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Figure 1. Scout image from computed tomography on initial presentation to trauma center in Baghdad. Black arrows point to pleural apical cap. White arrows point to the paratracheal stripe.

Figure 2. Contrast enhanced axial computed tomography image of the chest. Arrows indicate intimal flaps associated with traumatic aortic injury.

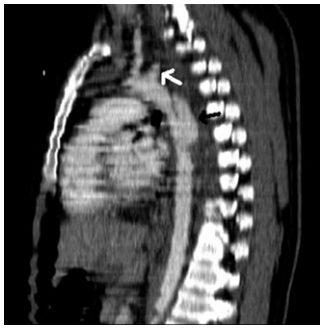

Figure 3. Contrast enhanced double-oblique computed tomography reformation image of the chest. Black arrow points to the site of the traumatic aortic injury at a characteristic site just distal to the left subclavian artery (white arrow). Used with permission of the 10th Combat Support Hospital, Baghdad, Iraq, US Army.

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A 27-year-old male was involved in a head-on collision with a humvee, speed unknown, at approximately 3 pm near Al Taqaddum, Iraq. The patient was taken to the closest medical facility which had limited radiological and surgical capabilities, where he underwent evaluation for injuries. On initial evaluation, the patient presented with stable vital signs including a blood pressure of 136/60 mm Hg. He complained of severe right thigh pain but denied head, chest, abdominal or neck pain. On physical examination, he was noted to have moderate right thigh swelling but had no chest wall tenderness, abnormal breath sounds, abdominal pain or focal neurological deficits. His femur x-ray was significant for a mid-shaft fracture with moderate displacement while his chest radiograph was similar to the scout film seen in Figure 1. The medical facility did not have a computed tomographic scan thus the patient was taken to the operating room for external fixation of his femur fracture. The patient remained stable throughout the surgical procedure as well as afterwards in the post-anesthesia care unit. Once extubated, the patient was evacuated to the main trauma center in Baghdad, Iraq for new chest pain. On arrival to our facility at 4 am the following day, the patient continued to have stable vital signs but complained of increasing chest pain radiating to the back. The subsequent contrast chest computed tomography in Figures 2 and 3 revealed the injury.

For the diagnosis and teaching points, see page 419.
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DIAGNOSIS:

Traumatic aortic transection. The scout film from the computed tomography scan revealed an abnormal superior mediastinum, a left apical pleural cap, a left mediastinal stripe above the aortic arch, and an abnormal right paratracheal stripe. These are all classical chest radiograph findings for mediastinal hematoma (Figure 1). The contrast-enhanced computed tomography scan revealed complete transaction of the proximal descending thoracic aorta with traumatic pseudoaneurysm formation just distal to the left subclavian artery as evidenced by active extravasation of contrast outside of the aortic lumen (Figure 2). Double-oblique parasagittal reformation revealed the proximal and distal extent of the injury, with approximately 1 cm between the ends of the transected aorta (Figure 3).

Aortic transaction is a frequently fatal traumatic injury. Of those who suffer acute traumatic aortic injury, roughly 80-85% exsanguinate before they even reach the hospital. About half of the remaining 15-20% die within the first 24 hours. Only about 2-5% are long-term survivors.[1]

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