

FNAC of Oral Cavity and JAW Lesions: A Two Year Study.

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Research Article

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Abstract:

FNAC was done in 125 patients with oral cavity and jaw lesions during a period of 2 years from November 2002 to November 2004. Histological examination was done in 85 cases. Patients attended were of wide age range, i.e. 6 to 82 years, which includes 54 males and 31 females, with a M:F ratio of 1: 0.6. Histological diagnosis was grouped into 12 inflammatory lesions (14.1%), 33 benign lesions (38.9 %) and 40 malignant lesions (47%). There were a total of nine cases with inconsistent diagnosis. Squamous cell carcinoma constituted a highest number of 31 cases. The sensitivity and specificity of this study was 95 % and 100 %, respectively with an overall accuracy of 97.64 %. Biopsy sites included gingival (17 cases), tongue (16cases), palate (12 cases), mandible (11cases), maxilla (9 cases), buccal mucosa (9 cases), tonsil (6 cases), floor of the mouth (4 cases), retromolar area (1 case) and lip (1 case).

Key words: Biopsy, FNAC, Jaw Lesions, Oral Cavity.

Introduction:

Oral cavity and jaw lesions constitute a significant proportion of all the cases attending the clinicians and include a wide variety of lesions, of which malignant lesions comprise a high number of cases. Of particular

interest is the oral / oropharyngeal cancer which is an almost entirely preventable disease, being caused by tobacco use, either with or without alcohol. Within the oral cavity, there are about 450 minor salivary glands beneath the squamous mucosae of the lips, buccal or labial surfaces, palate and tongue [1,2]. There is perhaps no tissue anywhere in the body, like the salivary glands that is subject to a diverse and heterogeneous range of tumours and tumour-like conditions. Jaw lesions include the various odontogenic cysts and tumours that affect both the mandible and maxilla in different age groups [3].

Materials and Methods:

Over a 2 year period (November 2002 to November 2004), 125 FNACs of oral cavity and jaw lesions were performed at Department of Pathology, V.S.S.Medical college, Burla, Odisha. A detailed history of the cases and the relevant clinical examination was carried out in all the cases. X-ray of the patients was studied in cases of jaw lesions for the proper localization of the lesions. FNAC was done with 18 or 22G needle. Repeat aspirations were done in case of scanty aspirates. Smears were stained with MGG and Papanicolaou staining methods. Formalin-fixed and paraffin – embedded tissue sections were examined in cases where biopsy was available.



Figure 1: Radiograph of Ameloblastoma showing large unicystic swelling in the mandible, with thickening of its Margins.

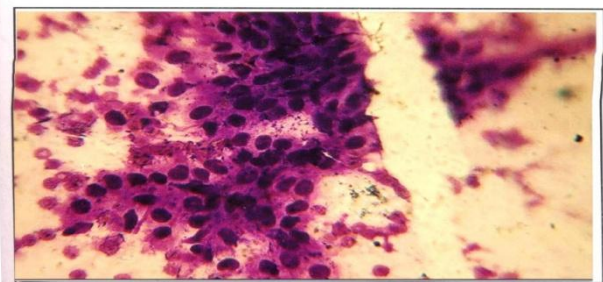


Figure 2 Aspirate cytospin of ameloblastoma showing sheets of cuboidal to columnar cells with moderate amount of cytoplasm and round to ovoid nuclei, with some degree of peripheral palisading (M.G.G x400).

Results & Observation:

Table 1: Age and sex distribution of patients with oral cavity and JAW lesions with cyto-histo correlation.

Age Group (Years)	Sex		No. of lesions	Benign	Malignant
	Male	Female			
0-10	3	2	5	3(3.5%)	2(2.3%)
11-20	4	5	9	7(8.2%)	2(2.3%)
21-30	5	6	11	9(10.5%)	2(2.3%)
31-40	13	5	18	11(12.9%)	7(8.2%)
41-50	10	6	16	5(5.8%)	11(12.9%)
51-60	10	5	15	6(7%)	9(10.5%)
61-70	5	2	7	3(3.5%)	4(4.7%)
71-80	3	-	3	-	3(3.5%)
81 and above	1	-	1	-	1(1.1%)
Total	54 (63.5%)	31 (36.4%)	85(100%)	44 (51.7%)	41 (48.2%)

Table 2 : Cytological- Histological Correlation pattern in oral cavity & Jaw Lesions

Lesions	Cyto-diagnosis	Histo-diagnosis	Inconsistent	Remarks
INFLAMMATORY				
Inflammatory cystic lesions	8	5	3	SCC(2) Hemangioma (1)
Chronic Nonspecific Inflammation	7	7	-	-
Sub total	15(100%)	12 (80%)	3(20%)	-
BENIGN				
Odontogenic Cysts	8	5	3	OAT(2) CEOT(1)
Ameloblastoma	4	3	1	OAT(1)
Squamous Cell Papilloma	4	3	1	Granular Cell Tumour (1)
Schwannoma	1	1	-	-
Hemangioma	4	3	1	Epithelioid Hemangio endothelioma
Mucocele	2	2	-	-
Pleomorphic Adenoma	4	4	-	-
Fibrous Hyperplasia	4	4	-	-
Hemangiopericytoma	1	1	-	-
Sub Total	32(100%)	26(81.2%)	6(18.7%)	-
MALIGNANT				
Squamous Cell Carcinoma	24	24	-	-
Adenoid Cystic Carcinoma	3	3	-	-
Mucoepidermoid Carcinoma	3	3	-	-
Non-Hodgkin's Lymphoma	2	2	-	-
Verrucous Carcinoma	2	2	-	-
Sub Total	34(100%)	34(100%)	-	-
Suspicious of Malignancy	4	4	-	-
TOTAL	85	76	9	-

