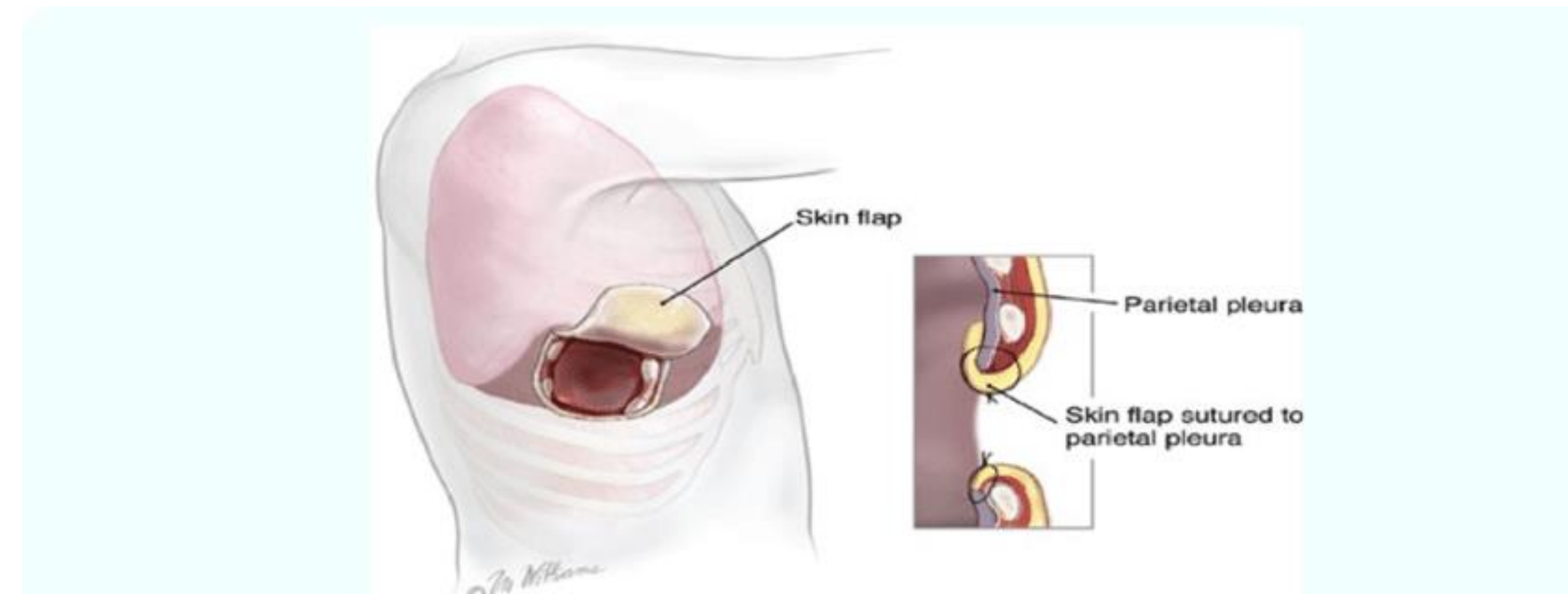
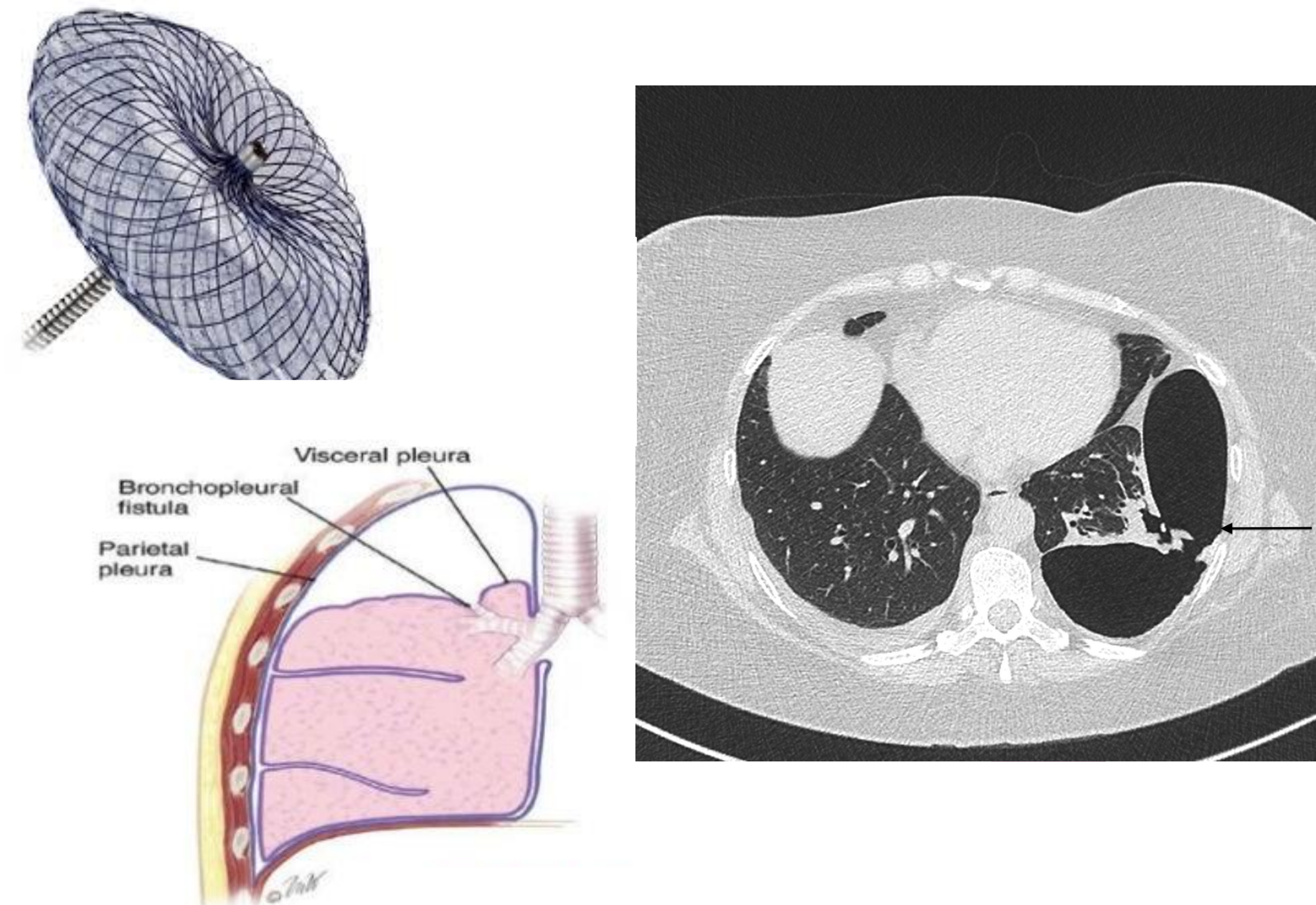


