

Acute Limb Ischaemia

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Disclosure

Nothing to disclose

Learning Objectives

- Define acute limb ischaemia
- Discuss epidemiology and pathology
- List important signs and symptoms
- Discuss initial assessment, management and referral
- Describe treatment options
- Know the prognosis

Acute Limb Ischaemia

- Disease of elderly co-morbid population
- No internationally agreed definition
- TASC: "any sudden decrease in limb perfusion causing potential threat to viability"
- < 2 weeks duration

Limb threatening..... & life threatening

ALI often an “end-of-life event”

High amputation & mortality rate, largely unchanged, despite advances in care

No single intervention

Assessment of patient as important as assessment of limb

Choice of treatment influences outcome

Causes

Embolic - in normal arteries, catastrophic
- secondary thrombus occludes prox & distal

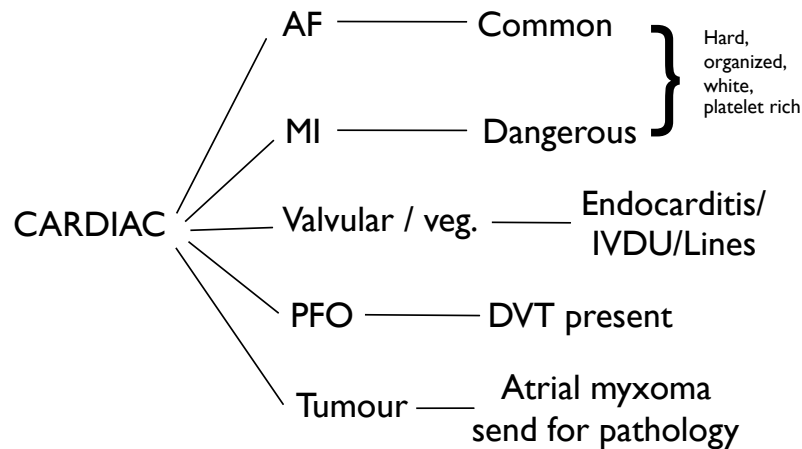
Thrombotic

Trauma / iatrogenic - transection, intimal flap

Dissection

Cystic adventitial disease, compartment syndrome

Greek “Embolos” = “plug”



Non-Cardiac embolism

Athero-embolism

Aortic arch
Thoracic aorta



Aneurysms

AAA
PAA



Thrombotic

Blood clots within the artery

Causes:

Atherosclerosis (rarely dramatic)

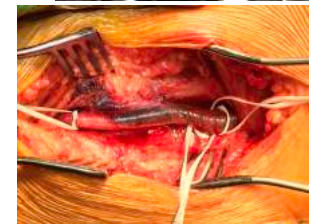
- disease progression
- “sludging” - low BP / CO states
 - increased viscosity
 - MUST recognise & treat underlying problem

Thrombotic 2

Hypercoagulable states
Thrombocytopenia
Thrombophilia
Malignancy
HIT

Dissection - High Index of Suspicion
- ALI, young, absent femoral pulse

Graft (common - 15% of ALI)

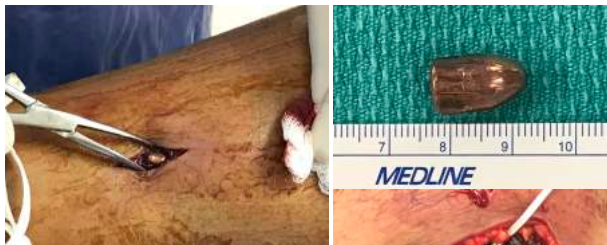


Trauma

Blunt -

dissection /
intimal flap

external
compression -
bone ends



Penetrating -

transection



Symptoms & Signs

6 “P”s

Pain (usually acute & severe)

Pallor

Paraesthesia

Paralysis

Pulselessness

Poikilothermia / perishingly cold

Time of onset??

Time & limb appearance

Waxy, marble white - acute total ischaemia - 0 - 6hrs

Reversible

Non-fixed mottling (blue / purple) - 6 - 12 hrs

Partially reversible

Fixed mottling - > 12hrs

Irreversible



Time & neurological status

VERY important to assess

Sensory loss first (paresthesia, anaesthesia)

Motor loss (paralysis)

Calf tenderness (late sign)

Helps determine degree of urgency

Rutherford Classification

CLASSIFICATION SCHEME FOR ACUTE LIMB ISCHEMIA

-from the Society of Vascular Surgery/International Society of Cardiovascular Surgery (Rutherford et al, 1997)

Class	Category	Prognosis	Sensory loss	Muscle weakness	Arterial Doppler	Venous Doppler
I	Viable	No immediate limb threat	None	None	Audible	Audible
IIA	Threatened: marginal	Salvageable if treated promptly	Minimal- none	None	+/- Audible	Audible
IIB	Threatened: Immediate	Salvageable if treated immediately	More than just toes	Mild- moderate	Rare audible	Audible
III	Irreversible	Limb loss or permanent damage	Profound	Profound	None	None

Other clues....