There were a total of 85 cases for which cyto – histological correlation was studied (Table I & II). Seven aspirates were insufficient and unsuitable for study. A highest number of 17 lesions were present in gingival (20%), followed by 16 in tongue (18.8%), 12 in palate (14.1 %), etc. Cytological diagnosis resulted in 20 inflammatory lesions (16.9%), 40 benign lesions (33.8%), 46 malignant lesions (38.9%) and 12 cases (0.1%) were ‘suspicious of malignancy’. Subsequent histological diagnosis revealed 12 inflammatory lesions, 33 benign lesions and 40 malignant lesions. Squamous cell carcinoma (SCC) was the most common malignancy reported with 31 cases (77.5 %). Two cases of squamous cell carcinoma were diagnosed as Inflammatory cystic lesions in FNAC and 1 case of hemangioma was diagnosed as inflammatory cystic lesion in FNAC.

Among the benign lesions, 2 cases of Odontogenic adenomatoid tumour (OAT) and 1 case of Calcifying epithelial odontogenic tumour (CEOT) were diagnosed as Odontogenic cysts. One case of OAT was diagnosed as Ameloblastoma. One case of Granular cell tumour (GCT) of the tongue was diagnosed in FNAC as Squamous cell papilloma. One case of epithelioid hemangioendothelioma was diagnosed as hemangioma in FNAC. Forty patients with malignant lesions of oral cavity and jaw had cytologically 34 positive (unequivocally malignant) and 4 suspicious cases. Thus true positive results were obtained in 38 cases of malignancy, while 2 cases were false negative. Out of 45 benign oral cavity and jaw lesions, all were true negative (benign). Thus true negative results were obtained in 45 cases with no false positive results. The sensitivity is 95 % and the specificity is 100 %, and the overall accuracy is 97.64 %.

Discussion:

Among the inflammatory lesions, 12 of the 15 cytologically diagnosed cases were consistent with the histological findings. In two cases of histologically diagnosed SCC, FNAC yielded purulent aspirates and the smears consisted mostly of the inflammatory cells and few degenerated epithelial cells which prompted diagnosis of inflammatory cystic lesions. This is due to the fact that SCCs are often prone to cystic degeneration and the needle penetrated the cystic portion, skipping the malignant areas [4]. Hence the cystic lesions should be aspirated cautiously, considering the possibility of malignancy and care should be taken to aspirate from the cyst wall and the adjoining areas. A case of hemangioma was also diagnosed cytologically as ‘inflammatory cystic lesion’, because of the presence of inflammatory cells and cyst macrophages along with the blood cells [5,6]. Three cases of cytologically diagnosed ‘Odontogenic cysts’

were histologically found to be OAT in 2 cases and CEOT in one case.[10]. Of the four cytologically diagnosed Ameloblastoma cases, three were confirmed as such and one case came out to be OAT, which showed sheets of cuboidal to columnar cells with some degree of peripheral palisading in some clusters [7].

A case of Granular cell tumour of the tongue was diagnosed cytologically as squamous cell papilloma due to the presence of minute papillary structures, clinically and the presence of sheets of large number of mature benign squamous cells in the smears. Histological sections showed presence of diffuse sheets of large polyhedral cells containing abundant granular cytoplasm in the deeper portions and pseudo-epitheliomatous hyperplasia on the surface. There were no false positive diagnoses in the present study. SCC constituted the most common malignancy of the total of 38 malignant lesions encountered in the present study. Five cases of minor salivary gland malignancies, including three cases of adenoid cystic carcinoma and two cases of muco-epidermoid carcinoma were correctly diagnosed by FNAC[8,9]. One of the two cases of Non-hodgkin’s lymphoma, involving the maxilla, was diagnosed as Burkitt’s lymphoma due to the presence of atypical lymphoid cells with prominent nuclei, and a moderate amount of basophilic cytoplasm with small intra cytoplasmic vacuoles in many of the cells. Histological sections showed starry sky pattern and the monomorphic population of lymphoid cells. So the sensitivity of FNAC in the diagnosis of oral cavity and jaw lesions in the present study is 95 % with a specificity of 100 % and an overall accuracy of 97.6 %.

Conclusion:

FNAC can be widely used in the diagnosis of oral cavity and jaw lesions with proper knowledge of the cytological criteria employed to diagnose the wide variety of lesions, use of longer needles, by different approaches, multiple aspirations and proper radiological evaluation in the case of bony lesions. The main difficulty faced with the odontogenic lesions was “ cell – poor aspirates”, which can be improved by the use of appropriate needles and by proper aspiration methods and with increased experience in dealing with these lesions. The cystic lesions should be properly aspirated to rule out the possibility of malignant lesions, which are very common in the oral cavity. Keeping these facts in mind, FNAC of oral cavity and jaw lesions should be widely practiced for an early diagnosis and in differentiating the benign from the malignant lesions, to ensure an appropriate treatment modality for the patients. The evaluation of FNAC in the jaw bone lesions can be done better in a larger

series of study which also increases the experience of the cytopathologist in dealing with these lesions.

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