Damage control surgery: Vascular

S.C TSOTETSI

Surgery Objectives

- Arrest Haemorrhage
- Restore perfusion
- Minimise “second HIT”

Hard Signs

- Active or pulsatile hemorrhage
- Pulsatile or expanding hematoma
- Signs of limb ischemia and elevated compartment pressure including the 5 "P's“:
  - Pallor
  - paresthesia
  - pulse deficit
  - paralysis
  - pain
- Diminished or absent pulses
- Bruit or thrill is(present in 45% of patients with an arteriovenous fistula)

Soft Signs

- Hypotension or shock
- Neurologic deficit due to primary nerve injury occurs immediately after injury. In contrast, ischemic neuropathy is delayed in onset (minutes to hours).
- Stable, nonpulsatile or small hematoma
- Proximity of the wound to major vascular structures (Beware of bone fr. !)

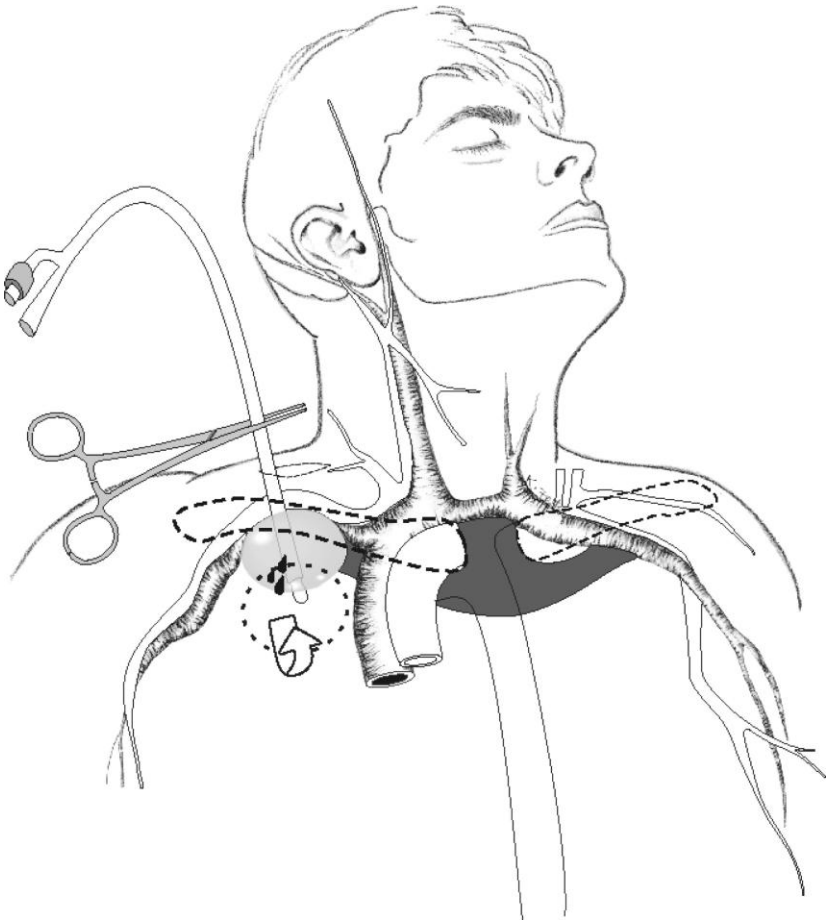