Introduction

Postpneumonectomy bronchopleural fistula (BPF) is a pathological connection between the bronchial tree and the pleural space, often resulting in severe complications such as empyema, sepsis, and respiratory failure. Traditionally, it is treated with a thoracotomy and muscular flap coverage, but it is complicated by dense fibrotic tissue changes and has a high rate of recurrence. The transsternal approach, facilitated by cardiopulmonary bypass, allows the surgeon to have an excellent exposure to the carina and fistula [1]. These patients present significant perioperative challenges due to the complex nature of the disease and its associated surgical risks. An anesthesiologist must maintain hemodynamic stability and proper ventilation while coordinating with multiple subspecialties during this complex cardiothoracic surgery.

Case Report

A 72-year-old female with history of breast cancer, COPD, Mycobacterium avium complex (MAC), s/p left pneumonectomy complicated by bronchopleural fistula (BPF) and recurrent pyothorax presented for BPF repair via median sternotomy on cardiopulmonary bypass (CPB). The patient had a complex surgical history including multiple lung resections, an Eloesser flap and failed BPF closure with an intra-airway Amplatzer device. Patient was intubated with a mac 3 blade and 8.5 ETT and placement was confirmed with a bronchoscope. Invasive monitors included an arterial line in the left radial artery and cordis 9Fr in left IJ. Intra-operatively, the patient suffered a pulmonary artery injury requiring surgical repair. The duration of CPB was 66 minutes. Post-operatively, the patient was sent to CTICU intubated and on a norepinephrine drip. The patient was extubated on POD 0, weaned off pressors and subsequently downgraded from the ICU on POD8.



Discussion

There are challenges associated with managing BPF in high-risk patients, particularly those with a history of chronic pulmonary infections and multiple prior surgeries. The multidisciplinary approach employed in this case ensured coordinated care across specialties, enabling timely intervention during intraoperative complications. The anesthesiologist's role in bronchopleural fistula repair is multifaceted, requiring a balance between maintaining adequate ventilation and oxygenation while minimizing the risk of worsening the fistula. Understanding the patient's complex pulmonary and surgical history allowed for thorough planning of intraoperative management. Given the risk of pulmonary artery injury, anesthesiologists must be prepared for rapid interventions and adjustments in monitoring and ventilation strategies, especially during prolonged CPB [6]. Furthermore, intraoperative transesophageal echocardiography (TEE) plays a vital role in patient stability and successful outcomes [5].

Conclusion

This case highlights challenges in managing BPF in high-risk patients and the importance of multidisciplinary integration of interventional pulmonology, cardiothoracic surgery, and anesthesiology. We emphasize the role of anesthesiologists in perioperative coordination of subspecialties, preoperative evaluation, and intra-operative management of complex cardiothoracic surgeries.

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