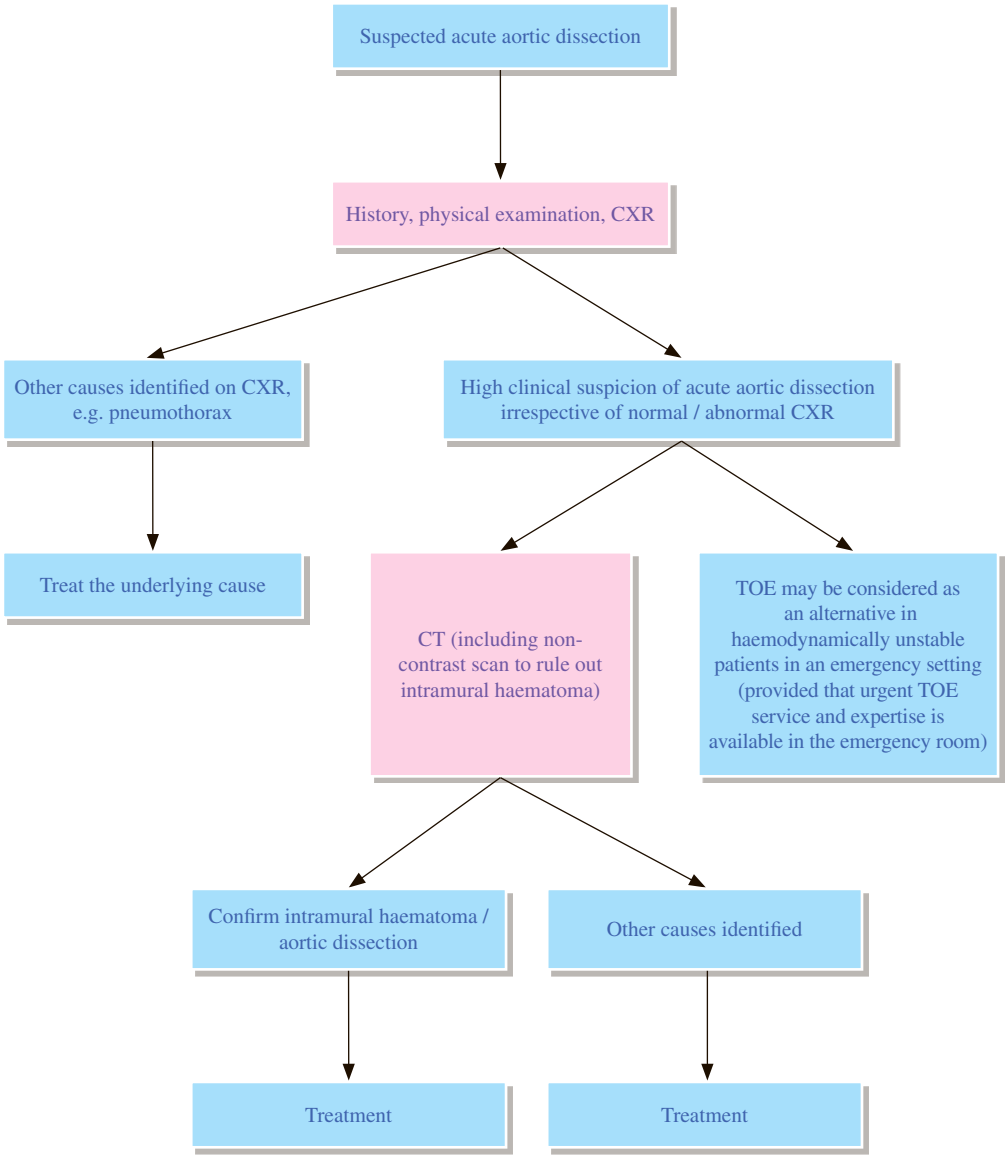
CV 2 Acute aortic dissection



REMARKS

1 Plain radiograph

1.1 Chest x-ray (CXR) is performed primarily to exclude other causes of acute chest pain in patients with suspected aortic dissection, e.g. pneumothorax.

1.2 CXR may identify signs suggestive of aortic dissection, such as widening of mediastinum, altered aortic contour, displaced intimal calcification (but these are not always present).

1.3 Normal CXR cannot exclude aortic dissection.

2 CT

2.1 CT is the recommended definitive investigation for suspected aortic dissection.

2.2 CT is minimally invasive, fast, readily available in most hospitals, and instigates less patient discomfort.

2.3 CT can provide evaluation of the type and extent of aortic dissection, thereby aiding the clinical management decision.

2.4 CT can also detect other causes of chest pain other than dissection, e.g. thoracic pathology.

2.5 Non-contrast CT is important to detect acute intramural haematoma.

2.6 In case of suspected aortic root involvement, electrocardiogram (ECG) gated CT improves diagnostic accuracy.

3. MRI

3.1 MRI is considered as an accurate technique for diagnosis of aortic dissection.

3.2 MRI is not advocated as the initial diagnostic test for acute aortic dissection under the following conditions:

- 3.2.1 Limited scanner and skilled technologist availability on emergency basis
- 3.2.2 Long examination time which is not favourable for critically ill patients
- 3.2.3 Patient factors such as inability to hold breath or cardiac arrhythmia which may produce significant artefacts and a non-diagnostic scan
- 3.2.4 Presence of MRI-incompatible implants and devices including pacemaker
- 3.2.5 Difficulties in monitoring ill patients in the MRI suite

3.3 MRI may be considered in stable patients for the purpose of follow-up of chronic dissection or as an alternative in patients contraindicated for iodinated intravenous (IV) contrast.

4. Echocardiography

4.1 Transoesophageal echocardiography (TOE) has the advantage of bedside use in haemodynamically unstable patients.

4.2 It is useful in detecting dissection involving the descending thoracic aorta.

4.3 Limitations of TOE include the dependence on operator skill; limited availability of clinicians who are skilled and experienced in performing TOE in emergency setting; the blind area of distal ascending aorta and arch vessels assessment; and the inability to assess distal extent of dissection in the abdomen.

5. Catheter angiography

5.1 It was historically the gold standard for diagnosing aortic dissection.

5.2 It is now rarely used for the diagnosis of aortic dissection.

5.3 It is invasive, requiring direct puncture of the arterial system.

5.4 It is used for part of therapeutic endovascular procedures, or for pre-operative angiographic assessment of coronary arteries.

REFERENCES

1. Hiratzka LF, Bakris GL, Beckman JA, Bersin RM, Carr VF, Casey DE, et al. 2010 ACCF/AHA/AATS/ACR/ASA/SCA/SCAI/SIR/STS/SVM Guidelines for the Diagnosis and Management of Patients With Thoracic Aortic Disease: Executive Summary. J Am Coll Cardiol 2010; 55: 1509-1544.
2. Jacobs JE, Latson Jr LA, Abbara S, et al. ACR Appropriateness Criteria® Acute Chest Pain – Suspected Aortic Dissection. Available at https://acsearch.acr.org/docs/69402/Narrative/. American College of Radiology. Accessed 2017 June 1.
3. The Royal College of Radiologists. iRefer: Making the best use of clinical radiology. 8th ed. London: The Royal College of Radiologists; 2017. Section CC03.