Immediate Haemorrhage Control

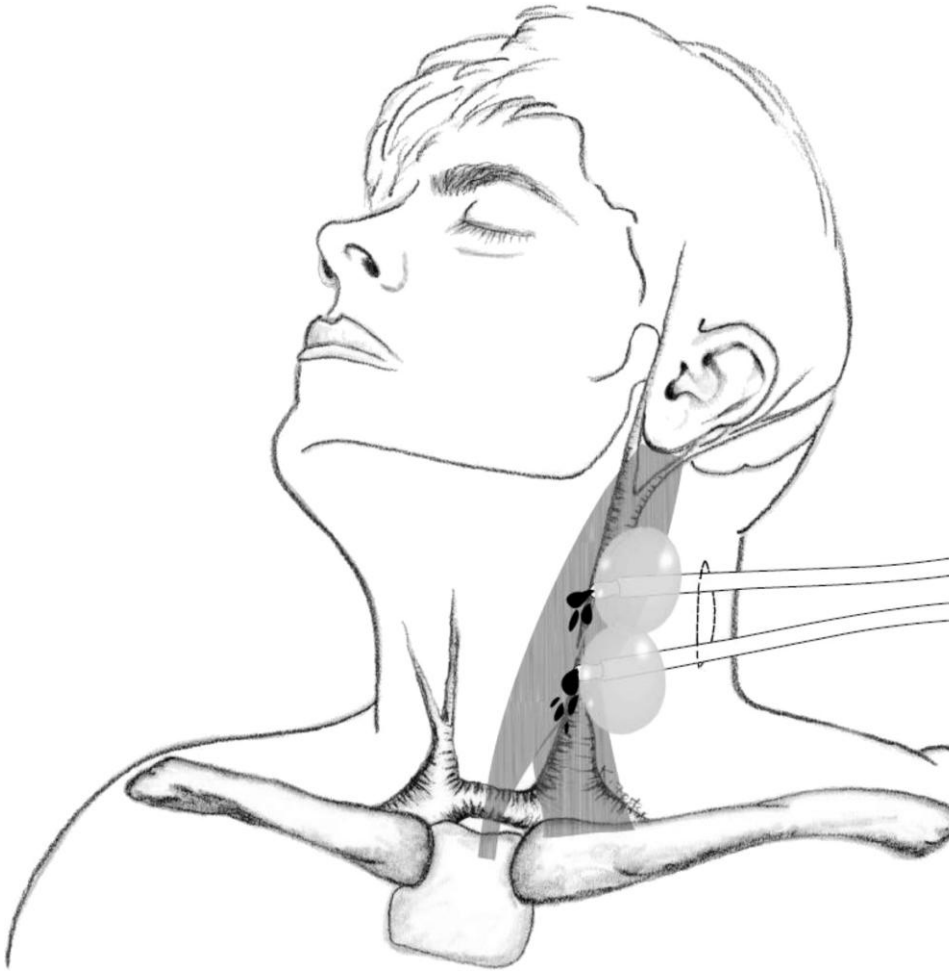
- Direct pressure over the site of injury
- One individual to manually compress the site of haemorrhage.
- Deep knife or gunshot track ⟶ **catheter**
- If angiography is performed prior to surgery, it may be possible to obtain proximal control by passing an angioplasty balloon catheter into the proximal vessel and inflating the balloon

Damage Control Surgery

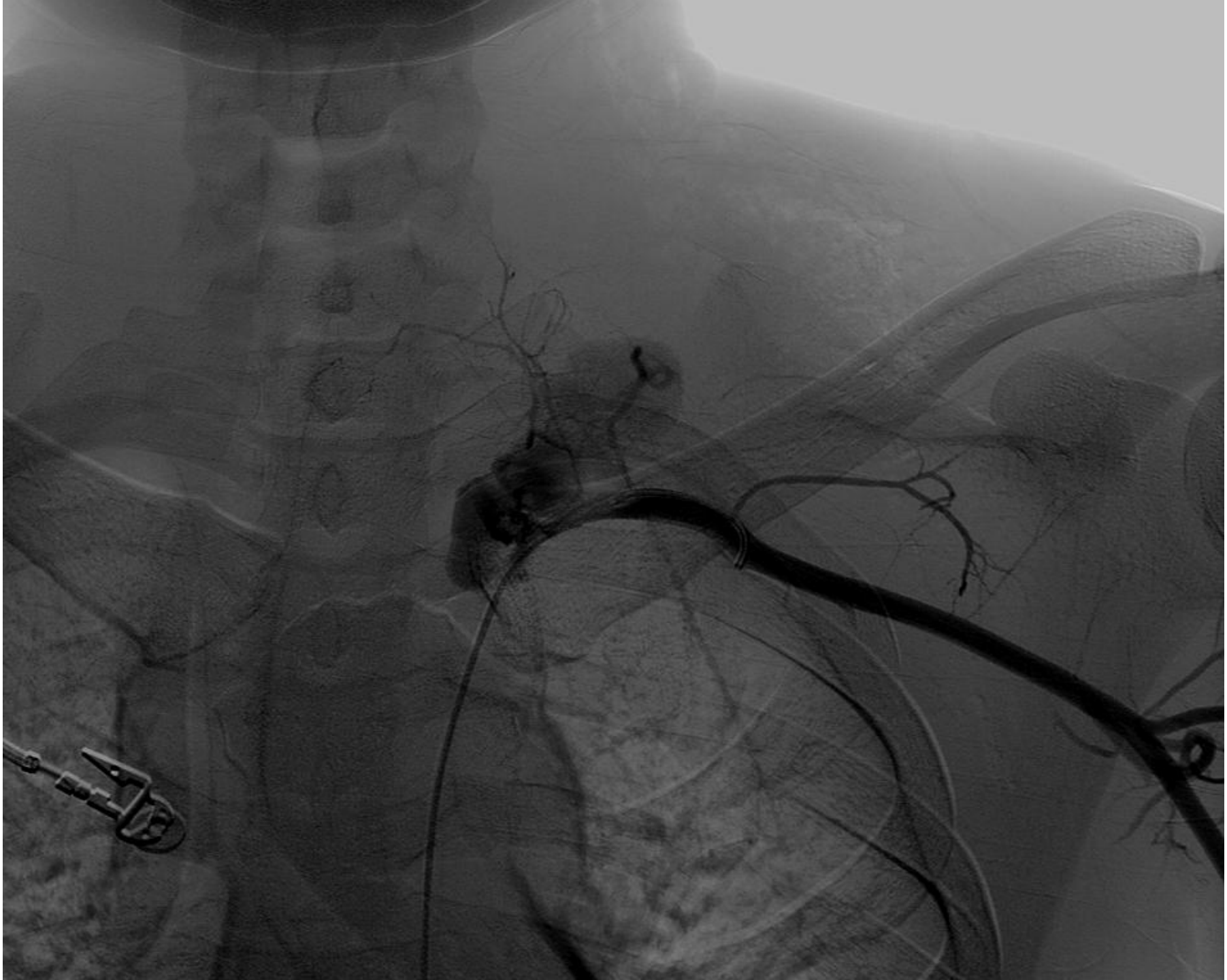
- **Ligation**
  - Ligation of the exteral iliac artery, common femoral or superficial femoral have a signficant risk of critical limb ischaemia following ligation.
  - Ischaemia is more likely if there is significant soft tissue injury and distruction of supporting collateral circulation
  - Almost all veins, including the inferior vena cava, can be ligated where necessary

