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Original Research Article

To study the clinical profile of patients with pleural effusion.

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Abstract:
Background & Method: The aim of the study is to study the clinical profile of patients with pleural effusion. In this study, a total of 100 patients admitted to GRMC/JAH Tertiary care Centre, with varied admitting diagnosis whose length of stay exceeded over 24hrs and satisfying the inclusion criteria and had pleural effusions at the time of diagnosis or those developing during the hospital stay were evaluated prospectively.
Result: maximum cases (66%) presented with exudative type of pleural effusion. Of these 43 cases (65.15%) had tuberculosis, 5 cases (7.5%) had malignancy 4 cases (6.06%) had pneumonia. 34% cases presented with transudative type of pleural effusion. Of these 10 cases (29.41%) had hepatic involvement, 8 cases (23.52%) had CCF. Type of fluid show a correlation with etiology of the effusion. Exudative pleural effusion is most common in tuberculosis43/45(95.5%) while Transudative pleural effusion is most common in liver cirrhosis. The p value is <0.00001 thus, Statistically result is significant at $p<0.05$.
Conclusion: Most cases are in 21-60yrs age group. Most common presenting complaints are fever and breathlessness. Out of 100 cases, 70 male and 30 female patients have pleural effusion. Most common presentation in all 100 cases are right sided and small pleural effusion. Most of the effusions resolve with treatment of the underlying cause. Determining the aetiological and clinical pattern of pleural effusion helps in adoption of regionally optimized diagnostic and therapeutic attitudes. The commonest etiology of pleural effusion in patients is Tuberculosis followed by hepatic diseases and CCF.

Keywords: tuberculosis, cirrhosis, clinical & pleural effusion.

Study Designed: Observational Study.

1. Introduction

A pleural effusion is an abnormal collection of fluid in the pleural space resulting from excess fluid production or decreased absorption or both. It reflects an abnormal pathophysiological state resulting from disequilibria between pleural fluid formation and removal. It is the most common manifestation of pleural disease, with etiologies ranging from

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cardiopulmonary disorders to symptomatic inflammatory or malignant diseases requiring urgent evaluation and treatment.[1]

Pleural effusion is a common finding among patients presenting with cardiopulmonary symptoms. A systemic approach to the investigations is needed because of the extensive differential diagnosis. Pleural effusions can be transudative or exudative.[2] In cases with transudative pleural effusion the diagnosis is usually made without much difficulties but exudative pleural effusion requires careful differential diagnosis that includes parapneumonic effusion, tuberculosis, and metastatic cancers which are found to be the cases in large number of patients.[3,4] Pleural cavity is a potential space lined by mesothelium containing about 0.1-0.2ml/kg of clear colourless fluid which is an ultrafiltrate derived from the capillaries of the parietal pleura. Pleural fluid is produced continuously at a rate depending on the capillary hydrostatic pressure,plasma oncotic pressure and capillary permeability. It is reabsorbed through the lymphatic and venules of visceral pleura. Pleural fluid has a specific gravity of 1.010-1.026,pH of 6.8-7.6,protein of 1.5g/dL with an albumin 50-70% and globulin of 30-45%.

Although most patients are admitted to the medical hospital for condition other than pleural disease, the pleura are often seconrarily affected by pulmonary parenchymal disorders and dysfunction of other organ systems.

2. Material & Method

In this study, a total of 100 patients admitted to GRMC/JAH Tertiary care Centre, with varied admitting diagnosis whose length of stay exceeded over 24hrs and satisfying the inclusion criteria and had pleural effusions at the time of diagnosis or those developing during the hospital stay were evaluated prospectively.

Inclusion criteria:

- All 100 patients (> 14 years of age) with clinically or radiologically documented pleural effusion were included in present study.

Exclusion criteria:

- Patients with hydropneumothorax and Trauma chest will be excluded
- Past history of thoracocentesis

The demographic data collected included age, sex, address. A detailed historical account was obtained with emphasis on chief complaint, history of presenting illness, significant past history including the drug history. A through physical examination was done. Investigations like complete heamogram, random blood sugar; renal function tests, serum albumin, chest-x-ray, and pleural fluid analysis were carried out in all the cases. Investigations like ultrasonogram of the chest and abdomen, echocardiogram, upper gastrointestinal tract endoscopy, blood culture, FNAC and CT Scan of chest and abdomen of the lung were carried out as optional investigations when relevant to supplement the diagnosis.

3. Results

Table 1: Distribution of study population according to age

Age (in yrs)	No. of cases	Percentage
< 21	10	10
21-30	26	26

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31-40	20	20
41-50	13	13
51-60	13	13
61-70	9	9
71-80	5	5
≥ 81	4	4
Total	**100**	**100**

According to age, mean age was 38.10 years.Maximum no of cases was presented in 21-60 year of age because people are exposed to occupation hazards,smoking and infections, as the person is physically active. In the age group 21-60 years, 72% of cases falls in adult working group.we have cover all the adult reporting in our department.

