Is bilateral chylothorax possible after simple cough? Yes

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Abstract
Chylothorax is accumulation of chylous fluid in the pleural space due to impaired integrity of the thoracic duct or its branches. In childhood, the causes differ from those in adults because children less frequently develop malignancies and are more resistant to trauma. Commonly, chylothorax occurs as a complication of tumoral invasion or cardiopulmonary surgery. Treatment of chylothorax is essentially medical. In the event of medical treatment failure or a massive effusion, surgery is needed. We describe the case of a 65-year-old woman who developed bilateral chylothorax after a simple cough. She was treated with a medium-chain triglyceride diet and thoracentesis.

Keywords
Chylothorax, cough, thoracic duct

Introduction
Chylothorax refers to the accumulation of the chylous fluid in the pleural space as a result of impaired integrity of the thoracic duct or its branches. The causes of chylothorax are variable, including trauma and congenital conditions.\(^1,2\) In childhood, the causes differ from those in adults because children less frequently develop malignancies and they are more resistant to trauma. Commonly, chylothorax occurs as a complication of tumoral invasion or a cardiopulmonary operation.\(^2,3\) Medical treatment is the first choice for chylothorax. In the event of medical treatment failure or a massive effusion, surgical treatment is needed.\(^2\)

Case report
A 65-year-old woman presented to the emergency department of our hospital with swelling of the neck and supraclavicular area, dyspnea, and thoracic pain, which developed after a simple cough. Chest radiography showed blunt sinuses bilaterally. Ultrasound-guided transthoracic aspiration of the right hemithorax produced 20 mL of macroscopically chylous fluid with a triglyceride level of 2000 mg dL\(^{-1}\) on biochemical analysis, and subsequent chest radiography showed a normal right sinus (Figure 1A, 1B). The patient was hospitalized and given a medium-chain triglyceride diet to diminish the flow of chyle. Thoracentesis yielded 40 mL of milky fluid from the left thoracic cavity and 30 mL from the right. Biochemical analysis of the fluid from the left side also showed a triglyceride level of 2000 mg dL\(^{-1}\). Computed tomography of the chest and neck showed minimal bilateral pleural fluid (Figure 1C). There was no pathologic finding (lymphoma or malignancy) in a systemic examination. Oral medium-chain triglyceride intake was continued, and antibiotic therapy was initiated. Follow-up daily chest radiography was normal on the third day. The patient was maintained on a normal diet from the fifth day. She was discharged 8 days after admission (Figure 1D). No abnormal finding was seen at the one-month follow-up.

Discussion
Chylothorax frequently occurs secondary to trauma or malignancies. Congenital and idiopathic chylothorax may also be included in the etiology. Chylothorax as
a complication of cardiothoracic operations occurs at a rate of 0.89% to 3.8%. It is reported that coughing may cause chylothorax, but the incidence of spontaneous chylothorax is unknown.\(^1\) To our knowledge, no case of bilateral chylothorax caused by simple coughing has been reported in English literature. Bilateral chylothorax is rare and it can be caused by neck and upper mediastinum surgery, congenital factors, thoracic vertebral fracture, and mediastinal infections. Events increasing intrathoracic pressure, such as severe coughing, severe vomiting, delivery maneuvers, and straining, can also cause chylothorax.\(^3\) Simple cough leading increased intrathoracic pressure is a rare cause of chylothorax, as seen in our case where it is assumed that simple severe cough led to increased intraductal pressure, resulting in swelling of the neck and bilateral chylothorax.

In elderly patients, because bilateral chylothorax rapidly impairs the clinical situation, a therapeutic decision should be made immediately. In cases of bilateral chylothorax, each hemithorax should be considered individually. If the drainage is reduced in one side, conventional methods should be used.\(^3\) The strategy of conservative treatment includes reduction of the chyle flow, inflating the lung, and nutritional support. Thoracic duct chyle flow increases after eating, especially after a high-fat meal. The volume of chyle flow can be reduced by avoiding fat-containing enteral nutrition.\(^4\) Therefore, oral high-fat meal intake cessation and a low-fat carbohydrate diet was started in our

Figure 1. (A) Chest radiograph showing bilateral blunt sinuses. (B) Normal right sinus after right transthoracic aspiration. (C) Computed tomography showing bilateral pleural fluid. (D) Normal chest radiograph.
patient. We observed successful chylothorax recovery in 3 days with low-fat and carbohydrate intake only. Surgical intervention is accepted as an effective therapeutic method for chylothorax associated with thoracic and esophageal surgery. Surgical interventions, especially in the cervical region are inconclusive in the management of chylothorax. We concluded that simple coughing may lead bilateral chylothorax, and thoracic aspiration and oral low-fat intake may provide successful recovery.

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**Conflict of interest statement**

None declared.

**References**