- **Shunting :**
  - Where there is a significant risk of limb loss, or other serios consequence of ligation, intraluminal shunts may be employed to temporarily restore flow.
  - shunts can be rapidly constructed out of sterile intravenous tubing or chest tubes for larger calibre vessels.
  - Where there is a vascular injury associated with a fracture, and there is a risk of orthopaedic manoeuvers disrupting an arterial repair, shunts may be employed to temporarily restore flow to an injured limb.





Sunday morning patient



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The Endovascular Management of Penetrating Carotid Artery Injuries: Long-term Follow-up

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Surgical and Endovascular Management of Penetrating Innominate Artery Injuries

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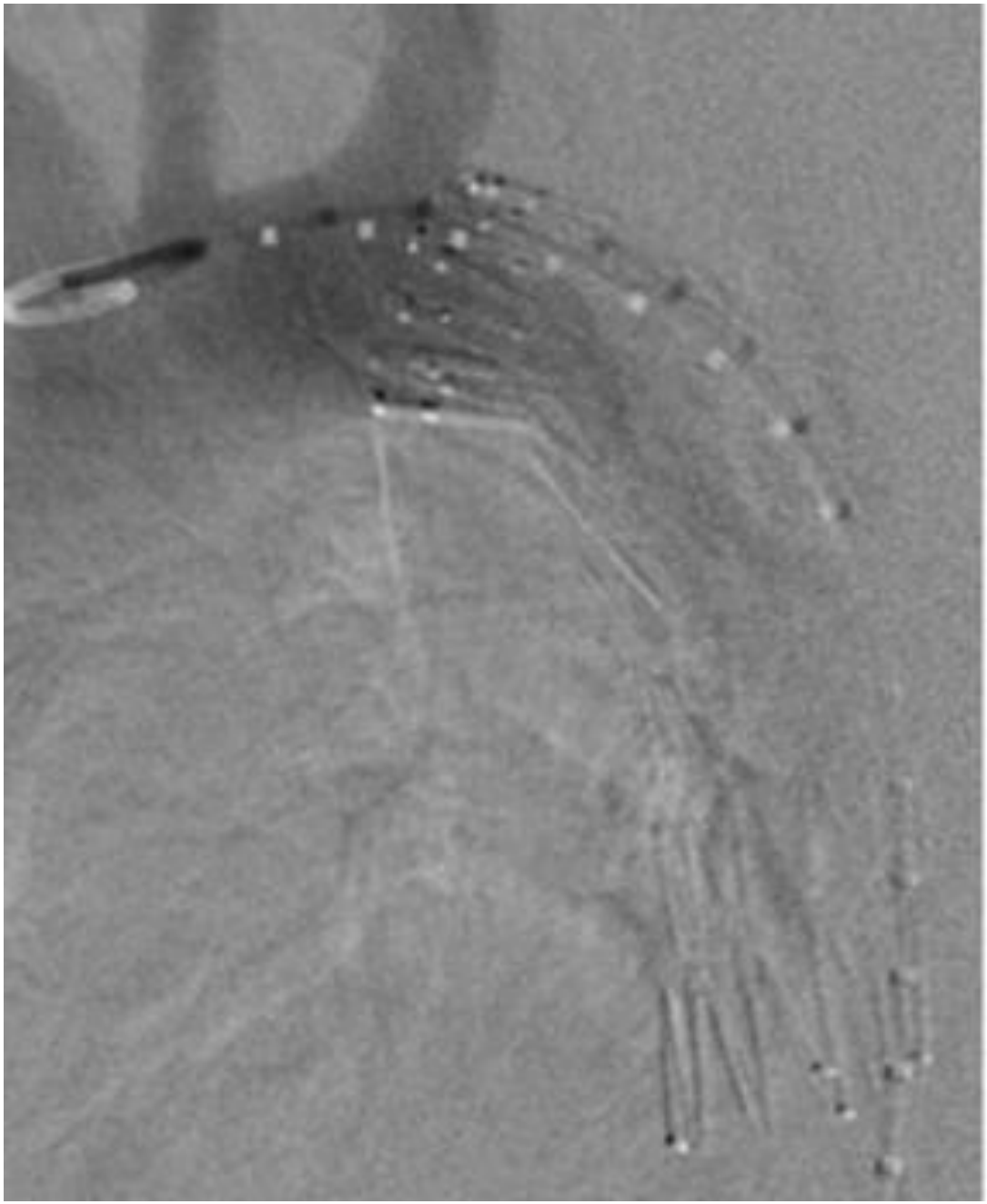

