

Neurovascular Injuries

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Surgical Emergency

Vigilance

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Key part of all orthopaedic examination

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Follow ATLS Protocol

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Early & Rapid intervention is key to successful outcome



Causes

- Acute fractures – particularly severely displaced or high energy
- Crush injuries
- Dislocations
- Burns
- Penetrating injuries
- Following limb surgical procedures (haematoma)



Symptoms & Signs

- Distal neurology (motor/sensory dysfunction)
- Pain
- Injury specific signs
 - See causes
- The pink, pulseless limb must be assumed to have an arterial injury until proven otherwise.



Complications

- Irreversible damage beyond 3-4 hours
 - Increasing risk of amputation.
- Reperfusion injury risk if delayed treatment
 - Myoglobinuria and may be associated with acute kidney injury and increased mortality – Keep a close eye on kidney functions and urine output.
- Compartment syndrome is high following reperfusion.
 - May need to consider prophylactic fasciotomies.



Management

- Manage according to ATLS Principles
- Stabilise life threatening injuries first
- Control active haemorrhage

- Then move on to limb specific examination
- Check neurovascular status before you do anything

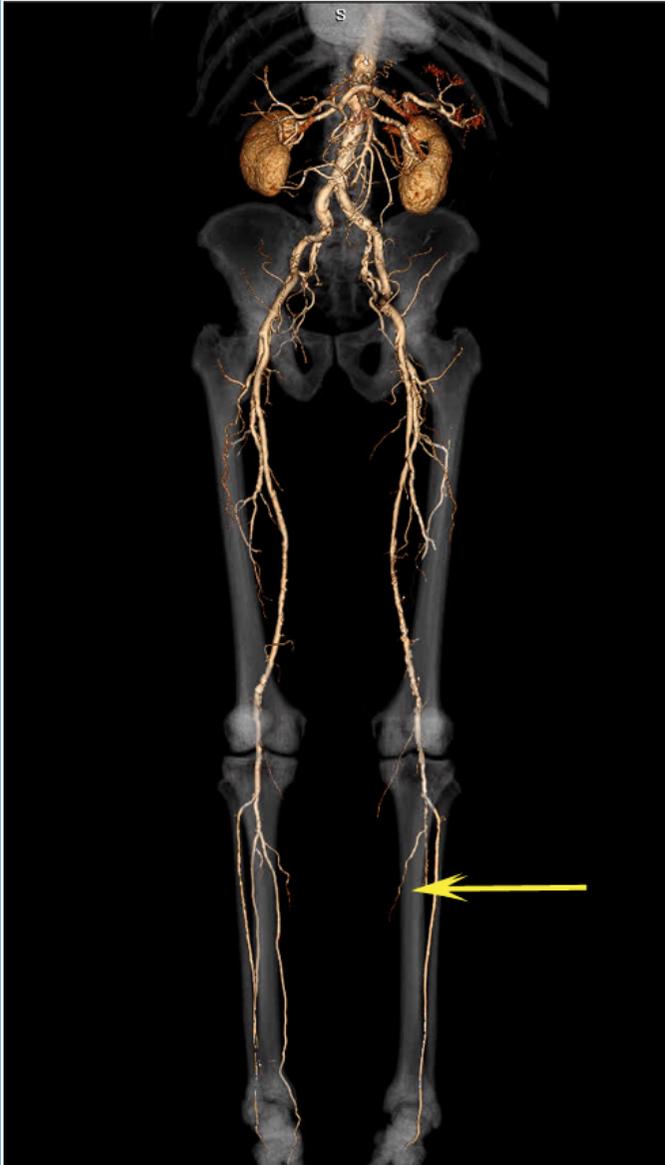


Management

- History & Examination
 - Pre-injury neurovascular problems???
- Realign/reduce fractures/dislocations
- Check & Recheck neurovascular status
- High index of suspicion
 - Based on injury



I can't feel a pulse.....



- Use a Doppler over sites of common arteries
- Ankle Brachial Pressure Index (1.0 – 1.2)
- Angiography
 - CT Angiography ←
 - Fluoroscopy
- Call a senior
 - Lead with NV Compromise..

What will the boss do?

- Surgical exploration (with vascular team)
- Identify the site of injury
- Repair/graft blood vessels
- Remove blockage (embolectomy)
 - Or bypass it....
- Nerves are usually nearby so find them assess damage – repair/graft
 - Consult peripheral nerve specialist



Key points

- Check neurovascular status always
- If in doubt, check regularly
- If you do anything to limb, check again
- After the surgery, check again
- Avoid tight circumferential dressings or anything constrictive
- Try to identify the cause – that will help localise lesion if not evident from injury



Thank you!

Presentation available on
<https://www.bon.ac.uk>