Recent MI

New / recent AF

Sub-therapeutic INR

Previous Hx of PVD / aneurysmal disease

Pulse status in contralateral limb

Vascular risk factors - smoker, HTN, DM, Chol.



ALI - What to do....

Focused Hx

Thorough but rapid examination

Document ALL pulses, ?AAA, ?PAA

IVA, bloods inc. coag, G&S., analgesia, IV fluids, ECG

Oxygen

COMMUNICATE - Speak to vascular team early



ALI - What to do....

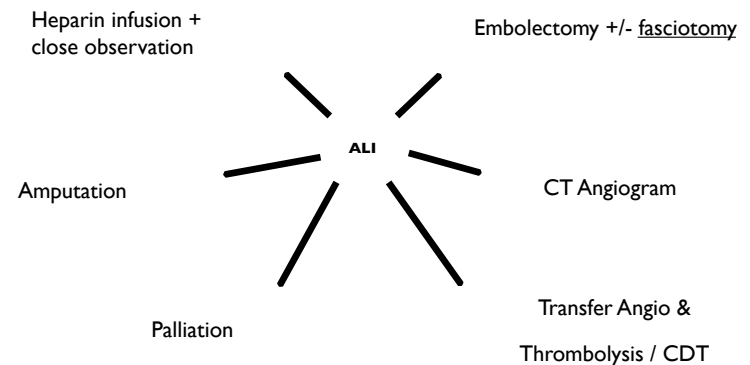
“I have an 86 yr old lady with acute ischaemia of the right leg. She had sudden onset of pain at 0400, and has no pulses palpable below the femoral. She has normal pulses on the left. She has some sensory loss over the dorsum of the foot and reduced movement in her toes but is able to move the ankle. Her calf is non-tender. She is in AF and is usually well”



“Thank you, keep her NPO, give Heparin 5000iu IV stat. Send her over, I am on my way in.....”



Treatment options



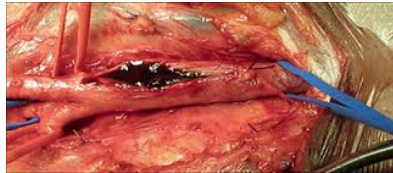
Embolectomy

Brachial - LA

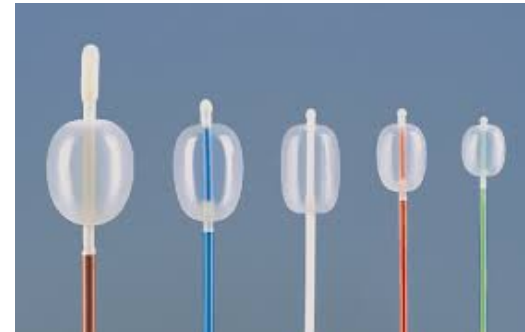
Femoral - LA or GA

Popliteal - GA

+/- fasciotomy



Fogarty Embolectomy Catheter (1963)



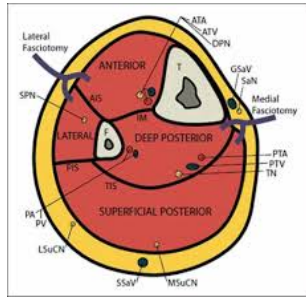
Reperfusion Injury

Systemic

- fatal arrhythmia / Massive MI
- sometimes safer not to revascularize

Local

- compartment syndrome



Fasciotomy

4 Compartments



Catheter Directed Thrombolysis

Angiogram

Multi-side hole thrombolysis catheter

Recombinant tissue plasminogen activator

r-tPA

Lace thrombus with 5 - 10mg

Infusion at 0.5 to 1mg per hour

Repeat angiogram in 6 - 12 hrs

Catheter Directed Thrombolysis



14 hrs TPA



r-tPA

Half life 6 - 7 mins

Dangerous - life threatening hemorrhage

Contra-indications

CVA

Major surgery

Head injury

Non-compressible vessel puncture



ALI - What to do... ...after emergency Rx...

- Watch for myoglobinuria
- MI screen, ECHO, 24 hr tape
- Aortic imaging
- Upper limb duplex
- Thrombophilia screen
- Long-term anticoagulant?

Outcomes

Mortality 15 - 20%

Amputation rate up to 25%

10 - 15% thought salvageable need amp.

10% ALI present unsalvageable



Q & A