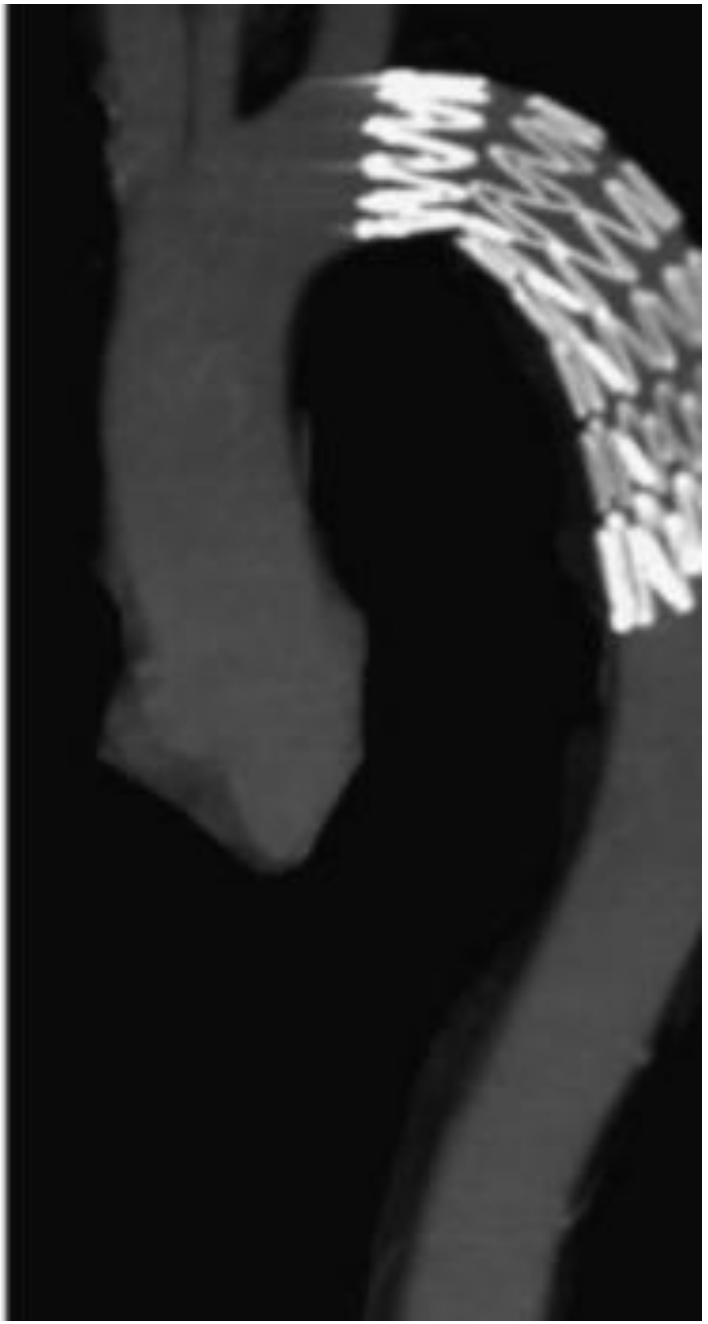

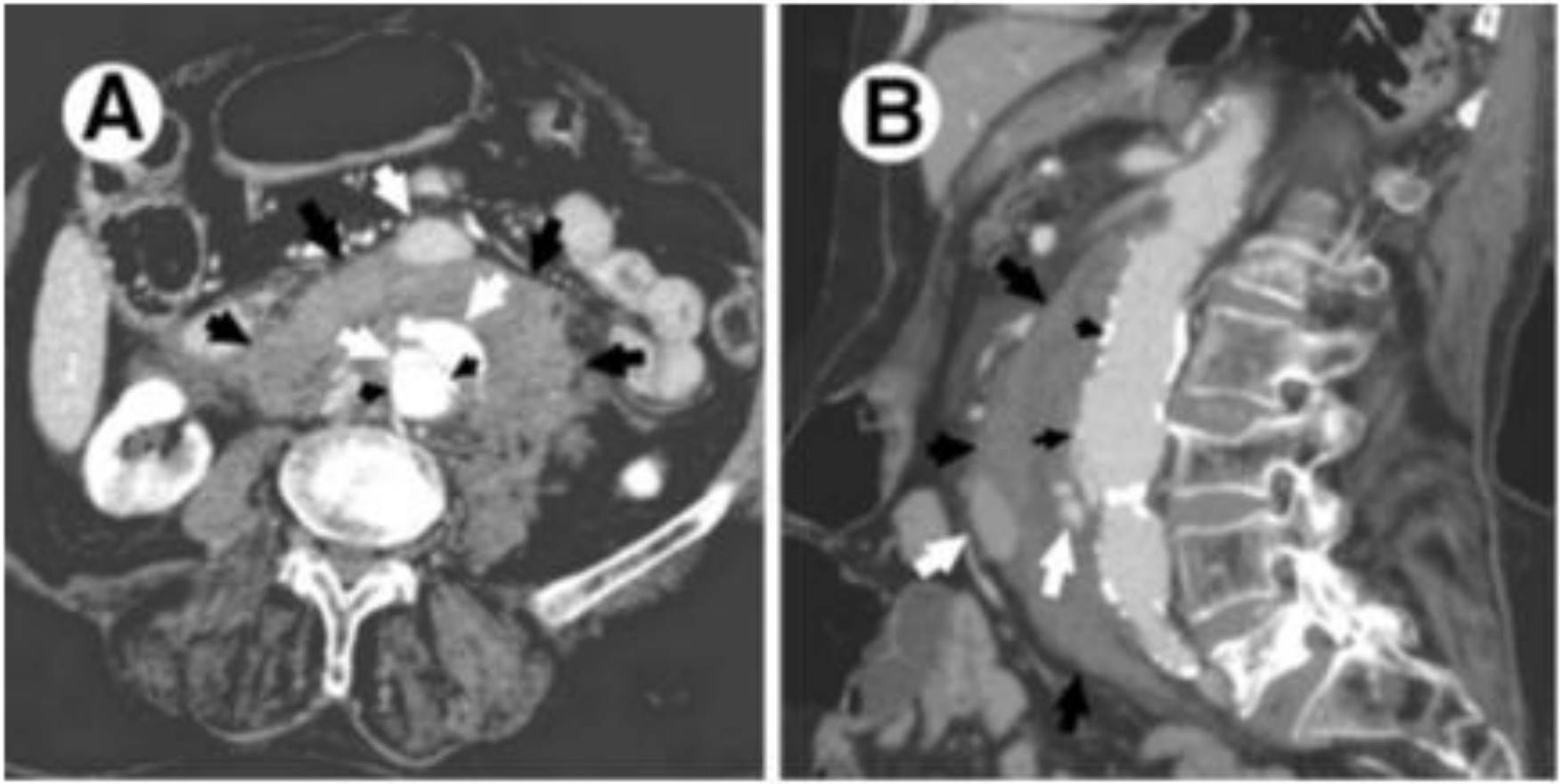
