Transudative chylothorax and pleural tuberculosis in a patient with Eisenmenger syndrome: An extraordinary coincidence

Sir,

Chylothorax is the presence of chyle in the pleural space with triglyceride levels >110 mg/dL or the evidence of chylomicrons in pleural fluid. It is usually a lymphocytic exudate.[1,2] Transudative chylothorax is a rare condition associated with hydrothorax due to cirrhosis, heart failure, or nephrotic syndrome.[2] Pleural tuberculosis is an important cause of chylothorax. Congestive heart failure and severe pulmonary hypertension in Eisenmenger syndrome can be associated with pleural effusion.[3] We report a case of transudative chylothorax and pleural tuberculosis in a patient with Eisenmenger syndrome.

A 44-year-old man with Eisenmenger syndrome due to patent ductus arteriosus presented to the emergency room with shortness of breath. He was previously hospitalized because of a right pleural effusion categorized as a transudative chylothorax. At that time, a pulmonary arterial systolic pressure of 125 mmHg was recorded. No other probable cause of chylothorax was identified. The patient was treated with nothing by mouth and total parenteral nutrition and was discharged ascribing the transudative chylothorax to severe pulmonary hypertension.

The patient subsequently presented respiratory distress and increased oxygen requirements 2 weeks before
readmission. On admission, he had a heart rate of 124/min, a respiratory rate of 28/min, an SO\(_2\) of 85% with a flow rate of 5 L/min by nasal cannula, a temperature of 37°C, and a blood pressure of 110/70 mmHg. On physical examination, perioral cyanosis, digital clubbing, absent breath sounds on the right hemithorax, and dullness to percussion were found. A chest X-ray showed pleural effusion and a collapsed right lung [Figure 1]. A thoracoabdominal computed tomography scan revealed a massive right pleural effusion, right pulmonary atelectasis, a small left pleural effusion, and adenopathy [Figure 2]. A right thoracentesis was performed, obtaining a milky pleural fluid. Fluid analysis revealed transudative chylothorax with a predominance of lymphocytes [Table 1]. A 100% fat-free diet and medium-chain triglyceride supplementation was started because the patient did not consent to total parenteral nutrition. Three days later, thoracentesis was repeated with no significant improvement [Table 1]; however, acid-fast bacilli were detected by cytology. Antituberculous therapy was started, and 5 days later, pleural fluid analysis showed significant improvement. The patient was discharged with symptomatic improvement to continue treatment at home.

If chylothorax is suspected in a patient with pleural effusion; in addition to pleural fluid analysis,

**Table 1: Pleural fluid characteristics**

| Parameter          | Thoracentesis |
|--------------------|---------------|
|                    | First         | Second       | Third        |
| Cell count (×10\(^3\)/mm\(^3\)) | 60            | 40            | 25           |
| Cell predominance  | Lymphocytes   | Lymphocytes  | Neutrophils  |
| pH                 | 8.5           | 8.5           | 8.5          |
| Glucose (mg/dL)    | 90            | 81            | 75           |
| Proteins (mg/dL)   | 1960          | 1600          | 1040         |
| LDH (U/L)          | 98            | 103           | 101          |
| Cholesterol (mg/dL)| 10            | 14            | 13           |
| Triglycerides (mg/dL) | 220        | 200           | 83           |
| Light’s criteria   | Transudate    | Transudate    | Transudate   |

LDH: Lactate dehydrogenase

Chylous effusions are typically exudates that appear because of damage or blockage of the thoracic duct. Common causes are traumatic and nontraumatic with thoracic surgery and non-Hodgkin's lymphoma being the most frequent, respectively. A small number of patients with chylous effusion could have a chylothorax that is a transudate.

In a study of 61 chylothorax, only 44% had a milky appearance and 14% were transudative pleural effusions. The cause was attributed to liver cirrhosis, surgical procedures, lymphoproliferative disorders, pancreatic cancer, radiation injury, and idiopathic.[7] In another study of 22 chylothorax, 7 were transudates (31%) and only 1 was attributed to tuberculosis with characteristics of an exudate.[8] In the largest etiologic study of chylothorax, 27% of 203 patients had nontraumatic benign causes (benign tumors, tuberculosis, and heart failure), and 6% were idiopathic.[9] A study of 3077 thoracentesis performed in Spain over the course of 19 years revealed that 21% were secondary to heart failure and 9% to tuberculosis.[10] Only 8% of pleural tuberculosis present as an entire hemithorax pleural effusion and 1.2% as chylothorax.[11] Only 3 cases of transudative chylothorax have been reported in patients with severe pulmonary arterial hypertension.[12-14] To the best of our knowledge, this is the first case of transudative chylothorax in a patient with Eisenmenger syndrome due to patent ductus arteriosus with a rare coexistence of pleural tuberculosis. We hypothesize that pleural tuberculosis contributed to the chylous characteristics.

**Figure 1:** Chest radiograph at admission

**Figure 2:** Simple computed tomography scan showing massive right pleural effusion, right pulmonary atelectasis, small left pleural effusion, and adenopathy near the great vessels (arrow)
because the characteristics of the pleural fluid improved with antituberculous therapy. Severe pulmonary hypertension and increased right-sided pressure contributed to the transudate characteristics of the pleural effusion.

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