IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 24, Issue 4 Ser. 3 (April. 2025), PP 29-30
www.iosrjournals.org

Etiology And Clinical Profile Of Pleural Effusion At MIMS, Nellimarla, Vizianagaram

Dr. Vijayapriya Yenugupalli[1], Dr. G. Ram Kumar Gupta[2],
Dr. Dhanekula Gouri[3], Dr. A. Ayyappa[4]
Department Of Pulmonary Medicine, Maharajah's Institute Of Medical Sciences, Nellimarla, India

Abstract
Background: *Pleural effusion is a common clinical presentation with varied etiologies including tuberculosis, malignancy, heart failure, and infections. This study aims to determine the clinical profile and causes of pleural effusion in patients attending MIMS, Nellimarla.*
Methods: *A prospective observational study was conducted over 18 months including 50 patients with confirmed pleural effusion. Detailed clinical assessment, pleural fluid analysis, radiological imaging, and echocardiography were performed. Data were analyzed using SPSS v25.0.*
Results: *The majority of cases were aged 51–65 years (36%) and male (56%). Most patients were from rural backgrounds (60%). Dyspnea (82%) and cough (76%) were the most common presenting symptoms. Exudative effusions constituted 72%, with tuberculosis (32%) being the leading cause, followed by malignancy (26%) and CCF (24%). Significant associations were noted between CT findings and underlying etiology ($p<0.05$).*
Conclusion: *Tuberculosis remains the leading cause of pleural effusion in this region. Integrated diagnostic approaches including fluid analysis, imaging, and ADA testing are crucial for accurate diagnosis and management.*

Date of Submission: 08-04-2025 Date of Acceptance: 18-04-2025

I. Introduction

Pleural effusion refers to the abnormal accumulation of fluid within the pleural cavity, affecting respiratory function. The condition reflects an underlying pathology and can be broadly categorized into transudative and exudative effusions, determined through Light's criteria and biochemical testing[1,2]. In India, tuberculosis is a predominant cause of exudative effusions, contrasting with malignancy and heart failure in Western countries[3,4]. Accurate etiological diagnosis is vital for tailored therapy and prognosis.

This study evaluates the clinical and etiological spectrum of pleural effusions in patients presenting to MIMS, Nellimarla, Vizianagaram.

II. Aims And Objectives

- To determine the etiology of pleural effusion in patients attending MIMS.
- To study the clinical presentation and profile of these patients.
- To assess pleural effusion distribution across age groups.

III. Materials And Methods

- **Study Design**: Prospective, hospital-based observational study.
- **Study Duration**: 18 months
- **Sample Size**: 50 patients.
- **Inclusion Criteria**: Patients >16 years with confirmed pleural effusion via thoracocentesis.
- **Exclusion Criteria**:

1.Hemodynamically unstable patients
2. pregnant women
3. Those with bleeding disorders.

Pleural fluid was analyzed for protein, LDH, glucose, ADA, and cytology. Imaging included chest X-ray, USG, CT thorax, and 2D ECHO.

IV. Results

Demographics: Most common age group: 51–65 years (36%). Males: 56%; Females: 44%. Most patients were from rural areas (60%).

Type of Effusion: Exudative: 72%; Transudative: 28%.

Etiology: Tuberculosis (32%), Malignancy (26%), CCF (24%), Parapneumonic (14%), Cirrhosis (4%).

Symptoms: Dyspnea (82%), Cough (76%), Fever (64%), Chest Pain (40%).

Radiology: Consolidation with parapneumonic effusion ($p<0.001$); Cardiomegaly with CCF ($p=0.03$).

ECHO Findings: Diastolic dysfunction (40%) was the most common finding.

V. Discussion

The study supports earlier literature indicating TB as the predominant cause of exudative effusion in developing countries[5,6]. Similar patterns were noted in studies by Ranganatha et al[7] and Selvamani et al[8]. Malignancy and CCF were also major contributors, in line with global trends[9]. ADA levels were elevated in TB effusions, confirming its diagnostic relevance.

Ultrasound and CT thorax were instrumental in detecting effusion volume, consolidation, and mass lesions, aiding differentiation between infectious and malignant effusions[10][11].

VI. Conclusion

In our cohort, TB emerged as the leading cause of pleural effusion, especially in the rural population. Early recognition of symptom patterns, coupled with biochemical and imaging diagnostics, enhances diagnostic accuracy and guides appropriate treatment.

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