FINDING THE LEAKING PIPE: COVERT TRAUMATIC THORACIC AORTIC INJURY.

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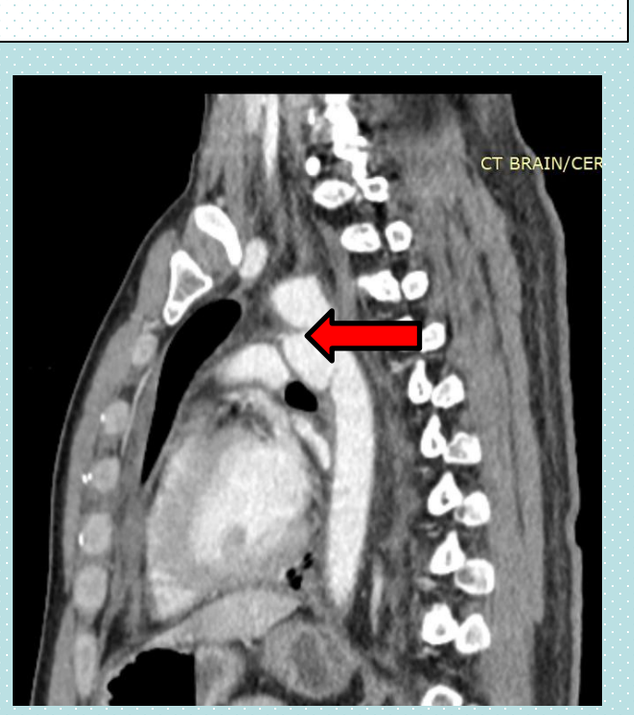
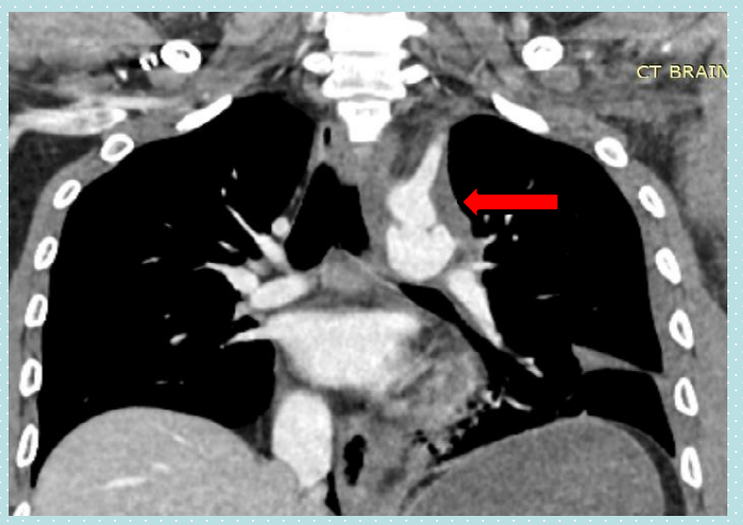
INTRODUCTION

Blunt Traumatic Aortic Injury (BTAI) is the second most common cause of mortality in trauma patient. The mortality from BTAI mainly occurs in the first peak of trimodal death in trauma (80% cases). The diagnosis of BTAI is however, remains a challenge.

CASE

A 33-years-old gentleman presented with an alleged fall from a three-story building. At the scene, the patient was hypotensive with no apparent overt bleeding. Pre-hospital Trauma Alert was activated from the scene, and he was brought to the resuscitation bay of our Emergency and Trauma Department (ETD). In ETD, Trauma Team Activation (TTA) was activated where the patient was persistently hypotensive and complained of left-sided chest pain radiating to the back. Blood products were transfused. Primary and secondary surveys revealed no obvious life-threatening injuries. Chest radiograph showed no widening mediastinum and electrocardiogram was unremarkable. Given the negative finding of Focused Assessment Sonography in Trauma (FAST) and full Glasgow Coma Scale (GCS) patient, Trauma Team implemented the balanced resuscitation and subjected the patient for Whole-Body Computed Tomography (WBCT). It showed a thoracic transection at the aortic isthmus measuring 2.4cm x1.5cm x2.3cm with minimal left hemothorax. Subsequently, the patient was admitted to the high dependency ward. In the ward, he developed worsening hemothorax which required thoracocentesis, and the transected aorta was treated conservatively. He was discharged well after 24 days and was given follow-up.





DISCUSSION

Managing hypotensive polytrauma patients with negative findings of primary survey and its adjunct are challenging. Hypotensive trauma patients' mantra is that hemorrhage necessitates TTA with early surgeon attention. Even though utilization of FAST has improved diagnostic yield, it may miss “blind spot’ areas such as the thoracic descending aorta making its sensitivity lower than other modalities.[1] Furthermore, hypotensive polytrauma patients may be due to combined etiologies that may limit the usage of FAST. Current European guidelines by Spahn et al. recommend early imaging using WBCT for detection and identification of type injury and the potential source of bleeding (grade 1B) and FAST for detection of free fluid in a patient with torso trauma (grade 1C).[2]

Transesophageal echocardiography (TEE) is the best option to detect BTAI in persistently unstable intubated patients.[3] It can detect anatomical lesion and its complications, but due to limited expertise in many centers, it is still remained under-utilized. Case series published in 2020 revealed that TEE is practical to be performed in emergency room.[3] Chest CT angiogram is the gold standard to rule out BTAI.[4] However in unstable patients, one should carefully weigh the risk and benefit of transferring these patients to radiology department for this purpose.

In treating patients with BTAI, it requires a high index of suspicion where the bio-mechanic leading to BTAI involves rapid deceleration such as fall from height and high-speed motor vehicle collision.[4] To differ it from other common injuries, there are no clinical signs and symptoms which are sensitive or specific enough to detect BTAI. Plain chest radiograph will show indirect signs of aortic injury, however it has poor sensitivity to serve as as a screening tool.[4,5] Therefore, further imaging is needed to support this working diagnosis.[3]

Our patient underwent WBCT despite his hemodynamic relatively instability. Traditional way of pushing unstable patient to operation theater was not chosen due to lack of apparent clinical signs indicating major organ injury. Permissive hypotensive resuscitation (PHR) which was commenced indirectly protect against expansion of aortic tear. Our case highlights the importance of sound clinical Trauma Team decision making in complicated scenario.

CONCLUSION

Blunt thoracic aortic injury is a diagnostic challenge in ETD which require a high index suspicion, deliberate assessment of trauma kinetic and careful decision making to minimize its catastrophic complications. Trauma Team Activation with WBCT protocol is a system that will save the severe polytrauma patient.

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