Vascular Catastrophes
Dr John Bingley
Vascular Surgeon
Mater Health Services
What is a catastrophe?

Kata – down/against
Strophe - turning

An event causing great and sudden damage or suffering

- Disaster
- Avoid
- Fix
- Blame
“I have Emergency on the phone for you.”
“Thank you.”
“Putting you through...”
“I have a 90 year old lady here with an acutely ischaemic right leg.”
“What do you think that is from?”
“That’s a good question...”
“Thank you... Tell me more.”
Mottled from Right knee down
Cold
Reduced sensation
Non-tender compartments
No ankle or toe movement
Sluggish cap refill
Only femoral pulses either side
Otherwise stable

Thinks: *Yep. It sounds like an acutely ischaemic leg.*
Acute limb ischaemia is a clinical diagnosis

- Pulseless ✓
- Pale ✓
- Perishingly Cold ✓
- Painful ✓
- Paraesthesia ✓
- Paralysis ✓
Buerger’s positive: Don’t be fooled by a bright red foot
Mottled from Right knee down
Cold
Reduced sensation
Non-tender compartments
No ankle or toe movement
Sluggish cap refill
Only femoral pulses either side
Otherwise stable
Thinks: It is an acutely ischaemic leg.
What is the cause? What must I do? “What do you think the cause is?”
Sudden onset 2 hours ago, awoken from sleep
Never before, no leg ischaemic symptoms prior
Isch cardiomyopathy, 7 x NSTEMI last 3 year, no revasc,
25% EF, prev presentation AF (SR now), no AC, ceased aspirin 1 week ago for bruising
CRF: eGRF 20
Lives alone, no home help, EPOA son in law, NFR plan

Thinks...the cause is still not clear but it is either embolis or thrombosis
Acute Limb Ischaemia: What caused it? What can I do to make it better?

- Embolus
- Thrombosis
  - Atheroma
  - Aneurysm
  - Vasculitis
  - Graft
- Trauma
- Dissection
- Compromised collaterals
<table>
<thead>
<tr>
<th>Stage</th>
<th>Description/Prognosis</th>
<th>Muscles</th>
<th>Nerves</th>
<th>Arterial Doppler</th>
<th>Venous Doppler</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Viable, not threatened</td>
<td>None</td>
<td>None</td>
<td>Audible</td>
<td>Audible</td>
</tr>
<tr>
<td>IIA</td>
<td>Viable, threatened</td>
<td>None</td>
<td>Mild (toes)</td>
<td>Maybe</td>
<td>Audible</td>
</tr>
<tr>
<td>IIB</td>
<td>Viable, immediately threatened</td>
<td>Mild/Mod</td>
<td>More than toes</td>
<td>Maybe not</td>
<td>Audible</td>
</tr>
<tr>
<td>III</td>
<td>Not viable (tissue loss, major nerve loss)</td>
<td>Severe paralysis</td>
<td>Profound Anaesthetic</td>
<td>Inaudible</td>
<td>Inaudible</td>
</tr>
</tbody>
</table>
Acute limb ischaemia: What to do?

Analgesia
Support circulation: normotensive; anti-coagulation
Prevent injury: pressure care (no TEDs, no heat)
Initial diagnosis: Clinical v Duplex v CTA
Refer: Vascular Surgery considerations
  • Leg dead: amputate or palliate
  • Leg threatened: revascularise, amputate or palliate
  • Leg not threatened: revascularise or not
  • Reperfusion:
    • Acid and Potassium: heart
    • Myoglobin: kidneys
    • Compartment syndrome and fasciotomy
    • Functional recovery: sensory and motor, mobility
    • Prevention
What is a catastrophe?

An event causing great and sudden damage or suffering
- Disaster
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- Blame

The denouement of a drama (esp classical tragedy)
- The final resolution of the threads of plot
- Natural
- Observe
Early morning...01:43...02:30

Acutely ischaemic, slight improvement with heparin
Embolus v thrombosis?
No CTA (eGFR 20)
No Duplex (02:30am)

Attempt revascularise to maintain/restore independence
Open v endovascular
Embolectomy / thrombectomy / bypass / thrombolysis

Local Anaesthetic and sedation: exploration right CFA

No embolus, all longstanding small vessel disease
Elderly patients are most likely to die of a vascular event (Heart attack / Stroke)
Your leg is dying and it is going to kill you unless it is amputated
I don’t want an amputation
Death doesn’t have to be a catastrophe
Your leg will kill you then
I don’t mind dying
A major vascular event is often a catastrophe when the planning for such an inevitable event is lacking
I don’t want to go to a nursing home
I don’t mind dying
A major intervention for a vascular catastrophe in a patient who is palliative is an avoidable catastrophe
What happened next?

