ORIGINAL RESEARCH PAPER
Volume-9 | Issue-3 | March-2020 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CYTOPATHOLOGICAL SPECTRUM OF BODY FLUIDS IN A TERTIARY CARE HOSPITAL

Pathology

Anu Gupta Lecturer, Department Of Pathology, Govt. Medical College, Jammu

Rajat Gupta* Lecturer, Department Of Pathology, Govt. Medical College, Jammu *Corresponding Author

Sachin Gupta Resident, Department Of Community Medicine, MMDU, Haryana

ABSTRACT

INTRODUCTION: Serous effusions are frequently encountered clinical manifestation of the underlying disease process and their cytological examination is a cheap rapid and highly informative laboratory procedure

MATERIAL & METHODS: A total of 83 different body fluids aspirated were evaluated in the cytology section of the department of pathology Government Medical College Jammu from Dec 2018 to Jan 2020.

RESULTS: Peritoneal fluid was most common aspirated fluid 53.01% followed by pleural fluid 33.73% with a M:F ratio of 1.8:1. Maximum cases belong to the age group of 30-40 years. Out of 83 total fluids aspirated 69 (83.13%) were benign and 14 (16.87%) were malignant. Among the malignant effusions 8 (57.14%) were Adenocarcinoma followed by 2 cases (14.29%) each of squamous cell carcinoma and Non Hodgkin's Lymphoma and 1 case (7.14%) each of Small Cell Carcinoma and Acute Lymphoblastic Leukemia.

CONCLUSION: Cytologic evaluation of serous fluids is a simple and useful procedure in making diagnosis and understanding the course of disease.

KEYWORDS

Effusions, Body Fluids, Adenocarcinoma, Peritoneal

INTRODUCTION:

The appearance of effusion in the serosal cavity is a frequent event in the clinical setting of disease , affecting pleural, peritoneal and less often the pericardial space. The history of serous effusion cytology can be traced back to the 19th century when Lucke and Kiebs recognized the presence of malignant cells in ascitic fluid. However the first authenticated description of cancer cells in pleural and peritoneal fluids appeared in 1882 when Quincke published a detail description of ovarian and lung cancer cells in serous effusion[1]. Cytological examination of body fluids is one of the most informative laboratory procedure in making

diagnosis regarding etiology, understanding course of disease, staging the malignant tumours and gives a fair insight regarding various inflammatory lesions of the serous membranes, adjacent viscera and infection with bacteria fungi etc[2,3]. In recent years serous effusion cytology is a routine diagnostic procedure worldwide and with the availability of several commercially available antibodies, diagnosis and typing of malignant cells in serous fluid has become more reliable.

MATERIAL AND METHOD

A retrospective analysis of different body fluids submitted to the cytology section of pathology department of GMC Jammu from Dec 2018 to Jan 2020 was performed.Relevent information regarding age, sex and clinical details were retrieved.Smears were prepared using the sediment by routine centrifugation at 2000-3000 rpm for 5 minutes followed by staining with Giemsa and Papanicolaou. Ziehl Neelson staining was done in some of the suspected cases of tuberculosis.

RESULTS

Table 1: Genderwise distribution of cases as per Fluid type.

Fluid	Males	Females	Total	Percentage (%)
Peritoneal	30	14	44	53.01
Pleural	16	12	28	33.73
Synovial	04	02	06	7.22
Cerebro Spinal Fluid (CSF)	03	01	04	4.81
Pericardial	01	0	01	1.23
Total	54	29	83	100

Table 2: Distribution of cases according to Age

Age Group (in years)	No. of Cases
0-10	3
11-20	10
21-30	15
31-40	25
41-50	15
51-60	06
61-70	04
>70	05
Total	83

Table 3: Distribution of Benign and Malignant effusions

Effusion	No. of Cases	Percentage (%)
Benign	69	83.13
Malignant	14	16.87
Total	83	100

Table 4: Distribution of Malignant effusions

Malignancy	No. of Cases (n=14)	Percentage (%)
Adenocarcinoma	08	57.14
Squamous Cell Carcinoma	02	14.29
Non-Hodgkins Lymphoma	02	14.29
Small Cell Carcinoma	01	7.14
Acute Lymphoblastic Leukemia	01	7.14
Total	14	100

Table 5: Distribution of Benign effusions

Cause of Benign effusion	No. of Cases	Percentage (%)
Idiopathic	04	5.79
Synovitis	06	8.69
Pancreatitis	08	11.59
Liver Cirrhosis	08	11.59
Pneumonia	10	14.49
Tuberculosis with AFB +ve	05	7.24
Bacterial Peritonitis	08	11.59
Empyema	08	11.59
Hepatitis	08	11.59
Meningitis	03	4.34
Pericardial Effusion	01	1.44
Total	69	100

DISCUSSION

The cytological examination of serous effusions is widely recognized and well documented. Out of 83 cases studied, the maximum were peritoneal followed by pleural effusions. Males outnumber the females

with a M:F ratio of 1.8:1. Maximum number of cases were seen in the age group of 31-40 years. Similar findings were observed by Nathan NA[4] and Joshi A[5]. Benign effusions were 83.13% and malignant 16.87%. This correlated with the study of Kumavat PV[3]. In the present study out of 83 effusions ,44(53.01%) were peritoneal, 28 (33.73%) were pleural followed by Synovial, Cerebro Spinal Fluid and Pericardial.This was similar to findings of Pradhan SB[6]. Benign effusions in our study predominantly showed lymphocytes and demonstrated reactive changes in mesothelial cells which corrobrated with findings of Gieisinger KR[7] and Naylor B[8]. Some cases of benign effusions also showed sheets of viable and degenerated polymorphs along with cystic macrophages, showing the purulent nature of the effusion. All such cases were stained with Ziehl Neelson stain to exclude tuberculosis as the cause. Categorizing the benign effusions provides only a general guidelines for possible underlying etiology[3]. There were 14 cases of malignant effusions in our study and Adenocarcinoma was the commonest. This was similar to findings of Sears D[9] and Jha R[10]. 5 cases of Adenocarcinoma were positive in peritoneal fluid and 4 cases in pleural fluid. Microscopically they showed cells arranged in clusters and individually scattered with abundant cytoplasm and at places showing prominent nucleoli. Some cases showed signet ring cells also thus demonstrating mucinous nature and giving a hint of possible colonic or ovarian origin of the tumor.

2 cases of Non Hodgkin's Lymphoma diagnosed were seen in pleural fluid. Pleural effusion is a relatively common finding in patients of Non hodgkin's Lymphoma with a frequency of upto 20%[11]. The cases of Squamous cell carcinoma and a single case of small cell carcinoma had primaries in the lung similar to the findings of Awasthi A[12]. A single case of Acute Lymphoblastic Leukemia (ALL) was seen positive in cerebrospinal fluid. This was a case of 5 years old child already diagnosed as a case of ALL.

CONCLUSION

Exfoliative cytology of body fluids should be advised in all cases of serous effusions to reach at a particular provisional or accurate diagnosis which helps in further management thus reducing the morbidity and mortality due to the disease process.

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