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Case Report

Cholesterol pleurisy: a rare complication of tuberculosis

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ABSTRACT

Pseudochylothorax (PCT) is a rare form of pleural effusion and is characterized by high cholesterol content and milky pleural fluid. Common causes include tuberculosis, rheumatoid arthritis, paragonimiasis, echinococcosis and neoplasia. A 27-year-old male presented with breathlessness for past 3 years aggravated for past 2 months, swelling in perianal region for 6 months with history of treatment for pulmonary tuberculosis with recurrent left pleural effusion for which intercostal drain (ICD) was inserted. Blood investigations showed elevated total leukocyte count and ESR. Radiological investigations showed left loculated pleural effusion causing passive collapse of left lower lobe. Pleural fluid aspirated was milky white effusion following which ICD was inserted. Pleural fluid analysis showed a lymphocyte predominant, ADA-94 mg/dl, cholesterol-250 mg/dl, triglycerides 50 mg/dl and CHOL/TG ratio 5 indicating a PCT. Patient was initiated on Anti tuberculous therapy. After 2 months of ATT patient underwent left thoracotomy and decortication. Here we report a case of cholesterol pleurisy due to long standing tubercular effusion which is a rare manifestation of reactivation tuberculosis.

Keyword: Chyliform effusion, Long standing complications, Tuberculosis

INTRODUCTION

Pseudochylothorax (PCT) is a rare form of pleural effusion AKA chyliform or cholesterol pleural effusion, and is characterized by its high cholesterol content and milky pleural fluid. The most common causes of PCT include tuberculosis, rheumatoid arthritis which nearly accounts for 89% of all cases.[1] The exact mechanism is unclear; however, it is hypothesized that it is due to the pleural thickening blocking the drainage of fluids to the pleural wall lymphatic system, cholesterol and lecithin-globulin complexes liberated after red cell and neutrophil lysis in the plural fluid become trapped in the pleural cavity. In this case report present you case of tubercular PCT followed by decortication for trapped lung.

CASE REPORT

A-27-year-old male came with complaints of dyspnea for 3 years and aggravated for the past 2 months, progressive from grade 1-2 MMRC. swelling over the perianal region for the past 6 months, increasing in size, associated with foul smelling pus discharge. Patient in 2012 was diagnosed to have left hydro pneumothorax and ICD was inserted (Figure 1A). Pleural fluid analysis showed exudative lymphocyte predominant effusion with high ADA and patient was started on ATT. Patient had similar complaints 1 month later and was diagnosed to have recurrent left hydropneumothorax for which ICD inserted (Figure 1B), following which thoracoscopy done and pleural biopsy taken showed a necrotizing granulomatous lesion and pleural biopsy GeneXpert showed MTB detected and Rif resistance- not detected. Patient continued ATT for 6 months and didn't follow-up. Patient again in 2015 had similar complaints and was found to have left loculated pleural effusion but failed to proceed with treatment. In same year patient underwent treatment for fistula in Ano. Systemic exam showed ICD scar present over left 5th ICS over mid axillary line. Stony dull node over left infrascapular, infraaxillary regions.

