Into the Unknown: Exploring a Case of Massive Atraumatic Hemothorax with Enigmatic Origins

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Introduction

Atraumatic hemothorax presents a diagnostic challenge due to its rarity and the wide, diverse range of potential etiologies. We present a case of massive hemothorax without a clear cause, aiming to highlight the complexities of this pathology and the critical considerations necessary for accurate diagnosis.

Case Presentation & Hospital Course

A 20-year-old male with a history of thoracic spine surgery presented to the ED following two witnessed syncopal episodes and a one-day history of nausea, vomiting, myalgias, and right-sided back pain. The patient began practicing Jiujitsu two days prior but denies any injuries. Upon EMS arrival, systolic blood pressure was 90 mm Hg and the patient remained hypotensive despite receiving two units of crystalloids.

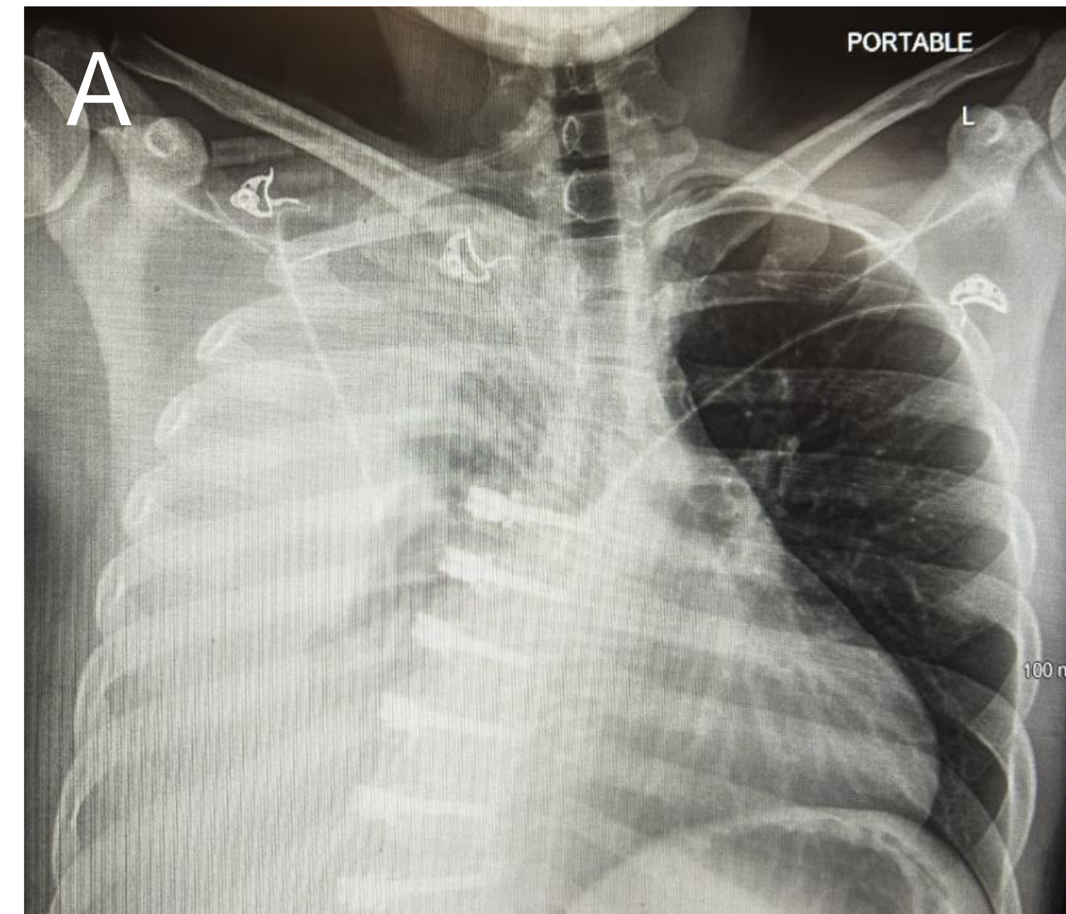
- FAST exam: negative
- Chest X-ray: large right-sided pleural effusion
- Diagnostic thoracentesis and tube thoracostomy: evacuated three liters of blood

