The Role of the Vascular Testing Unit

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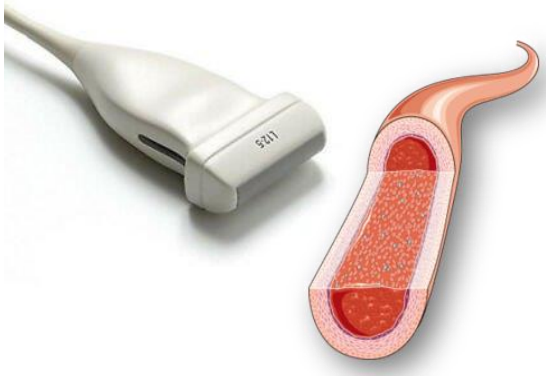
Aims

- Who we are
- What we do (fly-by of ultrasound)
- Wound referral – how can we help?
- Focus on tests related to wound management
- Treatment pathway focus



Team: Who are we?

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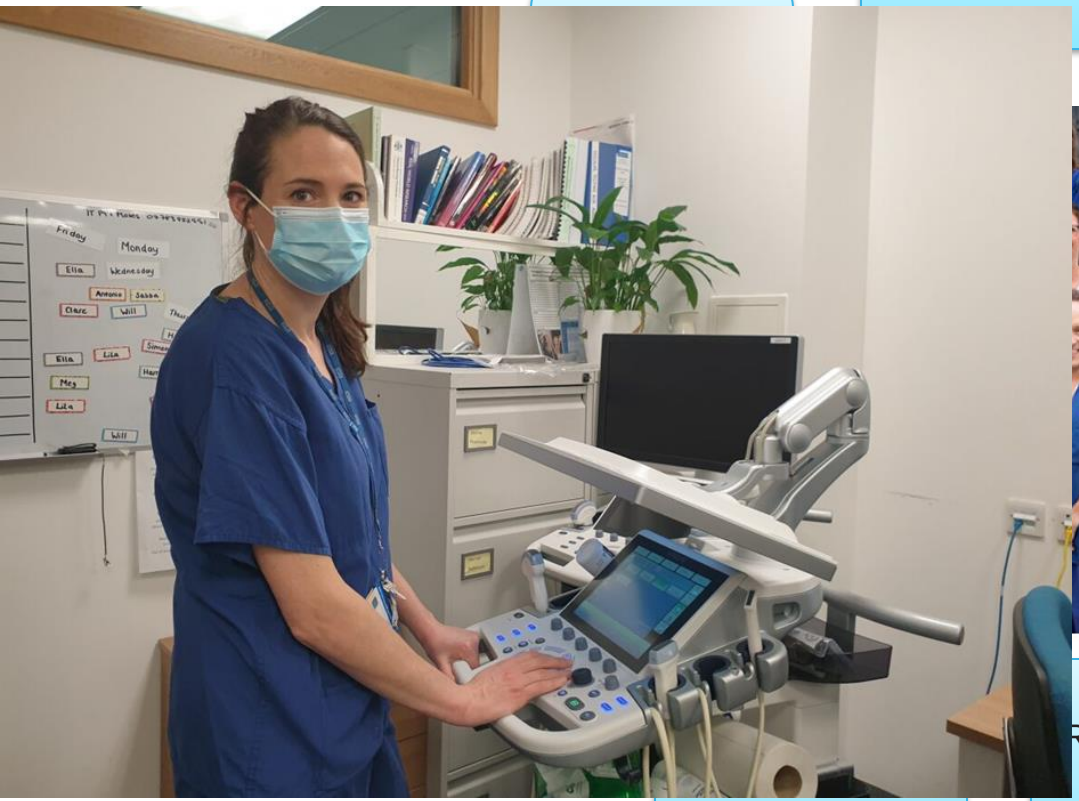
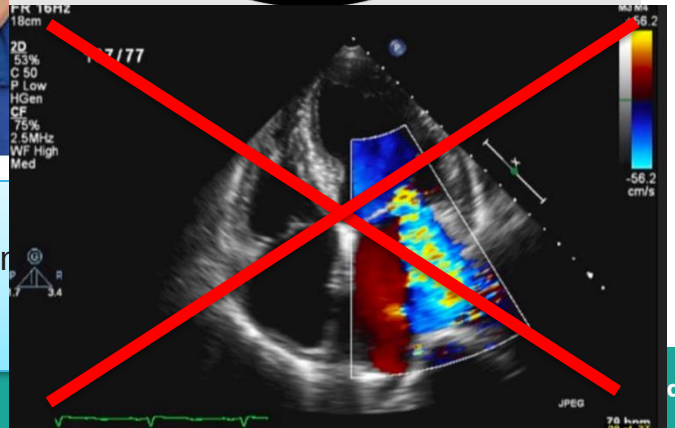
Head of Department





