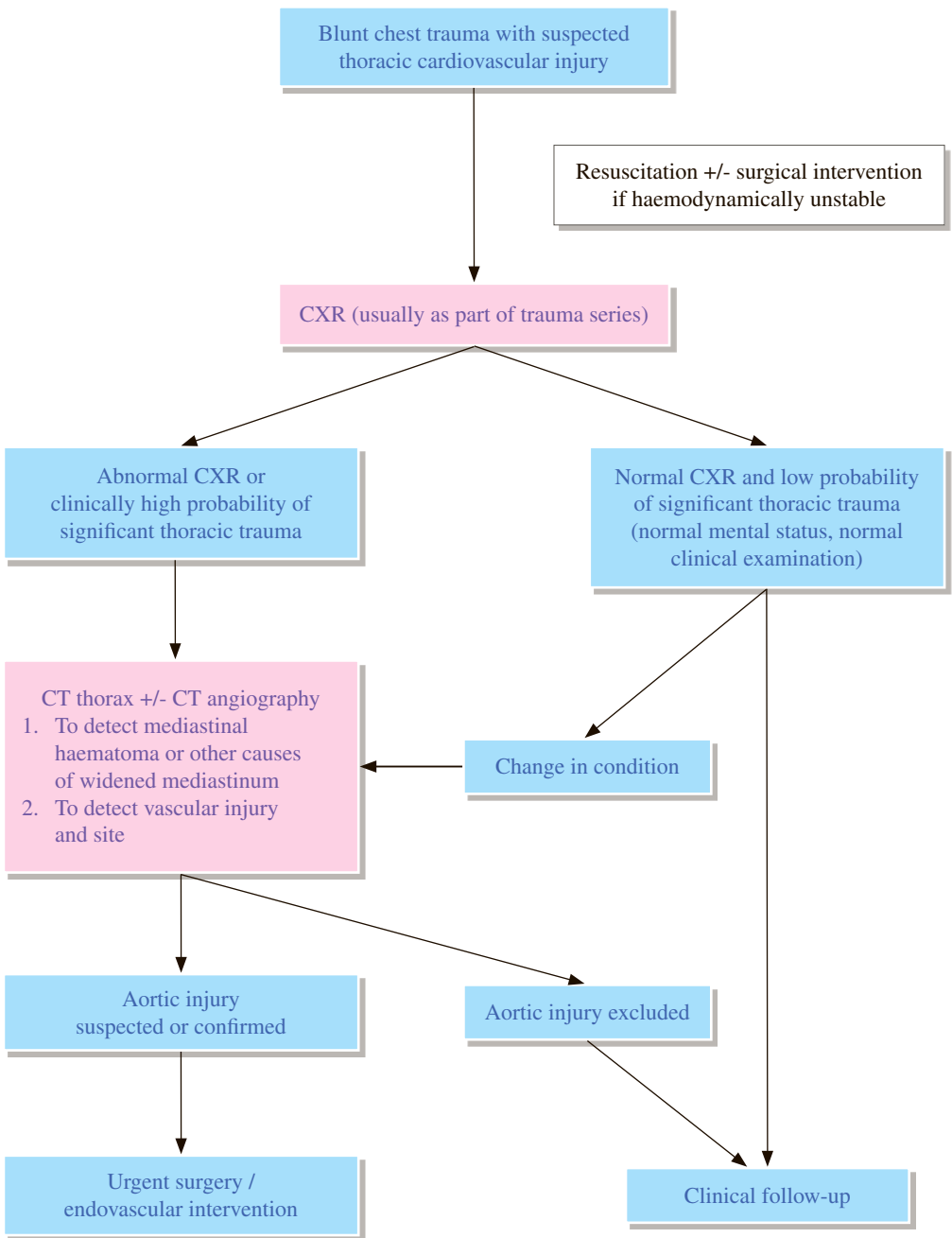


CV 1 Blunt chest trauma with suspected thoracic cardiovascular injury



REMARKS

1 Plain radiograph

- 1.1 Remains the primary screening modality despite the advent of newer imaging modalities.
- 1.2 7 – 11% of patients with aortic rupture have an initial normal chest X-ray (CXR).
- 1.3 Most common finding on CXR is widening of mediastinum (90% sensitivity but only 10% specificity for aortic injury).
- 1.4 Radiographic signs of blunt thoracic aortic injury:
 - 1.4.1 Widened mediastinum (defined as transverse dimension \geq 8cm from the left side of the aortic arch to the right margin of the mediastinum or mediastinum to chest-width ratio \geq 25%)
 - 1.4.2 Loss of the aortopulmonary window or loss of definition of the descending thoracic aorta
 - 1.4.3 Widened right paratracheal stripe or paraspinal stripe
 - 1.4.4 Tracheal shift to the right of the T4 spinous process
 - 1.4.5 Left main stem bronchus depression
 - 1.4.6 Nasogastric tube displaced to the right
 - 1.4.7 Left apical pleural cap sign

2 CT and CT angiography

- 2.1 CT has become the reference-standard imaging study for the diagnosis of blunt traumatic aortic injury and has almost completely replaced catheter aortography and transoesophageal echocardiogram (TOE).
- 2.2 CT angiogram (CTA) has high sensitivity and specificity in detection of blunt thoracic aortic injury.
- 2.3 When initial trauma survey and mechanism of injury suggest a low probability of significant thoracic trauma (normal mental status, normal clinical examination and normal CXR), further assessment with chest CT thorax or CTA may not be necessary.
- 2.4 Routine use of CT thorax should be strongly considered in patients with high energy mechanism of injuries, abnormal CXR, altered mental status, distracting injuries, or clinically suspected thoracic aortic injuries.

3 Echocardiogram

- 3.1 Transthoracic echocardiogram (TTE) is helpful in suspected cardiac injury and excluding cardiac rupture and acute valvular injury.
- 3.2 TOE is more sensitive than TTE but more invasive and usually requires sedation, therefore it is rarely used as an initial evaluation.
- 3.3 Limitations include lack availability of cardiologists skilled in performing TEE in the emergency setting; blind spots in distal ascending aorta/arch vessels.

4 MRI

- 4.1 MRI does not have a role in initial evaluation of critically ill, haemodynamically unstable patients.

5 Catheter angiography

- 5.1 Gold standard in evaluating injury to the aorta and its main branches.
- 5.2 Now largely replaced by CTA for initial assessment and reserved mainly for endovascular intervention in confirmed cases.
- 5.3 Angiographically confirmed aortic injury is found in only 10 – 20% of patients with mediastinal widening.

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