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Case Report:

Chylothorax and Chylous Ascites in A Child with Primary Lymphatic Dysplasia and Rifampicin-Resistant Tuberculosis: A Diagnostic Challenge

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ABSTRACT:

Background: Chylothorax and chylous ascites are rare manifestations of tuberculosis (TB), particularly when presenting alongside underlying lymphatic disorders. We report a case of a 14-year-old female where rifampicin-resistant tuberculosis occurred with underlying primary lymphatic dysplasia. Case Presentation: A 14-year-old girl presented with a two-year history of progressive abdominal distension, shortness of breath, bilateral pedal oedema. Imaging revealed bilateral pleural effusions and ascites. Nanocolloid lymphoscintigraphy demonstrated impaired lymphatic drainage without a definite site of obstruction or leak, supporting an underlying primary lymphatic dysplasia. Analysis of pleural and ascitic fluids confirmed chylous effusions (elevated triglycerides and presence of chylomicrons). Ascitic fluid Xpert MTB/RIF confirmed the presence of Mycobacterium tuberculosis with rifampicin resistance. Conclusion: Tuberculosis is a rare but important cause of chylous effusions. This case highlights the importance of screening for TB in chylothorax and chylous ascites patients.

Keyword: CD4 count; genital mycoplasma; Ureaplasma; vaginal pathogens; women; Anambra State; Nigeria.

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INTRODUCTION

Chylothorax, the accumulation of chyle within the pleural space, and chylous ascites is accumulation within the peritoneal cavity, are uncommon clinical entities that result from disruption or obstruction of lymphatic flow.[1] Common causes include traumatic injury to the thoracic duct, malignant obstruction, and postoperative complications.[1,2] Infectious etiologies are less frequent; among them, Mycobacterium tuberculosis is a rare but important cause that can complicate the clinical picture, particularly in regions with high TB burden.[3,4] Patients with underlying congenital or acquired lymphatic disorders may be predisposed to chylous leakage, and superimposed infection can precipitate significant clinical deterioration.[5,6] This report describes a teenager with primary lymphatic dysplasia who developed concurrent chylothorax and chylous ascites in association with rifampicin-resistant tuberculosis, highlighting the diagnostic challenges posed by overlapping lymphatic and infectious pathology.

CASE REPORT

A 14-year-old girl presented with a 2-year history of progressive abdominal distension and worsening dyspnoea (mMRC Grade 4). She had a significant history of bilateral lower-limb non-pitting oedema since early childhood. She was admitted with intermittent fever, cough, and chest pain for last few months. There was no history of contact with a patient with tuberculosis. There was no history of previous tuberculosis, previous anti-tubercular treatment, recurrent pleural effusion or ascites. Family history of congenital lymphoedema or other lymphatic disorders was absent. On examination, she was thin (BMI <18 kg/m²) and tachypnoeic at rest. Her oxygen saturation was 95% while receiving supplemental oxygen, blood pressure was 90/60 mmHg,

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and body temperature was 101.2°F. On respiratory examination it was found that, decreased breath sounds at both lung bases with stony dull note on percussion. The patient had bilateral non-pitting lower-limb oedema. The abdomen was distended, with demonstrable shifting dullness and a fluid thrill. Thoracentesis and paracentesis were done for diagnostic and therapeutic reason. An intercostal chest drain was inserted on the left side of the chest due to symptomatic recurrent pleural effusion.

In the radiological investigations, X-ray and Thoraco-abdominal CT revealed bilateral pleural effusion and significant ascites. FIG 1 and 2.