decreased air entry, vocal fremitus, and resonance in left infrascapular, infraaxillary regions. local examination: A mass of size 2x3 cm present in the left buttock near to the anal canal. Pus draining (Figure 1C). Blood investigations ESR-108 mm/hr., Hb- 12.2 g/dl, TLC-9100 cells/Cumm, HIV ICTC negative. Sputum AFB done was negative. Radiological investigations: chest x-ray showed Left moderate pleural effusion (Figure 1D). USG thorax: Moderate effusion approx. 650 CC seen locally in the left pleural space with extension anteriorly upto anterior axillary line and posteriorly to the infrascapular region. Fluid collection shows internal echoes and thick septum (12 mm) in inferomedial aspect. Imp suggestive of left loculated pleural effusion. USG abdomen: Normal study. Ct thorax showed loculated pleural effusion (HU-35) measuring AP-11.8xTR-8xCC-15.3 cm volume 722 cc extending from 3-10th rib causing passive collapse of left lower lobe and mild mediastinal shift to right, with compensatory hyperinflation of right lung (Figure 2A). small soft tissue dense nodule measuring 8x5 mm noted in apical segment of right lung. Multiple focal calcifications and thickening of visceral and parietal pleura (Figure 2B). Perianal lesion biopsy showed granulomatous dermatitis pattern. Patient admitted and pleural fluid aspirated. milky white fluid drained. In view of loculated effusion ICD was inserted. Post ICD insertion thickened pleural line visible (Figure 2C). Pleural fluid analysis: Milky white fluid drained and sent for analysis, glucose-115 mg/dl, protein-14 mg/dl, elevated WBC with lymphocyte predominance, ADA-94 mg/dl, LDH-1450 u/l, cholesterol-250 mg/dl and triglycerides-50 mg/dl with a CHOL/TG ratio-5, gene Xpert of pleural fluid: MTB detected low, RIF resistance-not detected. Patient started on anti-tuberculous drugs-4 pills/day based on weight (58 kg). Cardiothoracic surgery opinion obtained and patient underwent left posterolateral thoracotomy after 1 1/2 months on ATT. Findings: thickened pleura 3 cm thick and trapping left lower lobe (Figure 3A). Biopsy sent showed granulomatous pattern suggestive of tuberculosis (Figure 3B). Post procedure x ray done showed lung expansion (Figure 3C). Follow up after period of 6 months showed resolution of perianal lesion (Figure 3D) and radiological improvement.

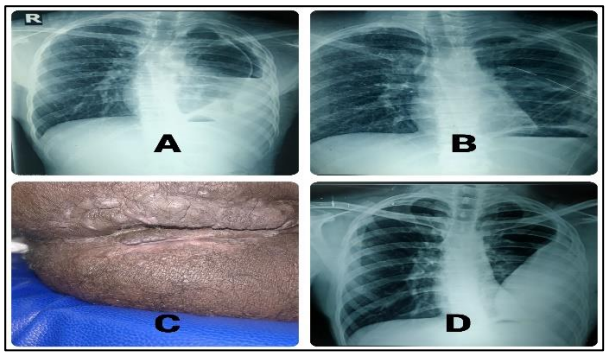

Figure 1 (A-C): Previous X-ray showing hydropneumothorax and lung expansion post ICD insertion. Local examination showing perianal lesion. X ray showing left loculated pleural effusion.

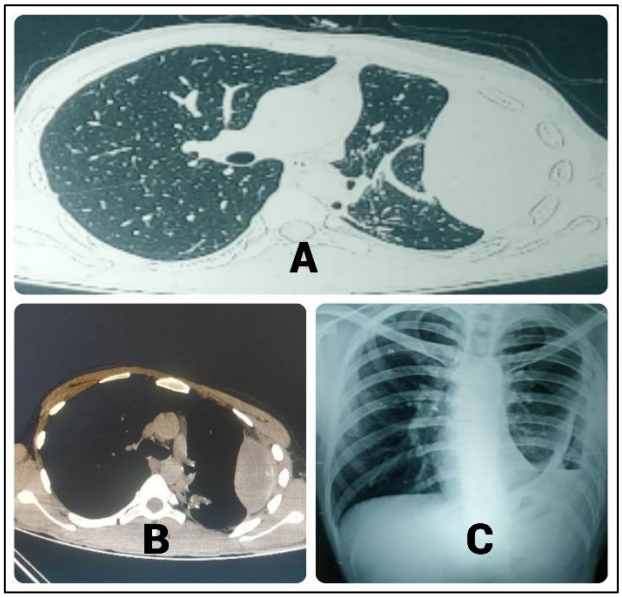

Figure 2 (A-C): CT thorax showing loculated pleural effusion causing passive collapse of the left lower lobe. Multiple focal calcifications and thickening of visceral and parietal pleura. Chest x ray taken post ICD insertion.

