



## DIAGNOSTIC USEFULNESS OF CELL BLOCK STUDY VERSUS CONVENTIONAL CYTOLOGY IN BODY FLUIDS.

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### ABSTRACT

**Background**-Diagnostic Cytology is a useful and important method. When it is used with cell block study helps to approach a definite diagnosis. Outcome of therapy and prognosis can be followed.

**AIMS**:- To access and compare finding of conventional smear and cell block method in body cavity effusion.

**Material and Methods**:- The study was conducted in RIMS, Ranchi. Total 132 samples from Nov. 17 to Jan 19 were analysed. Cytology staining was done by pap and giemsa method and cell block by routine histological method.

**Result**:- More patients were from 25-55 age group out of 132 cases. 119 were benign and 13 were malignant.

**Conclusion**:- Study of conventional smear with cell block is necessary for definite diagnosis of a case of body cavity effusion.

### KEYWORDS :

### INTRODUCTION :-

Diagnostic cytology is a common, useful and cost effective procedure in which interpretation of cells is done those are exfoliated from the epithelial surface. Cell block study is an older procedure for interpretation of serous effusion<sup>[1]</sup>. Conventional cytological smear has low sensitivity because of overcrowding of cells and cell loss<sup>[2]</sup>. There is preservation of tissue architecture in cell block technique and also special stains and immunohistochemistry study can be done on multiple sections<sup>[3]</sup>. Pathologists have an important role in distinguishing benign from malignant lesions in serous effusion<sup>[4]</sup>. Outcome of therapy and prognosis can be followed on microscopic examination of fluid collected from serous effusion<sup>[5]</sup>. From cell block technique and fluid cytology malignancy can be diagnosed. Differentiating between benign reactive mesothelial cells is a common diagnostic problem<sup>[6]</sup>. The purpose of this study was to access and compare findings of conventional smear and cell block method in different body cavity effusions.

### MATERIAL AND METHODS:-

This was a retrospective study conducted at Rajendra Institute of Medical Sciences from Nov. 17 to Jan 19. A total 132 samples of body fluid (pleural and ascitic) from patients admitted to surgery, medicine, TB and chest and other department were collected. It was divided in two parts and was sent for convention cytology smear and cell block study.

For cytology smear preparation, one part of fluid was centrifuged at 1500 rpm for 15 minutes. For pap stain slides were fixed in alcohol where air dried for giemsa stain. Another part of fluid was fixed in 1:1 solution of 10% formalin for one hour. Further centrifugation was done at 2500 rpm for 10-15 minutes and processing was done as routinely in histopathology laboratory.

More study was done on fluid by analysing clinical data, various investigation reports and morphological details. The samples were categorized as benign, suspicious for malignancy and malignant lesions. Various cellular and nuclear details with arrangement of cells were taken into account. A comparative study of cytological smear and cell block technique was done.

### Results:-

**Table – 1 [Age wise distribution]**

Age	Number of cases
<25	21(15.90%)
25-40	40 (30.30%)
40-55	36(27.27%)

55-70	27 (20.45%)
>70	8(6.06%)
Total:	132 (100%)

**Table – 2: Comparison of Cytology on conventional smear and cell block preparation.**

Conventional Smear	Cell Block	
	Benign(%)	Malignant(%)
Benign	109(82.57%)	4(3.03%)
Suspicious	4(3.03%)	4 (3.03%)
Malignant	6 (4.54%)	5 (3.79%)
Total	119 (90.15%)	13 (9.85%)

**Table – 3. Comparison of Cytological diagnosis with clinico-radiological and histological diagnosis.**

	Clinico-radiologically/histologically benign	Histologically malignant
Conventional Smear		
Benign	109 (82.57%)	4 (3.03%)
Malignant	10 (7.58%)	9(6.82%)
Total	119(90.15%)	13 (9.85%)
Cell block:		
Benign	118 (89.39%)	1(0.76%)
Malignant	1(0.76%)	12 (9.09%)
Total:	119 (90.15%)	13 (9.85%)

Most common cause of benign/reactive effusion was tuberculosis. Other causes were infections, trauma, renal and liver diseases. Table 2 shows comparison of cytological diagnosis on Conventional smear and Cell block study. Table 3, shows comparison of cytological study with clinico-radiological and histological diagnosis. The malignant effusion were more common in female than males. From total 13 cases of malignant pleural effusion. 4 cases from lung, 3 from GIT and 2 from breast.

### DISCUSSION:-

Cytological study of body fluid is a definite test. It is useful in malignant lesion study and also predicts staging and prognosis<sup>[7]</sup>. In our study most cases are from 25-40 years of age, this contrasts with finding by Bansode et al<sup>[8]</sup> and Padmavati et al<sup>[9]</sup> who have reported most cases in age group between 41-60 years. In study by sears and Hajdu<sup>[10]</sup> most common primary neoplasm causing pleural effusion was carcinoma breast in contrast to our study as commonest cause being lung.

Reactive mesothelial cells can mimic adenocarcinoma, but proper study can show their benign nature<sup>[11]</sup>.

There was not any case of mesothelioma in our study whereas study by Thapar M et al showed 2 cases of mesothelioma<sup>[4]</sup>.

#### CONCLUSION:-

The cell block preparation is a simple, valuable and sensitive method for study of body fluid. Interpretation of conventional study and cell block preparation is necessary for definite diagnosis. Further study like immunohistochemistry can be done on cell block to obtain a proper opinion.

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