A
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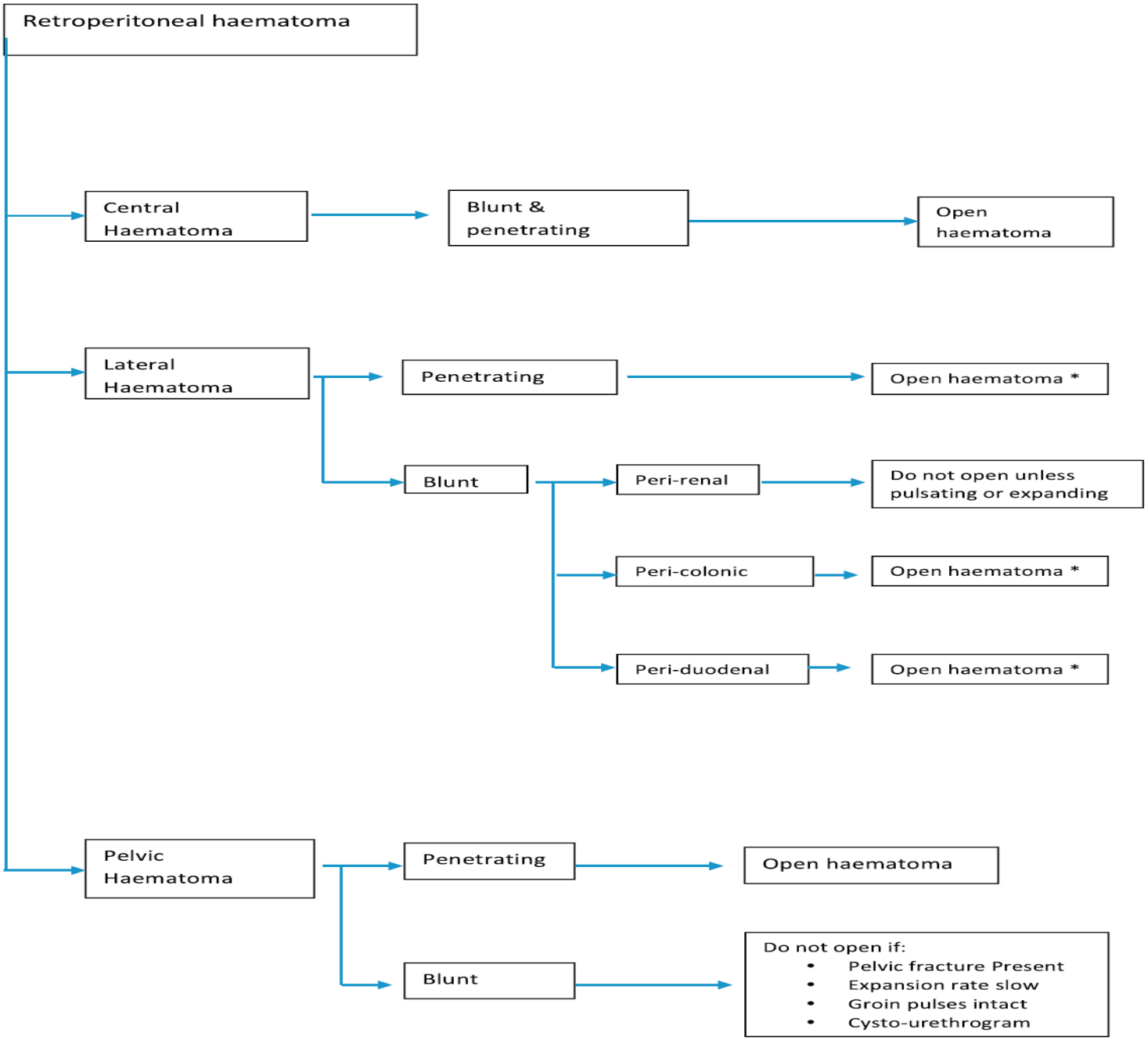
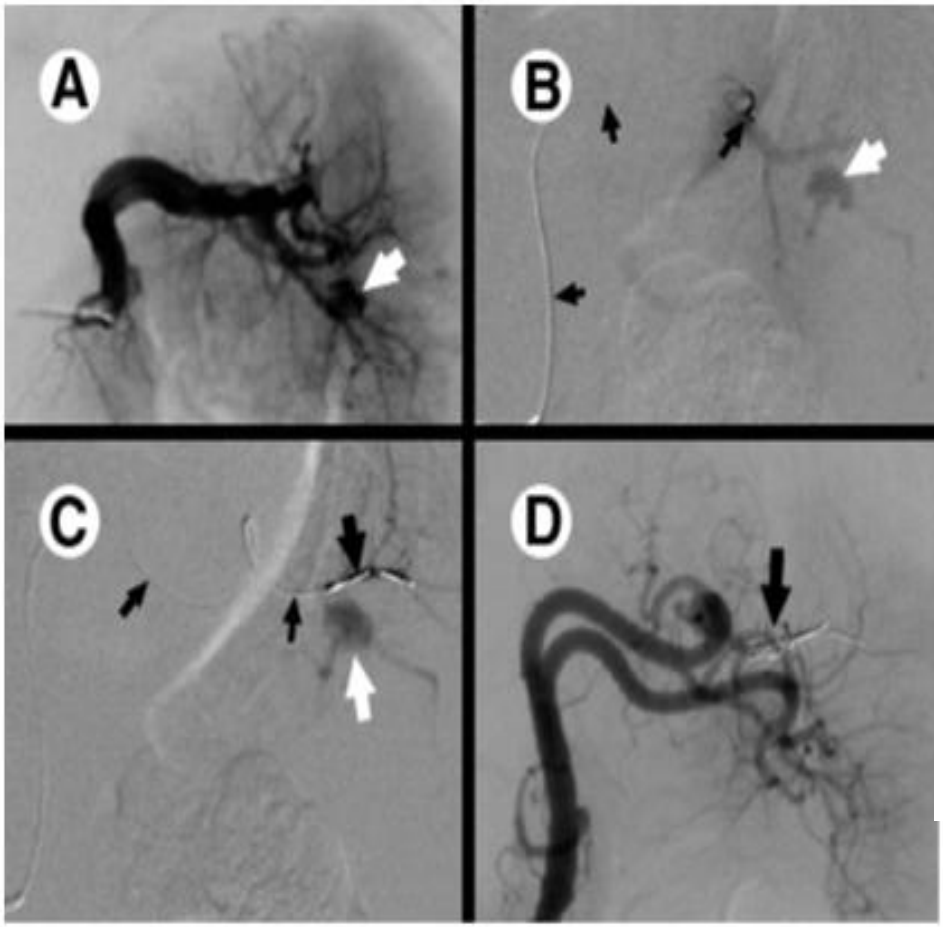