Table 2: Distribution of study population according to symptoms

Symptoms	**No. of cases**	**Percentage**
Fever	53	53
Cough	31	31
Chest pain	22	22
Breathlessness	45	45
Loss of appetite and weight	6	6
Swelling of legs, face, and abdomen	13	13
Jaundice	11	11
Abdominal pain	24	24
Other to be specified	22	22

According to symptoms, fever (53%) and breathlessness(45%) was most common symptoms followed by, cough, chest pain and abdominal pain. As fever is the first inflammatory response by the body, it is always a predominant sign followed by, breathlessness which is a sign of respiratory pathology.

Table 3: Distribution of study population according to size of pleural effusion

Size of pleural effusion	**No. of cases**	**Percentage**
Small	63	63
Moderate	27	27

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Large	10	10
Total	**100**	**100**

In present study 63% had small size pleural effusion followed by 27% of cases had moderate side pleural effusion followed by 10% cases of large pleural effusion.

Table 4: Distribution of study population according to type and etiology of pleural effusion

Etiology of pleural effusion		**Transu-dative**	**%**	**Exu-dative**	**%**
TB	45	2	4.4%	43	95.5%
Hepatic	13	10	76.9%	3	23.1%
CCF	11	8	72.7%	3	27.3%
Acute febrile illness	9	6	66.6%	3	33.4%
Malignancy	6	1	16.7%	5	83.3%
Hypoalbuminemia	5	3	60%	2	40%
Renal	5	2	40%	3	60%
Pneumonia	4	0	0	4	100%
Pancreatitis	1	1	100%	0	0
ARDS	1	0	0	1	100%
Total	100	34		66	

In present study maximum cases (66%) presented with exudative type of pleural effusion. Of these 43 cases (65.15%) had tuberculosis, 5 cases (7.5%) had malignancy 4 cases (6.06%) had pneumonia.

34% cases presented with transudative type of pleural effusion. Of these 10 cases (29.41%) had hepatic involvement, 8 cases (23.52%) had CCF.

Type of fluid show a correlation with etiology of the effusion. Exudative pleural effusion is most common in tuberculosis43/45(95.5%) while Transudative pleural effusion is

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most common in liver cirrhosis. The p value is <0.00001 thus, Statistically result is significant at p<0.05.

4. Discussion

In the present study, the mean age was 38.10± 16.21.The maximum number of cases 26 % were in the age group 21-30 year followed by 20 % cases were in the age group 31-40 years followed by 13 % cases each for age group 41-50 and 51-60 age group .so in total maximum number of cases 72 % were in the age group of 21-60 years[7].

Mekonnen Desalew et al,2002 The mean age was 37.0 ± 15.69 .The maximum number of cases 55 % were in the age group of 21-60 years.

A.M.Abu Mossallam et al The mean age was 37.5 ± 15.25 .The maximum number of cases 62 % were in the age group of 21-60 years.

P P Prabhudesai1993 et al The mean age was 40.25 ± 19.81. maximum number of cases % were in the age group of 21-60 years.

In present study Maximum number of cases 45 % had pulmonary tuberculosis followed by 13 % of the cases were hepatic in etiology followed by 11 % cases had ccf .

In pulmonary tb patients out 45 cases 21 cases had right sided pleural effusion where as in ccf cases out of 11 cases 9 developed bilateral pleural effusion .

Luis Valdes et al., at a university hospital in Spain, they studied 642 Patients with pleural effusion revealed that the most frequent cause of the effusion was tuberculosis (25%), followed by neoplasia (22.9%), and congestive cardiac failure (17.9%).86% of these affected right side[8].

Lalaiane and his associates had studied 100 consecutive patients, admitted to the MICU at a tertiary care center in South Carolina and found that 92% of the pleural effusions were small. Bilateral effusions were commonest[9]. The most frequent cause of the effusion was heart failure in about 35% of the cases, followed by atelectasis and uncomplicated parapneumonic effusion. All patients were assessed radiographically and only 21% of the patients with documented pleural effusions had pleural fluid analysis.[10]

5. Conclusion

Most cases are in 21-60yrs age group. Most common presenting complaints are fever and breathlessness. Out of 100 cases, 70 male and 30 female patients have pleural effusion. Most common presentation in all 100 cases are right sided and small pleural effusion. Most of the effusions resolve with treatment of the underlying cause. Determining the aetiological and clinical pattern of pleural effusion helps in adoption of regionally optimized diagnostic and therapeutic attitudes. The commonest etiology of pleural effusion in patients is Tuberculosis followed by hepatic diseases and CCF.

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