



Clinical Practice Guidelines: Cardiac/Acute aortic dissection

Policy code	CPG_CA_AAD_0118
Date	January, 2018
Purpose	To ensure consistent management of acute aortic dissection.
Scope	Applies to Queensland Ambulance Service (QAS) clinical staff.
Health care setting	Pre-hospital assessment and treatment.
Population	Applies to all ages unless stated otherwise.
Source of funding	Internal – 100%
Author	Clinical Quality & Patient Safety Unit, QAS
Review date	January, 2021
Information security	UNCLASSIFIED – Queensland Government Information Security Classification Framework.
URL	https://ambulance.qld.gov.au/clinical.html

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Acute aortic dissection

January, 2018

Acute aortic dissection is a rare but extremely serious vascular emergency that is challenging to diagnose in the pre-hospital environment.^[1] Acute aortic dissection is a multifactorial disease characterised by the separation of the aortic wall layers. It is distinguished from the abdominal aortic or thoracic aortic aneurysm which is characterised by the chronic dilation of the aortic walls.^[2]

Acute Aortic Dissection occurs when the innermost layer of the aorta tears, resulting in separation of the vessel layers and creation of a false lumen in the aortic wall. This can occur as a result of degeneration through normal aging, diseases associated with weakness of the connective tissues, for example, Marfan's syndrome, or other pathological processes. The false lumen can extend either distally or proximally along the aorta and result in obstruction of adjacent arteries. Rupture of the aorta into the pericardium, pleural or peritoneal cavities is the most common cause of death during the acute early phase.^[3, 4]

The pre-hospital management of acute aortic dissection is focused on appropriate awareness of the condition, pain management, prevention of further anxiety/stress, management of the patient's haemodynamic state and the early prenotification and rapid transport to an appropriate health facility.^[5]

