



Catastrophic Endobronchial Haemorrhage During Rigid Bronchoscopy: A Case Report Highlighting Human Factors

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Abstract

Rigid bronchoscopy is central to the management of foreign body aspiration and haemoptysis. Catastrophic endobronchial bleeding remains rare but life threatening. We report a 60 year old man referred with a presumed chronic right lower lobe foreign body. Rigid bronchoscopy identified a firm endobronchial lesion. Piecemeal removal precipitated torrential haemorrhage with rapid desaturation and pulseless electrical activity arrest. Immediate wedging of the rigid bronchoscope achieved partial tamponade but failed to control bleeding. Emergency tracheostomy enabled salvage thoracotomy and right lower lobectomy, with restoration of haemodynamic stability. Histology demonstrated follicular lymphoma and pulmonary hamartoma. The patient made an uneventful recovery. This case identifies the technical principles of airway tamponade and prompt progression to definitive surgery, and highlights the importance of communication, situational awareness, and emotional regulation in managing thoracic surgical emergencies.

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Introduction

Rigid bronchoscopy is indicated for foreign body removal and management of haemoptysis. Catastrophic haemorrhage during rigid bronchoscopy is uncommon but recognised¹. Technical manoeuvres such as wedging the bronchoscope to tamponade bleeding have been described¹. Equally critical is early recognition that endobronchial control may be futile, necessitating immediate transition to surgical intervention.

Case Report

A 60 year old man was referred with a suspected right lower lobe endobronchial foreign body identified on CT imaging (Figure 1). His history included a collapse requiring cardiopulmonary resuscitation, medically managed coronary artery disease, and unexplained abdominal

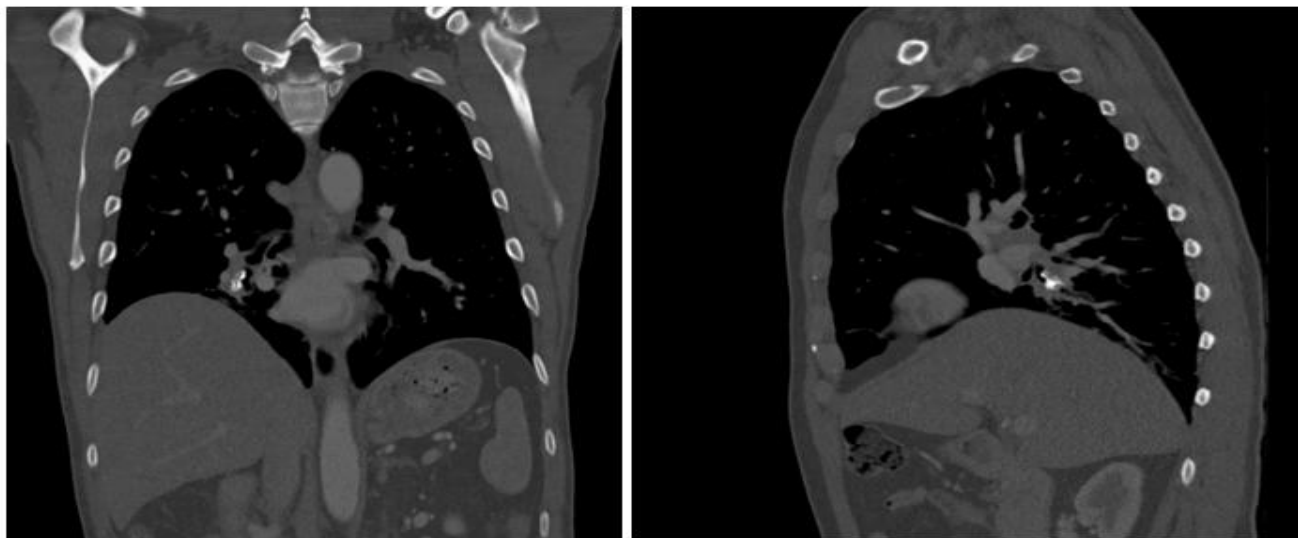
lymphadenopathy. Flexible bronchoscopy demonstrated aspiration with a likely foreign body. Bronchial washings grew *Streptococcus pneumoniae* and *Haemophilus influenzae*.

