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SESAP Critique
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Category 11, items 33 to 35

Traumatic aortic rupture can be very difficult to diagnose. Routine chest x-ray, especially the anteroposterior film frequently obtained in the emergency department, is a very poor screening test. It depends on mediastinal changes associated with aortic injury, but does not show the aorta directly. It will usually detect a large mediastinal hematoma. Such signs as widening of the mediastinum, displacement of the left main bronchus or trachea, left apical extrapleural hematoma, and fractures of the first or second ribs may be clues to the presence of aortic injury, but many potentially fatal injuries will be completely missed by the chest x-ray. Ultrasonography, which has been helpful in the diagnosis of intra-abdominal bleeding, is also not useful in the chest. In the past, the only really reliable method for excluding aortic rupture was aortography, which is much too complex and expensive to be used for routine screening.

Helical computed tomography (CT) is routine for blunt injury to the chest and abdomen in many trauma centers. It has both sensitivity and specificity for aortic injury of ≥ 95%. In other words, this test will detect almost all aortic injuries, with no false positives.

The patient whose CT is unclear, suggestive, or equivocal should proceed to aortography. Even if the finding of aortic rupture is very clear, the CT may still be inadequate to delineate the anatomy of the injury. Most thoracic surgeons would like to see an aortogram for precise definition of the aortic injury.

Transesophageal echocardiography (TEE) provides an accurate look at the aorta, but may require a special tech ician, is rarely available at night or on weekends, and will miss injuries to the great vessels. In most hospitals, it is best to call in the angiography team. TEE can be a useful adjunct to helical CT, and is occasionally used for further delineation of an injury seen on aortography.

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