Medical Image of the Week: Traumatic Aortic Dissection

Figure 1. Chest x-ray demonstrating widened mediastinum with prominence of the aortic arch.

Figure 2. Contrast enhanced CT axial (A, left) and coronal (B, right) views demonstrate descending thoracic aortic dissection with mediastinal hematoma and intimal flap (arrow).

A 21-year-old gentleman with no significant past medical history presented to the emergency department following a highway speed motor vehicle collision. The patient was a restrained passenger in the back seat of the vehicle. On initial evaluation the patient was in stable condition and complaining of acute onset back pain. Physical exam was remarkable for facial contusions, tenderness to palpation about the thoracic and lumbar spine, and a normal neurologic exam.

Imaging with chest x-ray (CXR) revealed widening of the mediastinum with prominence of the aortic arch (Figure 1). Further investigation with contrast enhanced computed tomography (CT) of the chest, abdomen and pelvis showed descending thoracic aortic dissection with mediastinal hematoma (Figure 2). The patient underwent successful endovascular repair and was discharged in stable condition.

Acute traumatic aortic injury is a potentially life-threatening condition requiring prompt evaluation. Initial investigation in the trauma setting often includes CXR imaging (1). CXR findings which should raise suspicion for aortic injury in the appropriate clinical scenario include mediastinal widening, abnormality of the aortic silhouette, and right side tracheal deviation.

CT angiography (CTA) is considered the definitive diagnostic modality in most cases, with high sensitivity and specificity. Mediastinal, periaortic and retrocrural hematoma are findings suggestive of traumatic aortic injury. Definitive findings include contrast extravasation, irregularity of the aortic contour, contained rupture, intramural thrombus, and aortic dissection.

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Reference

1. Nagpal P, Mullan BF, Sen I, Saboo SS, Khandelwal A. Advances in imaging and management trends of traumatic aortic injuries. *Cardiovasc Intervent Radiol*. 2017 May;40(5):643-54. [\[CrossRef\]](#) [\[PubMed\]](#)