

Empyema Necessitans: The Hidden Danger In Young Lungs

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Abstract

We present a case of a young male patient who initially presented with left-sided chest pain associated with symptoms of chest infection on background of being type 1 diabetic. As he developed septicaemia secondary to empyema, he underwent an incision and drainage procedure for the chest wall abscess. Intraoperatively, a fistulous connection between the abscess and the pleural space was identified. Subsequent CT imaging post-surgery confirmed the diagnosis of Empyema Necessitans. This case study aims to highlight the importance of considering Empyema Necessitans as a differential diagnosis in young patients presenting with chest infections especially on background of chronic diseases like diabetes.

Keywords: Chest wall infection, Diabetes, Empyema, Empyema Necessitans, Immunocompromised, Young Patient.

INTRODUCTION

Empyema Necessitans is a rare condition which is defined as the extension of the purulent collection from the pleural cavity through the chest wall resulting in the formation of a chest wall abscess.^[1,2] It is quite rare condition, especially in the era of antibiotics.

Case Study

We present the case of a 33-year-old male referred by his General Practitioner (GP) to the Emergency Department (ED) for left-sided chest pain persisting for 3-4 days. The patient reported chest pain exacerbated by movement and deep breathing, alongside a productive cough with dark green sputum and a recent fever of 38.7°C. A known type 1 diabetic, he had maintained his insulin regimen and denied other systemic symptoms.

Upon examination, decreased breath sounds and a firm, hard swelling on the left anterior chest wall were noted. Despite occasional vaping and rare cigarette smoking, the patient did not consume alcohol or recreational drugs. He had a history of type 1 diabetes, asthma, and anxiety but no immunocompromising conditions.

Given elevated blood glucose levels, a variable rate insulin infusion (VRII) was initiated. Blood tests revealed raised inflammatory markers, prompting treatment with Levofloxacin and Doxycycline. A CT thorax was requested but later cancelled due to a low suspicion of malignancy

and indications of an infective process. The patient was discharged with a follow-up appointment in the same day emergency care unit (SDEC) in seven days.

During the SDEC follow-up, the patient reported worsening left-sided chest pain. Examination revealed warmth, mild erythema, and tenderness over the affected area without discharge. Elevated inflammatory markers (CRP 269, WCC 21.70) prompted admission for further evaluation. The general surgery team diagnosed a large left-sided chest wall abscess and scheduled the patient for an incision and drainage procedure. During the procedure, a fistulous tract connecting the abscess to the pleural space was identified, and a drain was inserted through the tract. Subsequent CT imaging post-surgery revealed Empyema Necessitans (Figures 1-3). Whilst awaiting further input from cardiothoracic surgical team, patient was shifted to critical care for his ventilatory support and septicaemia management. A multi-disciplinary meeting of the cardiothoracic team concluded that, as the abscess is draining, further cardiothoracic interventions and pleurectomy are not immediately required. The patient was subsequently extubated and weaned of vasopressor

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support. His intercostal drain continued to drain. He was discharged home on antibiotics and further imaging and cardiothoracic input as an outpatient.

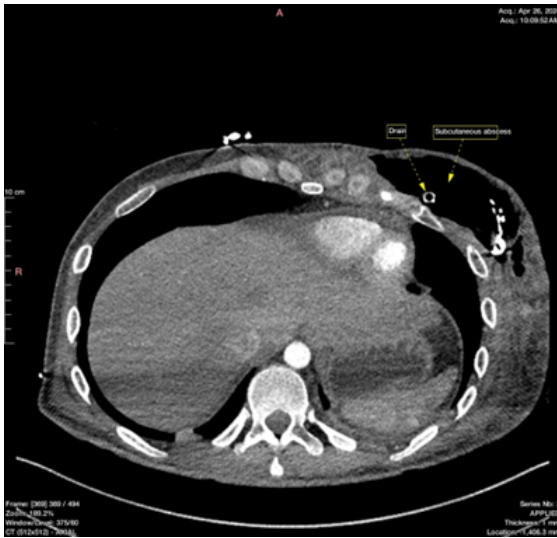


Figure 1: CT Scan Showing the Subcutaneous Collection. The Drain is also Viable in the Collection.



Figure 2: CT Scan Showing the Pleural Drain Passing Through the Fistula Connecting the Subcutaneous Space to the Pleural Space.

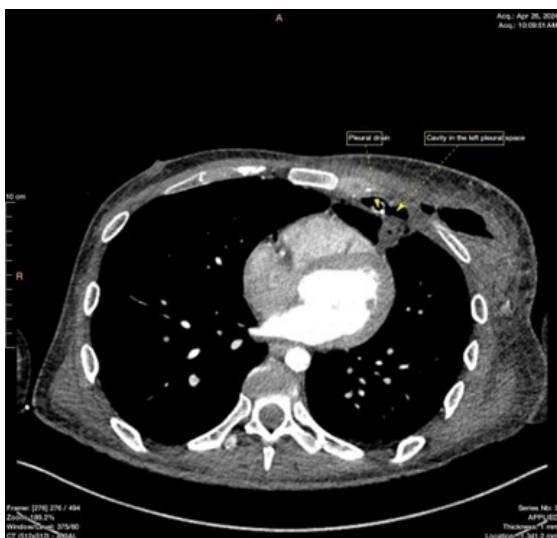


Figure 3: CT Scan Showing the Drain Positioned in the Pleural Space after Passing Through the Fistula.

CONCLUSION

This case underscores the importance of considering Empyema Necessitans in young patients with risk factors like diabetes, presenting with respiratory tract infection symptoms and pleuritic chest pain.

ABBREVIATIONS

Same day emergency care (SDEC). Variable rate insulin infusion (VRII). General Practitioner (GP). Emergency Department (ED).

FIGURE LEGENDS

Figure 4 CT scan showing the subcutaneous collection. The drain is also viable in the collection.

Figure 5 CT scan showing the pleural drain passing through the fistula connecting the subcutaneous space to the pleural space.

Figure 6 CT scan showing the drain positioned in the pleural space after passing through the fistula.

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