Recidivism resulting in a large thoracic esophageal perforation and transfusion reaction

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Objective

To present a rare case of recidivism resulting in the largest reported blunt thoracic esophageal injury in which the patient survived and in an associated blood transfusion reaction.

Introduction

Recidivism is the idea that a prior injury pattern causes worse outcomes on a subsequent injury.

Blunt esophageal injury is exceedingly rare with an incidence of approximately 0.001% and diagnosis is frequently delayed due to non-specific clinical findings. While 82% of traumatic esophageal injuries are localized above the carina in the cervical esophagus, our patient's condition originated in the thoracic esophagus which has an estimated mortality rate of 44-50% due to mediastinal and pleural infections that can progress to sepsis with multi-organ failure.

Method

We analyzed the diagnostic assessment and management of a large thoracic esophageal injury and transfusion reaction in a single patient who sustained significant blunt polytrauma, with significant past medical history of penetrating chest trauma requiring extensive chest surgery, abdominal surgery, and massive blood transfusion. We reviewed and discussed the literature regarding blunt esophageal trauma to highlight the extraordinary nature of this case in the context of recidivism.

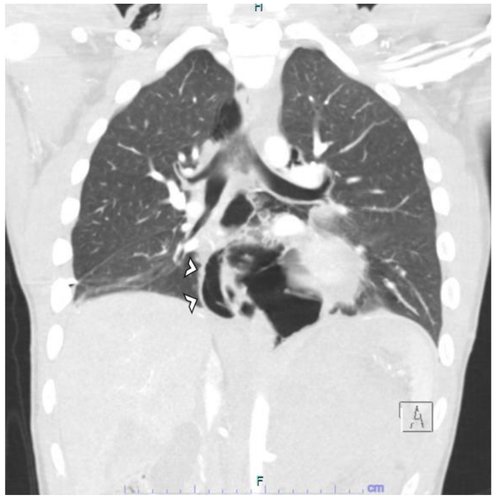


Image 1: The patient's initial trauma computed tomography (CT) with contrast demonstrates a large volume pneumomediastinum (white arrowheads) that produces a mass effect along the posterior aspect of the heart which is consistent with an esophageal injury.

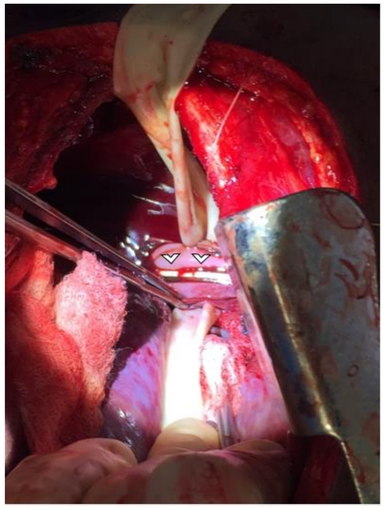


Image 2: An intra-operative view of the left chest thoracotomy via the sixth intercostal space. Adhesiolysis was performed with the subsequent placement of a penrose drain around the esophagus and of a nasogastric tube (white arrowheads) past the 10 cm defect.

Results

The patient—a mid-twenty-year-old African American male who survived a remote gunshot wound to the chest requiring clamshell thoracotomy, laparotomy, and massive blood transfusions—presented as a pedestrian struck by a motor vehicle. The patient sustained significantly more complex polytrauma secondary to recidivism; the patient had developed adhesions following his previous thoracic trauma likely leading to tethering and considerable tearing of the esophagus when he was later struck by a vehicle. This is evidenced by the known rarity of blunt esophageal injury and that it is likely to occur in patients who are older, female, and white, and in the thoracic esophagus. Recidivism is further illustrated by the patient's transfusion reaction as the patient received uncrossmatched O-(Rh) positive blood during both his initial and presenting traumatic injuries.

Conclusion

This idea of recidivism causing a subsequently worse outcome because of the prior injury patterns has not been extensively studied. This presentation discusses an unusual and extensive esophageal perforation and a blood transfusion reaction that was complicated because of the patient's previous traumatic injuries. This case not only contributes to the small number of cases resulting in survival from blunt thoracic esophageal trauma, but it also highlights a specific scenario where adhesive disease from previous penetrating trauma and prior blood transfusion contributed to the injury's complexity and severity. This study and associated literature review presents an opportunity for additional research into recidivism, which can positivity influence community outreach and injury prevention.