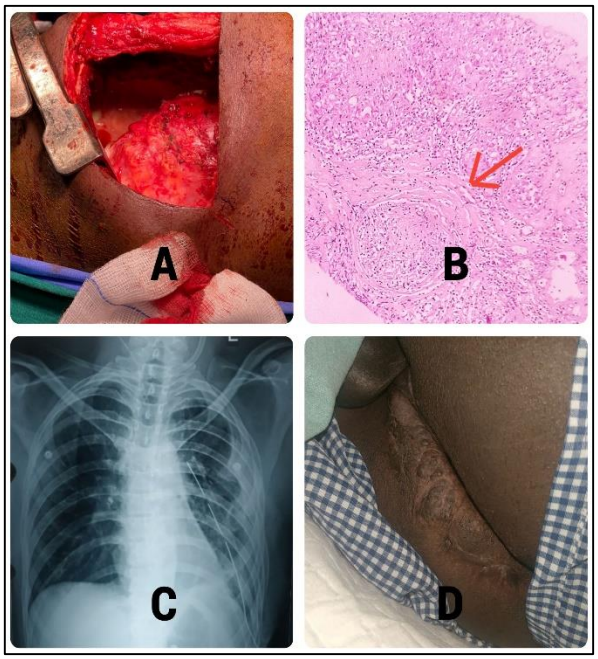

Figure 3 (A-D): Thickened pleura 3 cm thick and trapping the left lower lobe Biopsy-granulomatous pattern suggestive of tuberculosis. Post procedure x ray done showed lung expansion. Resolution of perianal lesion after ATT.

DISCUSSION

PCT is characterized by high-lipid pleural effusion that usually arises from chronic pleurisy. Tuberculosis is the most frequent etiology followed by rheumatoid arthritis.

In a systematic review, the median age was in the 5th decade of life and males were predominantly affected.[2] Although the exact mechanism is unknown, two possible theories lysis of erythrocytes and neutrophils in pleural fluid releases cholesterol and other lipid constituents, these compounds may be trapped by thickened pleural membranes. Another being that pleural cholesterol is derived from serum lipids bound to low density lipoproteins, which accumulate during active inflammation and overtime the binding of cholesterol shifts from LDL to high density lipoproteins, however the reason for shift is unknown.[3] There are varied causes for development of psudochylothtorax mainly tuberculosis and rheumatoid arthritis followed by hepatopulmonary echinococcosis, chronic hemothorax, syphilis, lung cancer, pleural metastases, heart failure, nephrotic syndrome, and Hodgkin disease.[4] Most people are predominantly asymptomatic or might have dyspnea as a most predominant symptom. Radiological investigations show evidence of pleural effusion with thickened pleura.[5] The diagnosis is established by the evaluation of the pleural fluid: milky pleural effusion, cholesterol level greater than 200 mg/dL, triglyceride level below 110 mg/dL, cholesterol/triglycerides ratio >1, cholesterol crystals seen on microscopy, latter two being most sensitive.[6] Initial management involves treating the underlying disease. Symptomatic management includes needle thoracentesis, followed by intercostal drainage for recurrent PCT. Usage of pleurodesis agents have been debated and in large case series review, limited success has been documented.[2] Patients with non-expanding lung decortication, improves symptoms. The complications of PCT are as reactivation of tuberculosis, Aspergillus infections, BPF, pleurocutaneous fistulae.[7]

CONCLUSION

PCT is a rarity these days due to prompt diagnosis and treatment. Prognosis is due to varied etiologies, however generally patients have a favorable outcome. Usage of steroids is debated and could be used based on pathology of disease. Physicians should be aware about the long-term complications of pulmonary tuberculosis in endemic countries.

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