Medical Image of the Week: Empyema Necessitans

Figure 1. Panel A: chest radiograph on admission showed mass like lesion centered at the right upper lobe. Panel B: Coronal CT cut showing loculated fluid collection demonstrating peripheral rim enhancement. There is extension of pleural fluid into the soft tissues of the adjacent right chest wall (white arrow).

Figure 2. Panel A: chest radiograph after VATS decortication and antibiotic course shows resolution. Panel B: axial CT cut after completion of therapy shows complete resolution.

A previously healthy 46-year-old woman was evaluated for two week history of right shoulder pain, associated pleuritic chest pain and dyspnea.

Chest radiograph showed right apical mass (Figure 1A). Imaging showed loculated fluid collection with extension into the soft tissues of the adjacent right chest wall suggestive of empyema necessitans (Figure 1B).

Chest Tube placement was done along with broad spectrum antibiotics. Blood and pleural fluid cultures showed methicillin-resistant *Staphylococcus aureus* (MRSA). Due to persistence of loculation despite antibiotics, she underwent a video-assisted-thoroscopic surgery (VATS) for decortication and further drainage of the effusion.

Symptoms and radiologic findings improved and she was discharged with intravenous antibiotics to complete a six week course. Chest imaging at six week period showed complete resolution (Figure 2).

Empyema necessitans, defined by the extension of an empyema through the parietal pleura, into surrounding tissue is becoming rare with the routine drainage of empyema and antibiotics use. Common causative pathogens include *Mycobacterium tuberculosis*, *Actinomyces israelii*, *Streptococcus pneumoniae*, and *Staphylococcus aureus* (1). Surgical treatments for thoracic empyema include chest tube drainage, debridement via VATS, decortication, open window thoracostomy, and thoracoplasty (2).

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