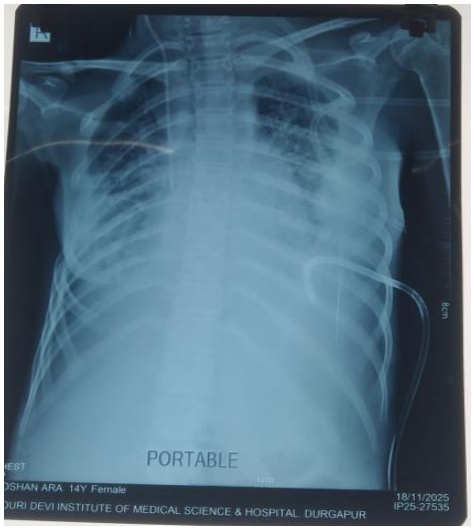


Figure 1: Chest radiograph bilateral pleural effusion with icd-in-situ

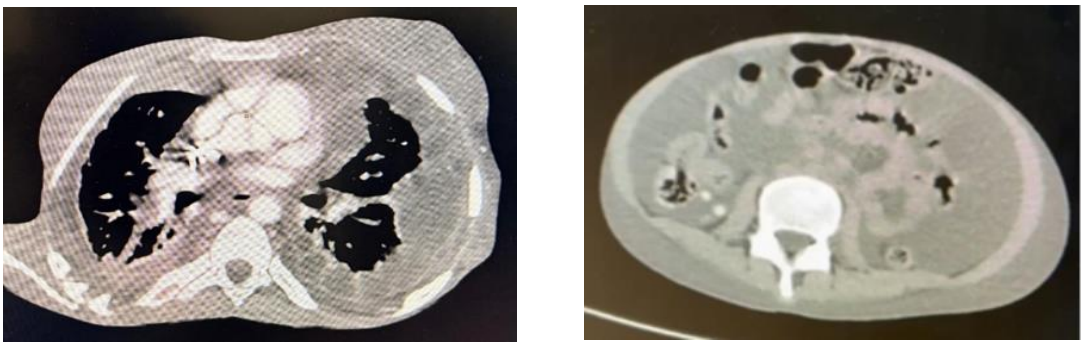


Figure 2: HRCT of thorax showing bilateral pleural effusion and ascites.

Nanocolloid lymphoscintigraphy demonstrated impaired lymphatic drainage in both lower limbs, more marked on the left, and in the left upper limb. No definite site of lymphatic obstruction was identified. These findings, together with the history of longstanding bilateral nonpitting lower-limb edema since childhood, supported an underlying primary lymphatic dysplasia.

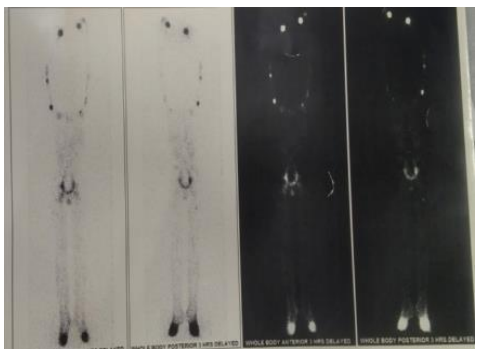


Figure 3: Lymphoscintigraphy demonstrated impaired lymphatic drainage in both lower limbs.

Pleural and ascitic fluids were milky white in appearance. Triglyceride levels were significantly elevated, and chylomicrons were detected in the ascitic fluid, confirming the diagnosis of chylothorax and chylous ascites. Ascitic fluid analysis using Xpert MTB/RIF detected Mycobacterium tuberculosis with rifampicin resistance.



Figure 4: Chylous fluid collected from Abdomen

Differential diagnosis considerations for chylous effusions include traumatic thoracic duct injury, malignancy, congenital lymphatic malformations, post operative disruption, and tuberculosis. In this patient, the chronic history of non-pitting limb edema and lymphoscintigraphic findings supported an underlying primary lymphatic dysplasia. The pleural fluid analysis showed the presence of chylothorax. detection of Mycobacterium tuberculosis in ascitic fluid established tuberculous involvement as a superimposed and likely precipitating cause of the increase in chylous effusion.

A multidisciplinary team approach was adopted, involving pulmonology, infectious diseases, paediatric surgery, and nutrition specialists. Immediate measures included therapeutic large-volume paracentesis and serial thoracenteses to relieve respiratory distress and abdominal discomfort. Because of recurrent pleural effusion, an intercostal chest drain was inserted on the left side. Following detection of Mycobacterium tuberculosis with rifampicin resistance in the ascitic fluid by Xpert MTB/RIF, the patient was started on treatment for Drug resistant Tuberculosis. Nutritional management focused on minimizing chyle production: initiation of a low-fat diet with medium-chain triglyceride supplementation.

DISCUSSION

Tuberculosis-associated chylous effusions have been attributed to lymphatic obstruction or involvement of major lymphatic vessels, including the thoracic duct.[3,4] In the present case, the underlying primary lymphatic dysplasia may have predisposed the patient to chylous leakage, while concomitant tuberculosis may have contributed to the worsening of the effusions.[5] The detection of Mycobacterium tuberculosis with rifampicin resistance in the ascitic fluid established concomitant tuberculosis and highlights the importance of molecular testing in patients with unexplained chylous effusions, particularly in regions with a high burden of tuberculosis.[7,8]

Primary Lymphatic Dysplasia may be presented with non-pitting oedema from childhood and clinicians should have a high index of suspicion for proper diagnosis.[6] For the diagnosis of chylothorax, milky fluid with high triglycerides (>110 mg/dL) and the presence of chylomicrons are to be looked for.[1,2] Tuberculosis can also exacerbate underlying lymphatic dysplasia.[4] In endemic areas, molecular testing (Xpert MTB/RIF) is essential for early diagnosis and treatment of drug-resistant TB.[7,8]

CONCLUSION

Chylothorax and chylous ascites occurring in a child with longstanding lymphatic dysfunction can present a significant diagnostic challenge. In this case, nanocolloid lymphoscintigraphy supported an underlying primary lymphatic dysplasia, while Xpert MTB/RIF of ascitic fluid confirmed rifampicin-resistant tuberculosis. Tuberculosis should be considered among the potential causes of unexplained or worsening chylous effusions, particularly in regions with a high burden of TB.

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