

# Study of Cytological Criteria for Diagnosis

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## ABSTRACT

In this paper, we studied about the cytological criteria for diagnosis of salivary glands.

Keywords : Salivary Glands, Aspiration Cytology, FNAC

## I. INTRODUCTION

Aspiration of normal gland yields scanty material, acinar cell with well-preserved acini, and in cohesive lobules. Serous acinar cell has abundant, bubbly cytoplasm and small central or slightly eccentric rounded dark nucleus with small nucleolus. Ductal cell is less in number appear small cohesive, flat sheet or tubules cells have denser squamoid cytoplasm, nucleus may be oval. Localized swelling of a salivary gland presenting as a mass may be caused by cyst, neoplasm, sialolithiasis, sialadenitis or systemic disease.

## II. MATERIALS AND METHODS

The materials for the present work comprise of smears prepared from aspiration of masses from salivary glands attending the outdoor as well as admitted indoor patients of various department of Patna Medical College and Hospital, Patna. The

clinical examination and investigation procedures were performed according to the performa available in the hospital.

## CYTOLOGICAL CRITERIA FOR DIAGNOSIS

Cytological criteria for diagnosis include:

- (1) Fibrillary chondromyxoid ground substance
- (2) Epithelial cells single and in loose sheets.
- (3) Small oval nuclei, bland nuclear chromatin well defined dense cytoplasm.
- (4) Spindle shaped mesenchymal cells seen mainly in matrix.

Epithelial cell is small uniform in size, round to oval eccentric nuclei. In Papanicolaou stain epithelial cell cytoplasm stain green or reddish brown and matrix grey to pink. In MGG stain stromal cells have grayish cytoplasm, myxomatous area red, cartilage stain purple, epithelial cytoplasm is pale blue. In case of doubt immunoperoxidase staining for intermediate

filaments may be helpful for differentiation. A dirty back ground of mucous debris cohesive clumps and sheet of cell, together with small streams of cell within mucous variation in cell type intermediate, squamous, mucin secreting cells. Most are with abundant cytoplasm. These criteria are for low grade tumour, high grade tumour are easily recognized as malignant but are difficult to type. A definite diagnosis requires coexistence in smear of cell showing squamous differentiation and mucin secreting cells.

### CYTOLOGY REVEALS

The aspirate of mucoid, murky fluid, back ground of amorphous and granular debris, oncocytes cell in cohesive, monolayered sheets, many lymphoid cells. Oncocytes with PAP stain shows dense cytoplasm organophilic and granulated. In MGG it is dense grey blue and homogenous.

A review of cytological slides and report from 52 histopathologically confirmed adenolymphomas at **Radium hemmet** showed. 1 case- no aspiration, 49 cases aspirates had cystic fluid mixed with amorphous material. In 7 cases lymphocytes and/ or amorphous material. 42 cases remaining showed oncocytes together with sometimes amorphous substance lymphocytes and/or cystic fluid; 2 were misdiagnosed as mucoepidermoid carcinoma derivation of squamous cell from oncocytes has been described by **Hamperl (1926)**. Cohesive, multilayered clumps of oncocytic cells with small regular, nuclei, with absence of fluid, debris and lymphoid cells. Oncocytes may be cystic and their relationship to adenolymphomas is uncertain. Malignant oncocyte tumours have been described.

Highly cellular smear in a clear background cell is in cohesive clusters cells resemble normal serous cell i.e. with dense granular (oncocytic like) cytoplasm or finely vacuolated clear cytoplasm. Nuclei are mildly pleomorphic medium sized; some nuclei are bare

lymphocyte like. Some cells are arranged around centre vascular core. In the study carried out at **Radiumhemmet 34** smears revealed acinic cell tumour, 26 of which has cell of acinic appearance without nuclear polymorphism or atypia. 4 smears showed oncocyte like cells, 8 of 34 smear showed nuclear polymorphism, hyper chromaticity and contained large nucleoli, 3 to 8 tumour cells had foamy cytoplasm. All acinic cell tumours are considered malignant despite the benign appearing cells as they tend to metastasize.

