinoma	4	1.9
4.	Sqamouscell carcinoma	8	3.8
5.	Malignant deposits	8	3.8

4. Discussion

In a study by Stewart CJ *et al* [7] 341 cases were done in which the aspirates were derived from parotid gland 212 cases, submandibular gland 124 cases, and minor salivary gland 5 cases. The major diagnostic categories were unsatisfactory 10 cases, normal 100 cases, sialadenitis 74 cases, cyst 34 cases, lipoma 5 cases, pleomorphic adenoma 55 cases, Warthin's tumor (36 cases), and malignancy (27 cases). The latter included 14 primary salivary neoplasms (4 lymphomas of mucosa-associated lymphoid tissue (MALT) type, 3 adenocarcinomas, 2 squamous carcinomas, 2 adenoid cystic carcinomas, and one case each of carcinoma ex pleomorphic adenoma, undifferentiated carcinoma, and high-grade mucoepidermoid carcinoma), and 13 metastases, 9 of which were derived from squamous carcinomas of head and neck origin.

In a study by Sunil Kumar Y *et al.* [8] 343 cases of salivary gland swellings were aspirated, out of which 120 were diagnosed as salivary gland tumours by FNAC. The number of cases which were seen in the parotid gland, the sub-mandibular gland and the minor salivary glands were 74(61.7%), 42(35%) and 4(3.33%) respectively. There were 102 (85%) benign and 18(15%) malignant tumours. The commonest gland which was involved was the parotid gland in both males i e., 44(59%) and females 30(41%). Out of the 120 cases, 88(73.33%) were pleomorphic adenomas (PA), 2 (1.7%) were Warthin's tumours (WT), 6(5%) were mucoepidermoid carcinomas (MEC), 2(1.7%) were acinic cell carcinomas, 4(3.33%) were carcinoma ex pleomorphic adenomas, 2(1.7%) were primary lymphomas of the parotid gland, 2(1.7%) were metastatic deposits, 8(6.7%) were benign parotid tumours, 4(3.33%) were cystic lesions and 2(1.7%) were malignant tumours. In another study by Khandekar M.M. *et al.* [9]. The parotid gland was most frequently involved (57.2% cases) There were 56 neoplastic lesions and 14 non neoplastic lesions. Of the 56 neoplastic lesions, 34 were benign and 22 were malignant. Pleomorphic adenoma was the most common benign neoplasm encountered. Mucoepidermoid carcinoma was the most frequent malignant neoplasm. Parotid gland was involved in 51.1%, submandibular gland in 37%, sublingual gland in 4.7%, and minor salivary glands in 7% of patients. There were 55.9% cases of non-neoplastic lesions and 44.1% cases of neoplastic lesions on biopsy in a study done by Singha Nanda *et al* [10].

5. Conclusion

Fine-needle aspiration cytology is found to be a good preliminary, sensitive and specific technique for the diagnosis of most of the salivary gland tumours. Along with clinical and radiological finding it gives useful information to clinician for planning management according to diagnosis. Multiple sampling also helps to avoid misinterpretation as does avoiding giving a type-specific diagnosis.

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