



ORIGINAL RESEARCH PAPER

Pulmonology

RECURRENT PLEURAL EFFUSION POST CHEST TRAUMA – A DELAYED DIAGNOSIS OF TUBERCULAR ETIOLOGY

KEY WORDS:

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INTRODUCTION:

Pleural effusion has diverse etiologies. While trauma-related effusions are commonly hemorrhagic or empyematous, chronic or recurrent effusions post trauma require further evaluation to rule out infections, malignancy, or tuberculosis — especially in endemic regions

CASE REPORT

Patient Profile: Age/Sex: 52 years / Male Background: No known comorbidities; Recurrent right-sided pleural effusion since 2018. Chief complaints : Right sided Chest pain and shortness of breath (SOB)

Vitals: BP 150/90 mmHg, PR 70 bpm, RR 22 breaths/min, Temp 97.6°F, SpO2 91% @ (RA) .Examination: reduced, air entry decreased bilaterally (B/L) .

Timeline of Illness - 2018: Patient Had right-sided pleural effusion following chest trauma. 2.5 L pleural fluid drained after ICD insertion . Developed pleural effusion again in 2019 .Again underwent ICD insertion : Initial pleural fluid analysis conducted. Patient started on ATT on clinical basis and took it for 6 months in 2019. 2024: Recurrent effusion noted; further investigations including HRCT, thoracoscopy, and laboratory tests performed Investigations 2019 Pleural Fluid Analysis ADA: 34 U/L LDH: 1720 U/L Protein: 2.7 g/dL Glucose: 33.5 mg/dL Cells: 90% lymphocytes 2024 Pleural Fluid Analysis ADA: 23 U/L LDH: 198 U/L

Pleural fluid CBNAAT: Negative HRCT Chest Impression: .Pleural effusion with multiple air-fluid levels within it, with air trapping.Minimal right pleural cavity fluid.Visceral and parietal pleural thickening seen on both sides.Calcified pleural plaques noted in both sides in the right upper lobe.Fibro-parenchymal changes noted in the apical segment of the right upper lobe.Features suggestive of empyema. CBC Findings: Elevated hemoglobin (16.9 g/dL), PCV (51.3%), and monocytes (10%), suggesting possible polycythemia secondary to chronic hypoxia and a chronic inflammatory process.Key Biochemistry Findings: Mildly elevated total bilirubin (1.07 mg/dL) and direct bilirubin (0.55 mg/dL), indicating possible hepatic stress; other parameters like SGOT, SGPT, and electrolytes are normal

Thoracoscopic Findings : Thick septations with loculations.Granulomatous lesion along parietal pleura bleeding nodule & thickened pleura. Pleural biopsy sent for histopathology and CBNAAT

Histopathology : Necrotizing inflammation.Presence of epithelioid histiocytes.Suggestive of Tuberculosis.No malignancy Final Diagnosis made was Right-sided loculated tuberculous pleural effusion presenting as recurrent effusion post-chest trauma.

Management : ATT IP Phase FDC ,IV Fluids: NS , Amikacin

500 mg IV every 12 hours,Inj. Ceftriaxone 1 gm IV every 12 hoursInj. Pantop 40 mg IV every 24 hoursInj. Emset 4 mg IV every 24 hourlyTab.PCM tas neededMonitoring via imaging and clinical response.Nutritional and symptomatic suppor.Follow-up for resolution and possible residual pleural thickening

Outcome : Patient improved symptomatically with ATT.Reduced effusion and improved lung expansion noted on follow-up

DISCUSSION:

Trauma-associated effusion may mask underlying pathologies like TB, especially in endemic areas.ADA values may be borderline; thus, biopsy remains the gold standard in chronic/recurrent cases.CBNAAT may yield false negatives; granulomatous histology with necrosis remains highly specific.The HRCT findings of loculated effusion, pleural thickening, and fibro-parenchymal changes further support a chronic infectious process like TB, initially misattributed to trauma.Importance of Thoracoscopy: opportunities.Trauma does not rule out TB as a coincidental or secondary process.Clinical suspicion should guide management in resource-limited settings

Thoracoscopy played a pivotal role in this case by allowing direct visualization of the pleural cavity, revealing thick septations, loculations, granulomatous lesions, and a bleeding nodule—findings that strongly suggested a tuberculous etiology. It also facilitated biopsy, which was critical for histopathological confirmation of TB when non-invasive tests like CBNAAT were inconclusive. Thoracoscopy is particularly valuable in complex cases of pleural effusion, as it enables both diagnostic clarity and therapeutic intervention, such as debridement or decortication, if needed.This case underlines the importance of re-evaluation in recurrent effusions even years after the initial insult.



REFERENCES

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