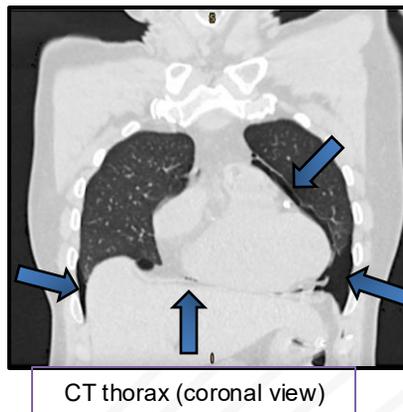
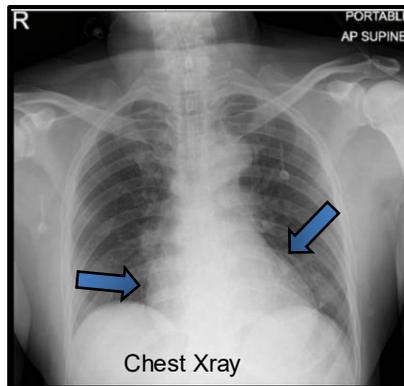


Introduction

The simultaneous presence of pneumopericardium, pneumomediastinum, and bilateral pneumothorax after blunt chest trauma is rare, especially without tracheobronchial or oesophageal injury. We report a case likely caused by the Macklin effect rather than catastrophic trauma. This highlights the importance of thorough imaging and clinical vigilance to distinguish the Macklin effect from life-threatening injuries, helping avoid misdiagnosis and unnecessary surgical intervention.

Case Description

A 70-year-old male with u/l DM, HPT, & HPL was involved in a motor vehicle accident without a helmet. He sustained a scalp laceration, brief LOC, and retrograde amnesia. On arrival, he had 3 episodes of vomiting and drop in GCS and requiring intubation for cerebral resuscitation and airway protection. Initial E-FAST revealed bilateral barcode signs suggestive of bilateral pneumothorax. Chest X-ray detected pneumopericardium and pneumomediastinum without clear pneumothorax or rib fractures. CT thorax confirmed bilateral pneumothorax, pneumopericardium, and pneumomediastinum, **with no evidence of tracheobronchial injury or oesophageal injury.** Chest tube was inserted on the left side, patient hemodynamically stable and was discharged well.



Discussion

Absence of subcutaneous emphysema and clinical signs of tracheobronchial and oesophageal injury highlights the diagnostic challenge of this triad. The Macklin effect explains the air escape, where alveolar rupture leads to air dissecting along bronchovascular sheaths into the mediastinum, pericardium, and pleural space. While blunt trauma, vomiting, or coughing can trigger this phenomenon, its occurrence without airway disruption and oesophageal disruptions remain rare. Left chest tube inserted in view of patient on PPV. However, the patient remained hemodynamically stable, and conservative management led to complete recovery.

Conclusion

This case underscores the importance of detailed imaging and a high index of clinical suspicion in the evaluation of thoracic trauma. Recognizing the Macklin effect is crucial; it helps differentiate a self-limiting phenomenon from life threatening injuries like tracheobronchial or oesophageal injuries. Conservative management of the Macklin effect and related findings is safe and effective, with good patient outcomes.

Keywords

Pneumopericardium, Pneumomediastinum, Pneumothorax, Macklin effect

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