### III. RESULTS AND DISCUSSION

The primary purpose of FNAC is to procedure the clinicians with a reliable, rapid and inexpensive method of diagnosis of lesion observed on physical examination. The result of FNAC must be rendered in terms of surgical pathology provide a clear and concise diagnosis that will guide the clinicians in selecting optimal therapy. The interpretation of cytology sample obtained by FNAC varies greatly according to the target organ. Cell changes that may be of diagnostic significance in one anatomic setting may be unimportant in another. A thorough knowledge of clinical history and of the spectrum of pathology changes are essential pre-requisites for a successful application of this methods of diagnosis in clinical practice. Translating cytologic into histologic patterns of diseases mainly tumours is important in all areas of cytology. The pathologist is expected to render a definitive diagnosis, based on a combination of the clinical and X-ray presentation and the cell samples. The task is not easy. There are several fundamental difference between cytology and histologic diagnosis. Histologic material represents a two-dimensional cross section of a tissue or organ, where in the relationship of a tissue component to one another is easily recognized. The aspirated materials consist of whole cells and tissues fragments, not cut by knife, but usually in a state of disarray,

here the relationship of tissue components to one another is jumbled.

The sensitivity of cytological diagnosis in this series

$$\text{Sensitivity} = \frac{\text{True} + \text{ve}}{\text{True} + \text{ve} + \text{false} - \text{ve}} = \frac{55}{55 + 5} = \frac{55}{60} = 91.67\% \quad \text{Was } 91.67\%.$$

And specificity

$$\text{Specificity} = \frac{\text{True} - \text{ve}}{\text{True} - \text{ve} + \text{False} + \text{ve}} = \frac{5}{5 + 0} = \frac{5}{5} = 100\% \quad \text{Was } 100\%.$$

**Table 1 :** Fine needle aspiration cytology : diagnostic yields

	TOTAL NO.	PERCENTAGE
TOTAL NUMBER OF THE PATIENT	95	100%
TOTAL CYTOLOGICAL ASPIRATION	95	100%
NON-NEOPLASTIC	25	26.32%
NEOPLASTIC	65	68.42%
INCONCLUSIVE	5	5.26%
DIAGNOSTIC YIELDS	90	94.74%

Of the 95 cases of salivary gland masses presenting 25 cases of non-neoplastic (26.32%) and 65 cases (68.42%) of neoplastic and 5 cases of not aspirate that inconclusive. So, the diagnostic yields material of FNAC is 90 (94.74%). All the 95 cases were of origin salivary glands. 61 cases were of parotid origin and 34 cases origin from others.

**Table 2 :** Table showing cytological sub-classification of salivary gland tumours presenting as masses

TYPES OF LESION	TOTAL NUMBER	PERCENTAGE
ADENITIS	15	15.79%
ADENOMA	65	68.42%
MALIGNANCY	00	0.00%
BENIGN ASPIRATE (NORMAL)	10	10.53%
INCONCLUSIVE	5	5.26%
TOTAL	95	100%

Of the 95 cases of salivary gland masses the cyto-diagnosis report shows 15 cases (15.79%) to adenitis. There were 65 cases (68.42%) of adenoma, 10 cases (10.53%) of benign aspirate (normal) and zero case of malignancy and 5 cases (5.26%) of inconclusive.

#### IV. CONCLUSION

The sensitivity of cytological diagnosis in the present series is comparable to those of other worker. But the specificity is close to the other worker. This is due to true negative case is very low. **Ziajicek et al. (1975)** attributed the following factor to the responsible for the failure to recognize of obtained adequate aspiration for diagnosis of smears.

**Size of Lesion :** The smaller the size of lesion the grater is the chance of missing it in aspiration. Thus, the rate of false negative diagnosis of small tumour size is higher.

**Lock of cytological abnormality:** As in well differentiated carcinoma.

**Fibrotic or inflammatory :** There is failure of aspirate to yield adequate cellular element in sclerotic or massive cancer or cancer associated with oedema and also in inflammatory condition.

The accuracy of cytological diagnosis in the present study was comparable with other workers. **Zajicek et al. (1970)** emphasized the importance of experience of the cytologist in reading the smear as an important factor in determining the diagnostic accuracy of this technique. This was evident from the increased diagnostic accuracy of 88.1% compared to their earlier analysed result (**Franzen & Zajicek, 1968**) with an accuracy of 80.1%. This is also evident from the increased diagnostic accuracy reported by **Southam JC** of 79% to 93% after 2 years of experience.

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