90 yo lady with ischaemic cardiomyopathy and an acutely ischaemic right leg did not recover
Palliative care involvement
Right leg developed necrosis
Pain managed
Died peacefully three weeks later
Ruptured Abdominal Aortic Aneurysm

Classic Presentation:

1. Pain
   - usually sudden, severe and constant
   - location depends on rupture location and
   - where the haematoma tracks:
     - abdomen, back, or flank
     - radiation to chest, thigh, groin, scrotum

2. Hypotension / collapse

3. Tender, pulsatile abdominal mass
Ruptured Abdominal Aortic Aneurysm

Rupture – extra / intraperitoneal → pain (back, abdo, flank) hypotension and collapse

Rupture – into GI tract (aortoenteric fistula) → GI bleeding and collapse

Rupture – into IVC or L renal vein (aortocaval fistula) → high output cardiac failure, leg swelling, abdominal bruit

Rupture – into ureter (aortoureteric fistula) → haematuria and shock
Risks for Abdominal Aortic Aneurysm Rupture

- Larger AAA diameter (>5.5cm)
- Female gender (3-5x ↑ rupture risk; diameter 5mm less)
- Smoking
- COPD - Low FEV1
- Hypertension
- Rapid AAA expansion rate
  - Individuals have different rates of expansion and rupture
- Transplant patients
- ?Tender aneurysm
- ? Morphology (?↑ rupture risk in saccular aneurysm)
- ↑ rupture risk post laparotomy or other surgery
Ruptured Abdominal Aortic Aneurysm: Differential Diagnosis

- Ureteric colic
  - Doesn’t make the patient hypotensive
  - Will have microscopic haematuria
- Diverticulitis & other acute abdominal conditions
  - ???
  - Ruptured AAA should be in the DDx for any patient older than 50 years with abdominal, back, or flank pain, especially in the “vasculopath”
- Patients with abdo pain and AAA can be referred for outpatient workup *only* if it is clear that symptoms prompting the visit are unrelated to the aneurysm
Ruptured Abdominal Aortic Aneurysm

• Usually a clinical diagnosis
  – High index of suspicion
  – Triad: pain, hypotension / collapse, palpable pulsatile mass
  – Emergency ER ultrasound may help in diagnosis
• Minimise resuscitation – “permissive hypotension”
• Enough resuscitation = patient can talk to you
• “You can’t resuscitate someone with a hole in their aorta without a clamp or a graft!”
• Rapid CTA (if haemodynamic status permits)
• Rapid transfer to operating theatre for repair
Ruptured Abdominal Aortic Aneurysm: Who doesn’t get surgery?


1) Age > 76 years
2) ECG ischaemia
3) Loss of consciousness
4) Haemoglobin < 90 g/L
5) Serum creatinine > 0.19mmol/L

- 1 point for each
- a score ≥ 3 predicted 100% mortality

<table>
<thead>
<tr>
<th>Score</th>
<th>Mortality</th>
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<tbody>
<tr>
<td>0</td>
<td>16%</td>
</tr>
<tr>
<td>1</td>
<td>37%</td>
</tr>
<tr>
<td>2</td>
<td>72%</td>
</tr>
<tr>
<td>3-5</td>
<td>100%</td>
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- Patients who have declined or refused elective surgery for co-morbidities, or those who have a terminal comorbid condition, require a CLEAR end-of-life plan that includes non-operative management of rupture
  - Include family/enduring power of attorney/LMO in the discussion
  - Document and share
A slower catastrophe: the chronic wound

Ulers both ankles 30 years
Daily dressings, self care
Disaffected
Severe Hip (and other) arthritis: offered bilateral BKAs to allow bilateral THR

April 20, 2017
450,000
Australians suffer with a chronic wound

$3b
The cost of wound management in Australia per annum. However, the costs of wounds are not properly understood, and this is a conservative estimate.
The leg is the major site for chronic wounds

- 3% of the Australians over the age of 60 have a leg ulcer
- More or less half of these leg ulcers are recurrent
- 1 in 4 patients with a chronic leg ulcer will be admitted to hospital because of that ulcer
- 70% of patients with chronic leg ulcers have not had a cause for their ulcer diagnosed
Vascular Catastrophes

There are times to act quickly

There are times to act slowly

There is never a time do nothing