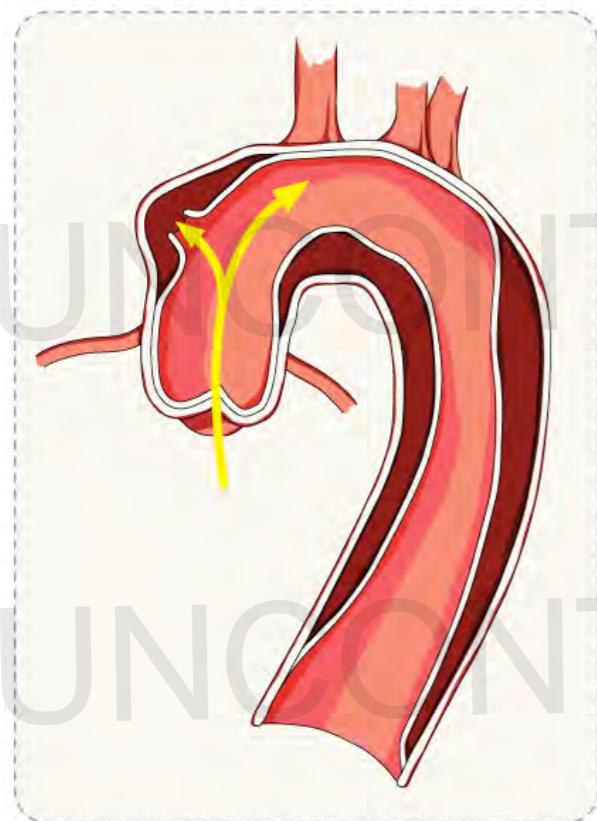
Clinical features



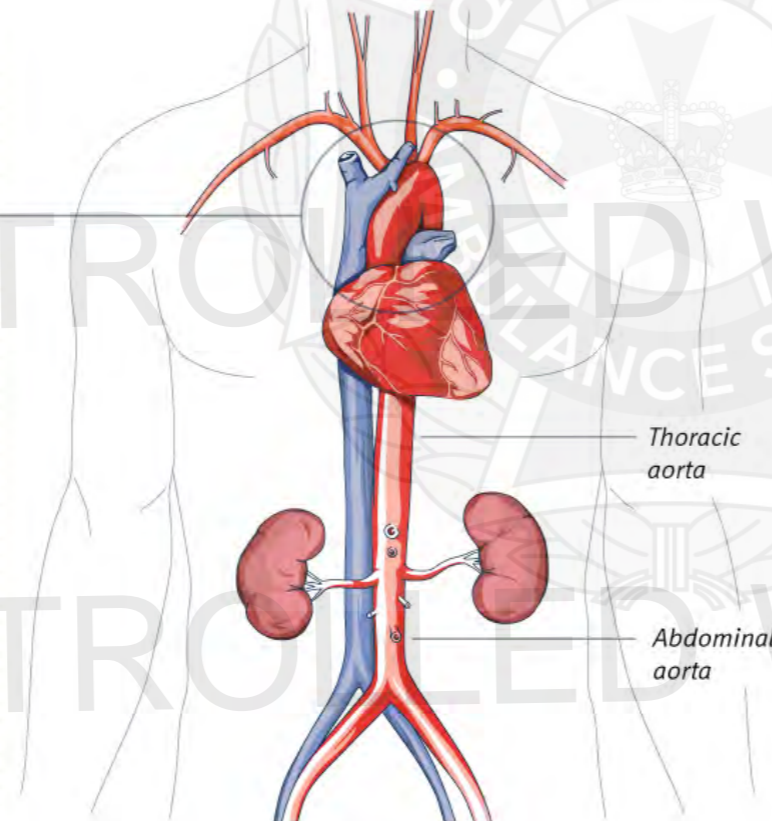
The physical examination findings associated with acute aortic dissection are unreliable and frequently absent, however, given that this condition may be rapidly fatal, a high index of clinical suspicion is required.

Clinical features are often non-specific, with no single sign or symptom able to positively diagnose acute aortic dissection. Clinical findings are often based on the location of the dissection and may include:

- Sudden acute chest pain that is excruciating at onset, often described as sharp/ripping/tearing in quality
- Pain is linked to the location of the dissection: anterior (ascending aorta), neck/jaw (arch), interscapular (descending aorta), and lumbar/abdominal (subdiaphragmatic)
- Pulse deficits (difference between heart beats and pulsations at the radial) Systolic BP differential between arms (> 20 mm Hg)
- Visceral symptoms including pallor, vomiting, and diaphoresis
- Paraplegia
- Altered sensations in the extremities – numbness tingling or pain



Aortic (arch) dissection



Thoracic and abdominal aorta

Clinical features *(cont.)*



- Chest pain with associated neurological deficit
- Syncope^[6]
- Clinical features consistent with cardiac tamponade

NB: Any abrupt chest/back/abdominal pain described as ripping/tearing in nature and associated with evidence of perfusion deficits or focal neurological signs (nerve, spinal cord, or brain) should be considered as acute aortic dissection until proven otherwise.

Risk factors for the development of acute aortic dissection include:

- Males
- > 50 years
- Increased aortic wall stress (e.g. hypertension, cocaine/stimulant use, stress, blunt trauma)
- Medical conditions affecting the connective tissues (e.g. Ehlers-Danlos syndrome, Marfans syndrome, AAA)
- Iatrogenic wall injury (e.g. cardiac/valvular surgery, cardiac catheterisation)
- Pregnancy^[7]

Risk assessment



- Proximal acute aortic dissection may affect coronary arteries and potentially mimic an acute myocardial infarction (AMI).
- Common differential diagnoses include AMI, Pulmonary embolism, spontaneous pneumothorax, pleurisy, stroke, and acute abdominal illness.
- Lethal complications associated with acute aortic dissection include aortic rupture, cardiac tamponade, and visceral ischemia. ^[3,6]