Recurrent angina and anaesthetic optimisation delayed rigid bronchoscopy for almost one year. The patient was counselled regarding the risks of delay, including haemoptysis and technical difficulty. Preoperative briefing anticipated bleeding. Pledgets, cold saline, and adrenaline were prepared. A thoracotomy set was immediately available.

Rigid bronchoscopy demonstrated normal proximal anatomy and a firm white endobronchial lesion in the right lower lobe bronchus with copious secretions (Figure 2). After suction clearance,



Figure 1: CT imaging demonstrating right lower lobe endobronchial lesion.



biopsy forceps allowed piecemeal extraction. Removal of the final fragment resulted in torrential bleeding with complete loss of vision. The bronchoscope, already positioned in the right bronchial tree, was wedged to provide tamponade while the contralateral lung was partially ventilated. Bleeding persisted with rapid desaturation culminating in pulseless electrical activity arrest.

Clear communication between surgical and anaesthetic teams followed. Endotracheal intubation was not feasible. Emergency tracheostomy secured the airway and permitted immediate thoracotomy and right lower lobectomy. Haemorrhage was definitively controlled. The patient stabilised, was decannulated the following day, and discharged three days later.

Histopathology revealed follicular lymphoma and pulmonary hamartoma. At six months he remained well. Postoperative PET imaging demonstrated satisfactory appearances (Figure 3). A structured team debrief addressed both technical and emotional aspects of the event.

Discussion

Transition from bronchoscopy to emergency pulmonary resection is a profound decision, intensified by physiological instability and cognitive load. Delay risks irreversible deterioration. Early anticipation, equipment readiness, and decisive leadership were central to survival in this case.

Figure 2: Rigid bronchoscopic view of right lower lobe lesion following suction clearance.