Vascular Testing Department

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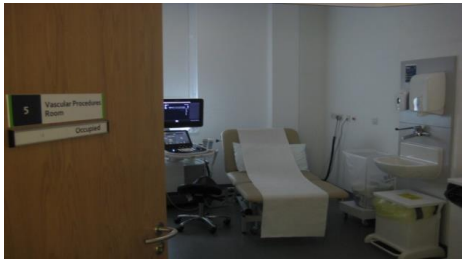
- Carotid duplex
- Lower and upper limb arterial duplex
- Graft surveillance
- Ankle & Toe Brachial Pressure Indices
- Lower and upper limb deep vein thrombosis duplex
- Aortic Aneurysm Surveillance
- Venous stent surveillance
- Renal fistula ultrasound



- Renal Access Mapping
- Vein mapping pre surgery
- Lower limb venous insufficiency duplex
- EVAR stent graft surveillance
- Temporal artery duplex for Temporal Arteritis
- PPG assessment
- Toe pressures and TCPO2 (Transcutaneous oxygen measurements)

~ 13,000 investigations annually

Vascular Disease Diagnoses

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- Atherosclerotic
- Aneurysmal
- Thrombotic
- Venous
- Vasculitis

How can we help?

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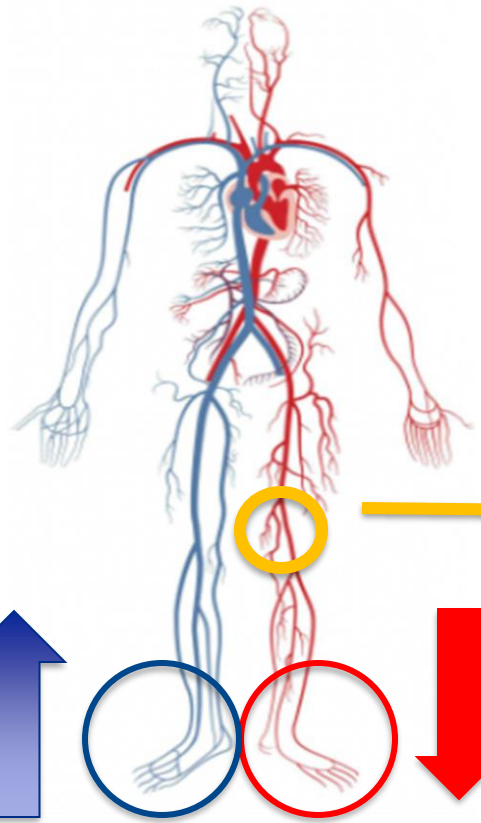
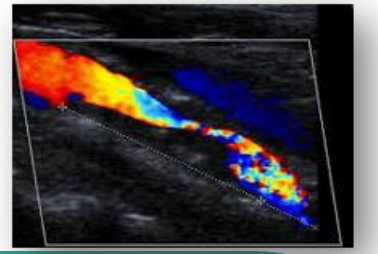
Arterial ?

Venous ?

Arterial ?

Where do we start?