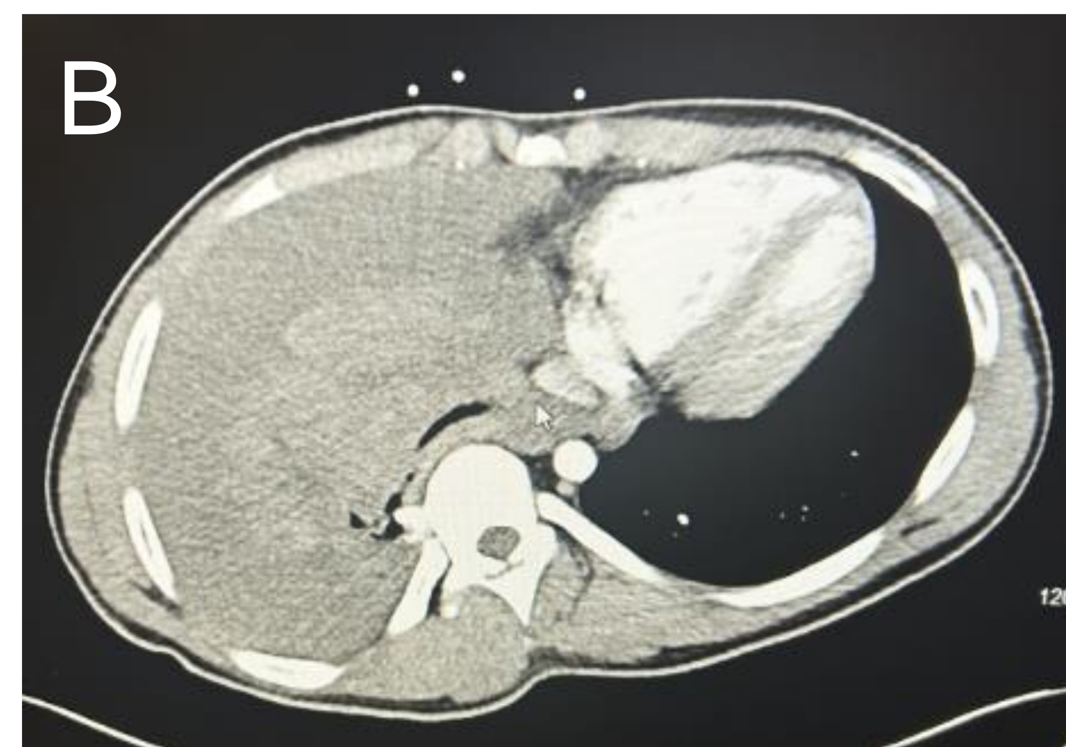
The patient was transferred for higher level of care, and transfused four units of packed red blood cells, one unit of jumbo fresh frozen plasma, and a bolus of tranexamic acid.

- Repeat thoracostomy with chest tubes placed: evacuated additional 700-800 mL of sanguineous blood
- CT angiography of chest, abdomen, and pelvis: negative for active contrast extravasation or traumatic injury of the aorta and its branches.

Over the following five days, the patient's symptoms and hemothorax resolved, chest tubes were removed, and the patient was discharged.

Imaging Studies





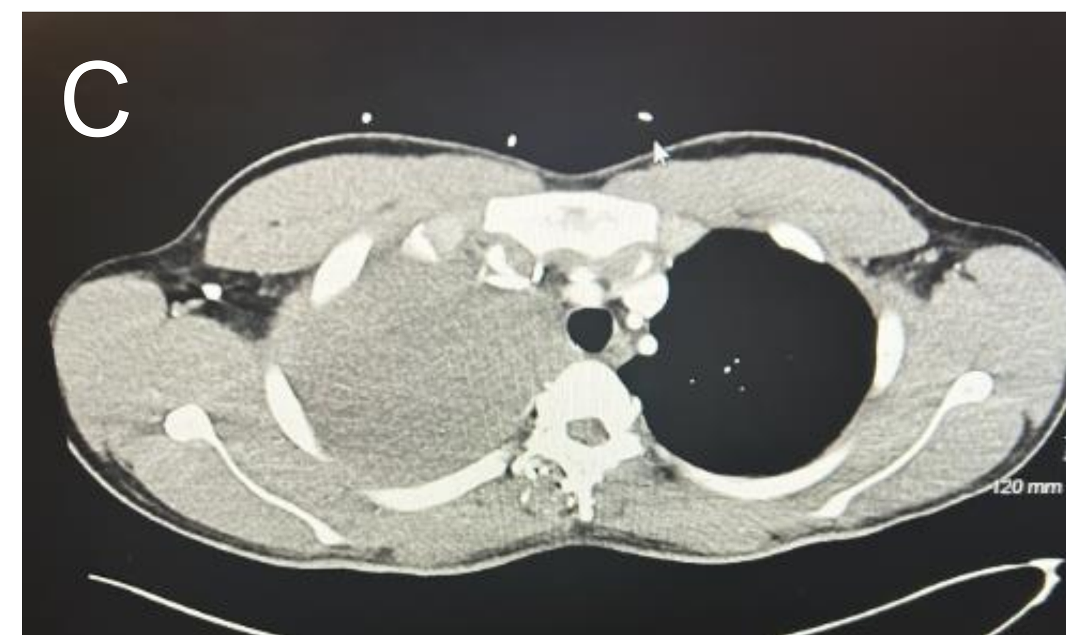


Figure A & B: Chest CT scans highlighting a significant hemothorax in the right hemithorax. Figure C: Chest X-ray, further confirming the presence of a hemothorax in the right hemithorax.

Discussion

- Massive hemothoraces are defined by blood drainage exceeding 1,000 mL following closed thoracostomy[1].
- Typically, they are associated with high-energy trauma, such as blunt or penetrating chest injuries. However, we present an unusual case involving **minimal to no evident trauma**.
- We suspect possible intercostal artery damage, although such an injury would typically not result in a massive hemothorax
- We must also consider the possibility of a massive, non-traumatic hemothorax due to[2]:
  - Coagulopathies (e.g. hemophilia)
  - Vascular malformations[3]
  - Connective tissue diseases
  - Autoimmune diseases
  - Costal exostoses[4]
- Given the unclear history, maintaining a broad differential diagnosis is crucial. We recommend clinical follow-up for this patient to further evaluate symptom recurrence and investigate any potential underlying causes of their condition.
- Our case underscores the importance of obtaining a detailed history during patient encounters and **maintaining a high index of suspicion for hemothorax in cases of refractory hypotension, even in the absence of a clear trauma history**.

Conclusion

Our case emphasizes the importance of critically evaluating the patient's history and maintaining a broad differential diagnosis in cases of persistent hypotension. The absence or lack of clear trauma history should not preclude thorough evaluation for hemothorax.

References

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