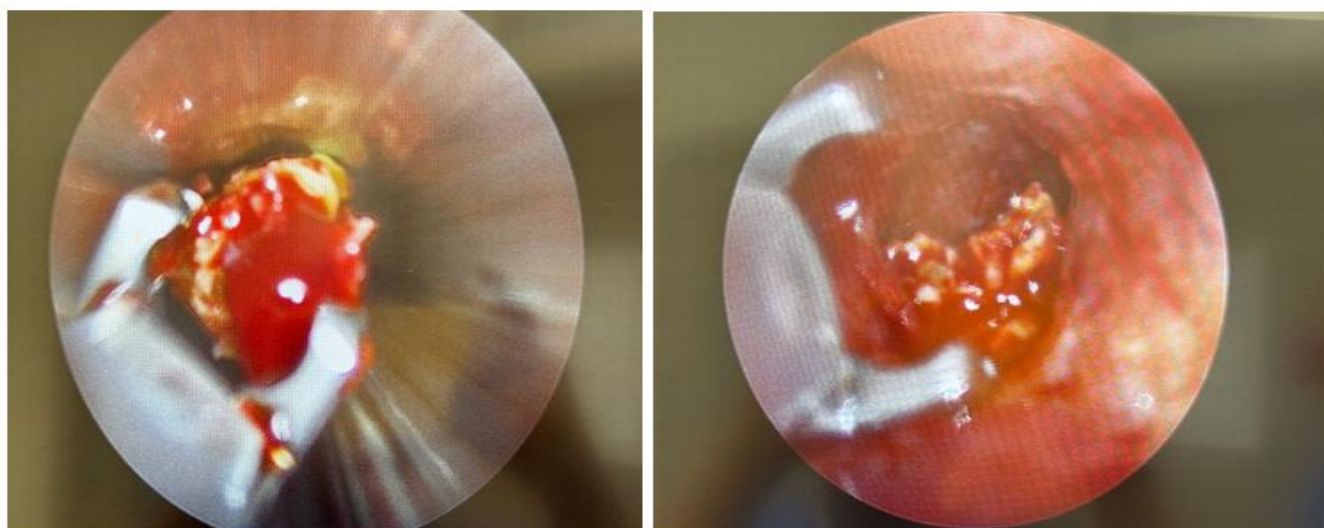
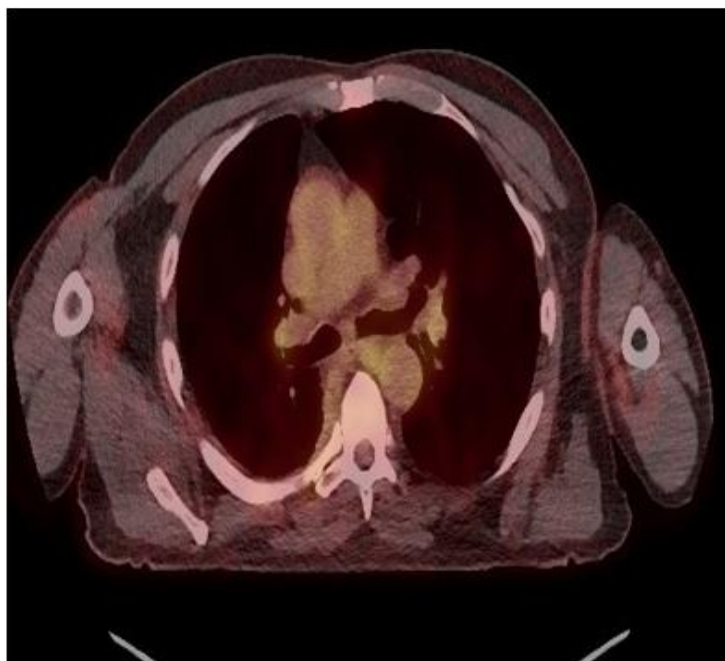
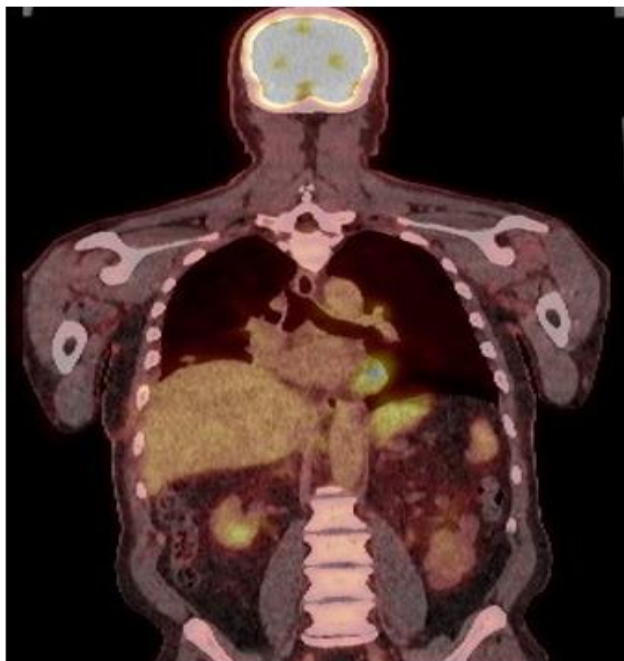




Figure 3: Postoperative PET imaging showing satisfactory thoracic appearances.



Non-technical skills are increasingly recognised as determinants of surgical outcomes². Communication, situational awareness, and stress management underpin effective crisis response. Failures in systems and processes remain common contributors to adverse events². Here, structured briefing and shared mental modelling facilitated rapid escalation to definitive surgery.

Emotional intelligence, encompassing self-awareness, self-regulation, motivation, empathy, and social skill³, has relevance in high risk thoracic practice. Measured communication in crisis preserves clarity and efficiency. Post event debrief supports team cohesion and future performance.

Catastrophic airway bleeding is a feared complication of thoracic procedures. Technical expertise is indispensable, but optimal outcomes depend equally on disciplined teamwork and decisive action.

Conflicts of interest: None declared

Patient Consent: The authors hold written consent from the patient for publication.

References

1. Maguire MF, Berry CB, Gellett L, Berrisford RG. Catastrophic haemoptysis during rigid bronchoscopy: a discussion of treatment options to salvage patients during catastrophic haemoptysis at rigid bronchoscopy. *Interact Cardiovasc Thorac Surg*. 2004;3:222–5.
2. Stahel PF, Cobianchi L, Dal Mas F, Paterson-Brown S, Sakakushev BE, Nguyen C, et al. The role of teamwork and non-technical skills for improving emergency surgical

outcomes: an international perspective. *Patient Saf Surg*. 2022;16:1–10.

3. Goleman D. *Emotional Intelligence*. New York: Bantam Dell; 1995.