Retroperitoneal haematoma
Central Haematoma
Blunt & penetrating
Open haematoma
Lateral Haematoma
Penetrating
Open haematoma *
Blunt
Peri-renal
Do not open unless pulsating or expanding
Peri-colonic
Open haematoma *
Peri-duodenal
Open haematoma *
Pelvic Haematoma
Penetrating
Open haematoma
Blunt
Do not open if:
Pelvic fracture Present
Expansion rate slow
Groin pulses intact
Cysto-urethrogram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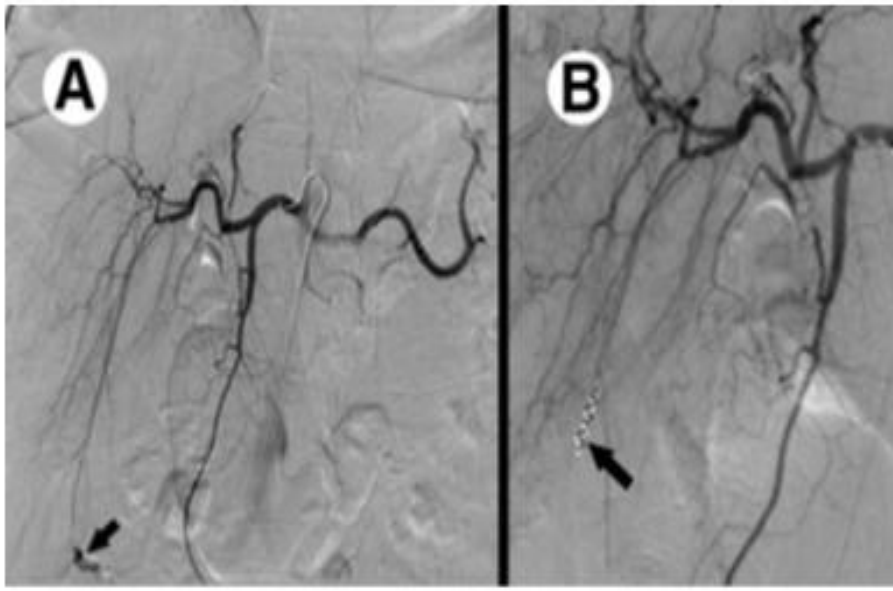
