Extremity vascular injury

Assessment for hard and soft signs of vascular injury should be incorporated into the history, and primary and secondary surveys for any injured extremity

A bedside ABI should be determined for any patient with an indeterminate pulse examination, or suspected vascular injury without any associated hard or soft signs

Hard signs of vascular injury

→ Notify vascular consultant
→ Anticipate urgent vascular repair
→ Further imaging at consultant discretion

Soft signs of vascular injury or ABI <0.9

→ Notify vascular consultant
→ Urgent CTA

No signs of vascular injury and ABI > 0.9

→ Vascular injury is excluded

Hard Signs of Vascular Injury

- Arterial bleeding
- Expanding hematoma
- Absent palpable pulse
- Gross soft tissue ischaemia
- Thrill or bruit

Soft Signs of Vascular Injury

- History of arterial or major bleeding prior to ED
- Non-expanding haematoma adjacent to named artery
- Injury adjacent to a named artery
- Injury or deficit of peripheral nerve adjacent to named artery

NOTES

- For haemodynamic assessment of injured legs, an Injured Extremity Index can be used as an alternative to the ABI, comparing the injured limb ankle pressure to the contralateral leg if uninjured, and the same 0.9 cutoff applies. For arm injuries, a Brachial/Brachial Index should be obtained.
- Consider CTA in patients with shotgun injuries and hard signs of vascular injury.
- For isolated peripheral vascular injury, emergent repair should be anticipated. For polytrauma, the urgency of vascular repair needs to be considered in context with associated major injuries.
- Patients with hard signs of vascular injury will usually require intervention and a vascular surgeon should be contacted. Advanced preoperative imaging is not required for patients with bleeding or an expanding haematoma and will delay definitive care. Preoperative imaging, typically CTA, may be informative to the operative team where other hard signs (lack of pulses, ischaemia or bruit/thrill) are present and can be pursued after discussion with the vascular team. If pursued, such imaging should be done expeditiously.