Surgical treatment of atypical *Mycobacterium intracellulare* infection with chronic empyema: A case report

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A typical mycobacterial infection in the patient with chronic empyema is very uncommon. We report a case of *Mycobacterium intracellulare* infection in a patient with chronic empyema treated successfully with surgical intervention.

Clinical Summary

On April 1, 2003, an 80-year-old woman was admitted to the hospital with a right pleural effusion. Chest radiography and chest computed tomographic scanning revealed a right thoracic effusion (Figure 1). *M intracellulare* was isolated from the thoracic effusion and the sputum. The patient was diagnosed with an *M intracellulare* infection with a chronic empyema and an alveolar fistula. She received drug therapy consisting of rifampin (INN: rifampicin), ethambutol hydrochloride, enviomycin sulfate, and clarithromycin and irrigation into a closed thoracic drainage tube.

On June 24, we performed a thoracic fenestration. The 8th, 9th, and 10th ribs were partially resected (8 cm). The patient received irrigation (500 mL of saline) into the thoracic fenestration daily.

On October 15, we performed a thoracoplasty with an intrathoracic transposition of the muscle flap using the serratus anterior and the latissimus dorsi muscles (Figure 2). The 7th, 8th, 9th, 10th, and 11th ribs were resected. The 3 alveolar fistulas were closed with a mattress suture into the lung and injection of gelatin-resorcin-formalin-glutaraldehyde (GRFG) glue into the alveolar fistulas.

On postoperative day 30, the thoracic drainage tube was removed, and the empyema did not recur.

The patient will receive a drug regimen consisting of rifampicin, ethambutol hydrochloride, and clarithromycin for 1 year.

Discussion

A typical mycobacterial infections usually develop in the lung, and infection outside the lung is rare.¹ Atypical mycobacterial infection in the patient with chronic empyema in particular is very uncommon.² The pathway of atypical mycobacterial infection to chronic empyema is unclear, but there are 2 theories about the

Figure 1. Chest computed tomographic scan showing a right thoracic effusion and honeycomb lung of the right middle and lower lobes.

Figure 2. Thoracoplasty and an intrathoracic muscle flap transposition using the serratus anterior and the latissimus dorsi muscle were performed.

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process.¹ The first theory is development of the empyema from the lung infection. The second theory entails the development of the empyema after a minor trauma.

The surgical management of *M intracellulare* infection with chronic empyema is not established. Yamamoto and associates¹ reported a case of *Mycobacterium avium* complex infection in a patient with a chronic empyema, which was treated successfully with pleuropneumectomy. They stated that lung resection might be performed for the surgical treatment of *M intracellulare* infection with chronic empyema. Pleuropneumectomy or lobectomy for chronic empyema, however, is very stressful. In our case, the *M intracellulare* infection was cleared from the sputum after thoracic fenestration, and therefore we performed a thoracoplasty with an intrathoracic muscle flap transposition. This surgical treatment without lung resection in cases not involving *M intracellulare* in the sputum is preferred because the procedure is less invasive, safer, and less stressful than surgical treatment with lung resection.

In our case, we selected a thoracoplasty with an intrathoracic muscle flap transposition. The residual lung changed into a honeycomb lung, which was unable to expand. If the residual lung had the ability to expand, air plumbage would have been a better option than thoracoplasty with respect to respiratory function.³

GRFG glue is a new biologic adhesive agent with a better sealing efficacy. GRFG glue has strong adhesive properties (al-

most 5 times that of fibrin glue). Several studies have reported the effectiveness of GRFG glue for the treatment of bronchial fistulas.^{4,5} Hasumi and colleagues⁴ reported the clinical experience of GRFG glue for acute empyema with bronchopleural fistula. GRFG glue is a useful agent for the treatment of bronchial fistulas.

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Simultaneous traumatic rupture of bilateral pulmonary hydatid cysts

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Hydatic disease is common in Turkey, and it is a serious problem of worldwide importance. Because of the elastic properties of the lung, it seldom shows signs and symptoms. The cysts are generally detected on routine examinations incidentally or when they are complicated. All hydatid cysts carry a risk of rupture, which is the most common complication, and trauma is a one of its causes.^{1,2}

Here we present a life-threatening complication of traumatic bilateral ruptured hydatid cysts causing simultaneous bilateral pneumothorax. To our knowledge, this bilateral rupture is the first case reported in the English literature.

Clinical Summary

A 20-year-old man was brought to the emergency department after a vehicle accident. He had diminished bilateral breath sounds and diffuse bronchospasm on auscultation. He was cyanotic and severely dyspneic. The computed tomographic (CT) scan of the thorax performed at the emergency department revealed bilateral pneumothorax and bilateral linear fibrotic densities in both lungs (Figure 1).

Bilateral chest tube insertion was performed immediately. After tracheal intubation, mechanical ventilation was started because of acute respiratory failure. The patient was transferred to the intensive care unit, and the mechanical ventilation was continued for 2 days. Steroid therapy was given to relieve the bronchospasm. After the expansion of both lungs, a new CT scan was performed, showing thin-walled, air-filled cavities in bilateral lobes with collapsed membranes that were specific for ruptured hydatid cysts (Figure 2). Serologic test results for hydatid disease were positive.

Chest tubes were removed at the 10th and 14th days after the expansion of both lungs, and the patient was discharged on the 17th day. Albendazole (10 mg · kg⁻¹ · d⁻¹) therapy was started as soon as the rupture was diagnosed, and it was continued for 6 months. No cavitary or pleural complications were observed at the 6-month examination.

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