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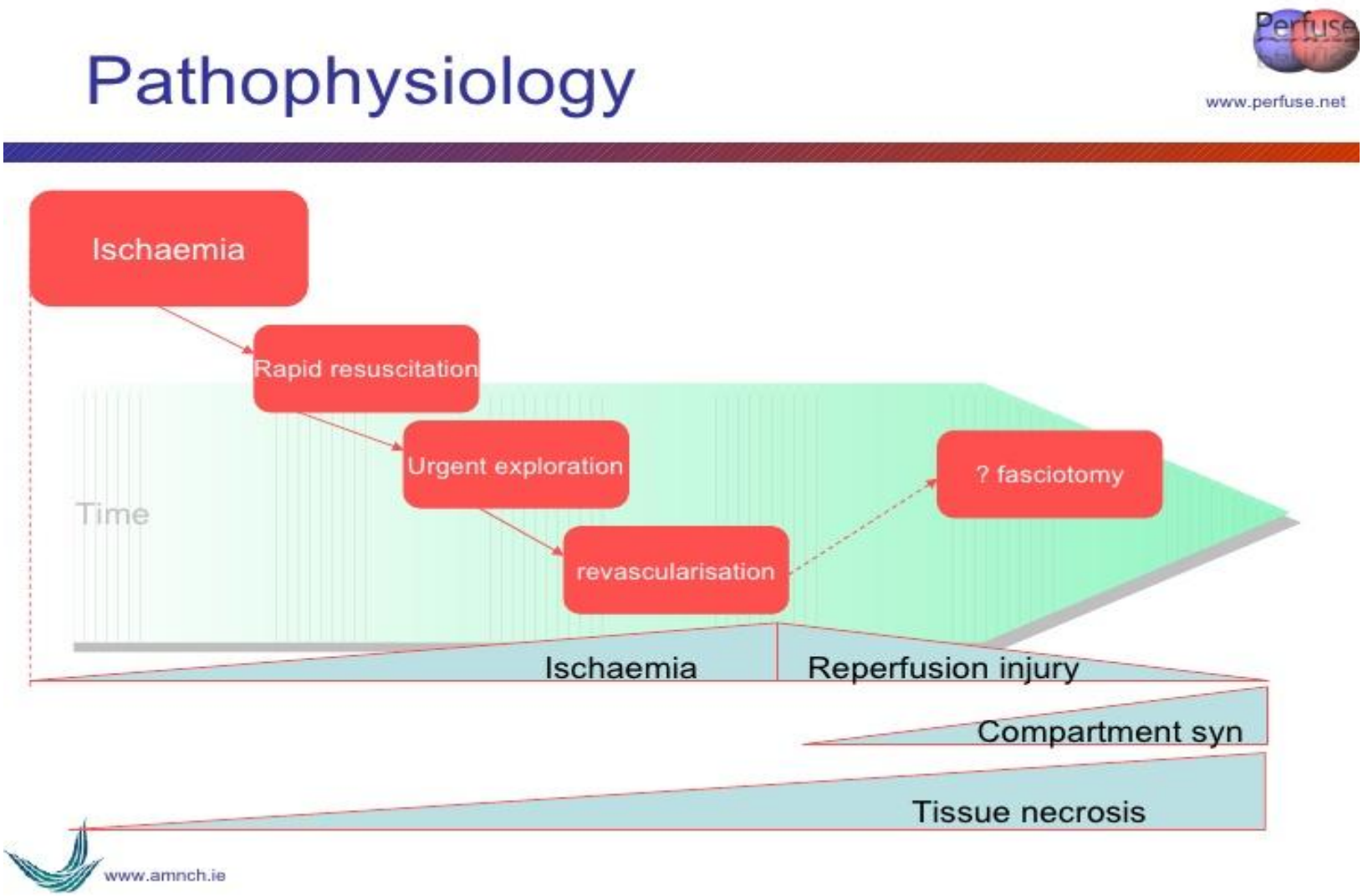
Ischaemia-Reperfusion

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AAST 2013 PLENARY PAPER

Endovascular Skills for Trauma and Resuscitative Surgery (ESTARS) course: Curriculum development, content validation, and program assessment

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Thank You!!!