



DIAGNOSTIC UTILITY OF CYTOLOGICAL EVALUATION OF BODY FLUIDS

Pathology

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ABSTRACT

BACKGROUND: The evaluation and analysis of body fluids form an important diagnostic, prognostic and therapeutic aspect of various pathological processes.

MATERIAL AND METHODS: The present study included 250 cases of body fluids and smears were stained with Giemsa and Papanicolaou (PAP) stains. Improved Neubauer counting chamber was used for cell counting.

RESULTS: Out of total 250 cases, 114 were pleural fluid, 84 were peritoneal fluid, 32 were of cerebrospinal fluid and 20 were of synovial fluid. The age varied from 7-90 years with Male to female ratio of 1.9:1. 139 cases were of exudates and 111 were transudates. 226 cases were benign, 14 cases were malignant whereas 10 cases were suspicious of malignancy.

CONCLUSION: Cytological evaluation of body fluids is a relatively simple, safe, rapid, minimal invasive and inexpensive procedure that helps in rapid diagnosis and therefore early management of the patient.

KEYWORDS

INTRODUCTION

The evaluation of body fluids is an important diagnostic tool. The cytological interpretation of individual cells that are exfoliated into these fluids is of paramount importance since they provide an insight into the diagnostic, prognostic and therapeutic aspect of various pathological processes in the body.¹ Peritoneal, pleural, cerebrospinal fluid (CSF), pericardial and synovial fluid are the main body fluids that are normally present in their respective body cavities in small quantities. These fluids during the disease process undergo abnormal and disproportionate qualitative and quantitative changes.^{2,3}

Both neoplastic and non neoplastic fluids can be examined by the cytological examination of the fluids. In addition, many other conditions such as inflammatory diseases, parasitic infestations, bacteria, fungi and viruses can also be identified.⁴

MATERIAL AND METHODS

The present study was conducted in the Post Graduate Department of Pathology, ASCOMS & Hospital. A total of 250 cases of aspirated fluids were studied. Clinical history and other relevant investigations were noted and correlated accordingly.

The fluid samples received were centrifuged at 2000 revolutions/minute for 10 minutes. The supernatant was discarded. A drop of sediment was transferred to a clean glass slide and mixed with a drop of 1% toluidine blue and then mounted with cover slip. Both air dried and wet smears were made from the remaining sediment and stained by Giemsa and Papanicolaou (PAP) stain respectively. Cell counting was done by improved Neubauer counting chamber.

RESULTS

In the present study, majority of the cases were seen in males (n=163) whereas 87 cases were seen in females (Table 1). The age varies from 7 to 90 years with majority of the cases in the age group of 51-60 years and least in the age of ≤10 years (Table 1).

Out of total 250 cases, 114 were pleural fluid, 84 were of peritoneal fluid, 32 were of CSF and 20 were of synovial fluid (Table 2).

Majority of the cases (n=139) were exudative whereas 111 cases were transudative in nature (Table 2).

Cytological findings showed that 226 cases were benign, 14 cases were malignant whereas 10 cases were suspicious of malignancy (Table 3s).

DISCUSSION

In the present study, majority of the cases were of pleural fluid followed by peritoneal fluid. The findings were similar with the study by Kumavat et al and Hathila et al.^{5,6}

In our study, majority of the cases were seen in males. These findings were similar to the other studies.^{2,6,7} In the present study, majority of the cases were in the age group of 51-60 years. The results were consistent with the study by Joshi et al and Poorana.^{1,8}

The present study showed that majority of the fluid specimen were exudative in nature. The findings were similar to the studies by other authors.^{5,7}

In the present study, majority of the cases were benign followed by malignant cases. The results were in accordance with the study by Hathila et al and Khatib et al.^{6,9}

CONCLUSION

Cytological examination of body fluids remains an important diagnostic tool. It is rapid, simple, cost effective, simple procedure to reach a definitive diagnosis.

TABLE 1: Basic demographics

Age (in years)	Males	Females	Total
0-10	3	1	4
11-20	20	2	22
21-30	25	20	45
31-40	12	30	42
41-50	28	10	38
51-60	32	15	47
61-70	17	3	20
71-80	18	4	22
>80	8	2	10
Total	163	87	250

Table 2: Depicting the number of specimen and type of fluid based on biochemical properties

Type of specimen	No. of cases	Transudate	Exudates
Pleural	114	42	72
Peritoneal	84	51	33
CSF	32	15	12
Synovial	20	3	22
Total	250	111	139

Table 3: Diagnosis of body fluids

Specimen	Benign	Suspicious of malignancy	Malignant	Total
Pleural	107	4	3	114
Peritoneal	67	6	11	84
CSF	32	0	0	32
Synovial	20	0	0	20
Total	226	10	14	250

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