Ankle brachial pressure Index (ABPI)

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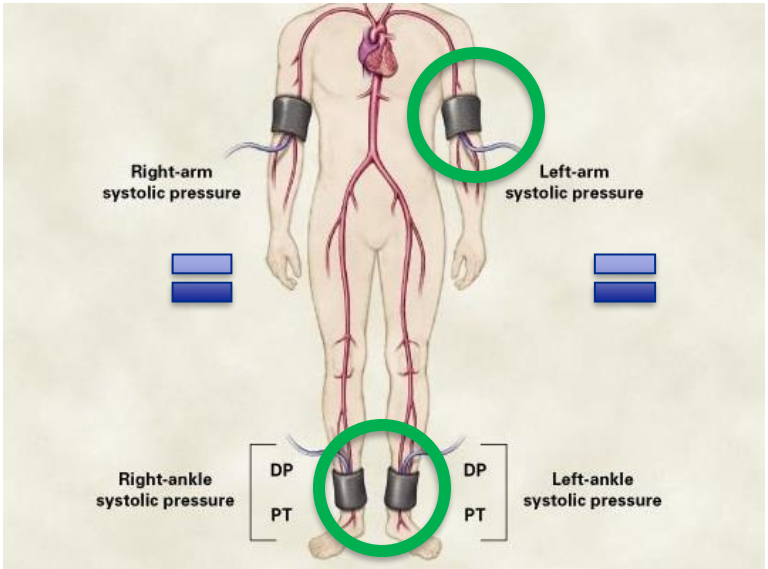
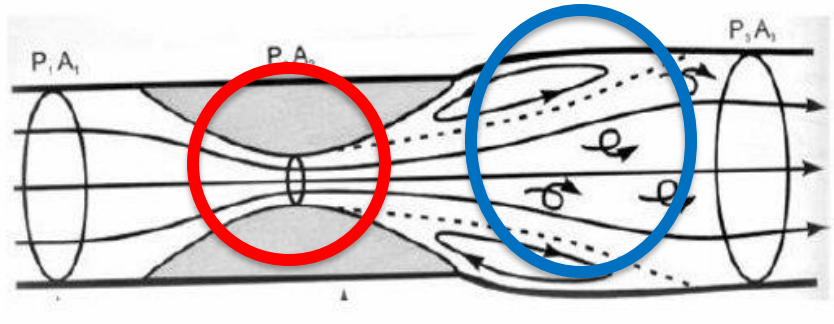
- Baseline test for detecting/grading Lower limb arterial disease





Interpretation – Index

Ratio

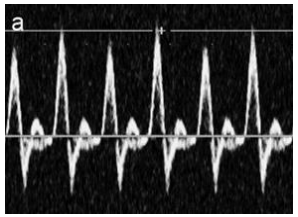
$$\frac{\text{Ankle artery systolic pressure (mmHg)}}{\text{Brachial systolic pressure (mmHg)}}$$

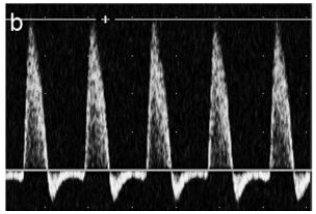
Reference Values

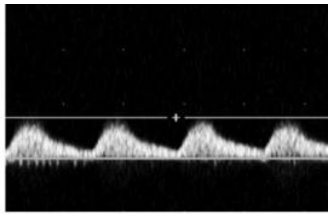
Interpretation of ABPI

ABPI value	Disease severity
>1.3	Arterial calcification may be present
>1.0–1.3	Probably no peripheral arterial disease
0.81–1.0	No significant or mild peripheral occlusive disease
<0.51–0.8	Moderate peripheral arterial occlusive disease
<0.5	Severe peripheral arterial disease

Phasicity

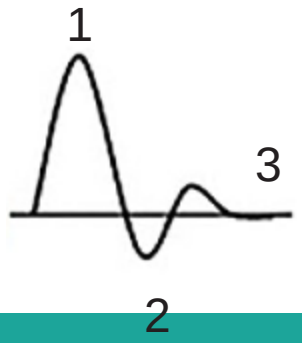






Triphasic..... Biphasic.....Monophasic.....

- Blood pressure changes during each cycle of cardiac activity – due to heart contraction and relaxation
- Systolic – maximum pressure, diastolic – minimum pressure



1. Forward flow to peak systolic pressure
2. Transient reversal flow in early diastole
3. Forward flow in late diastole

When does an ABPI not work?

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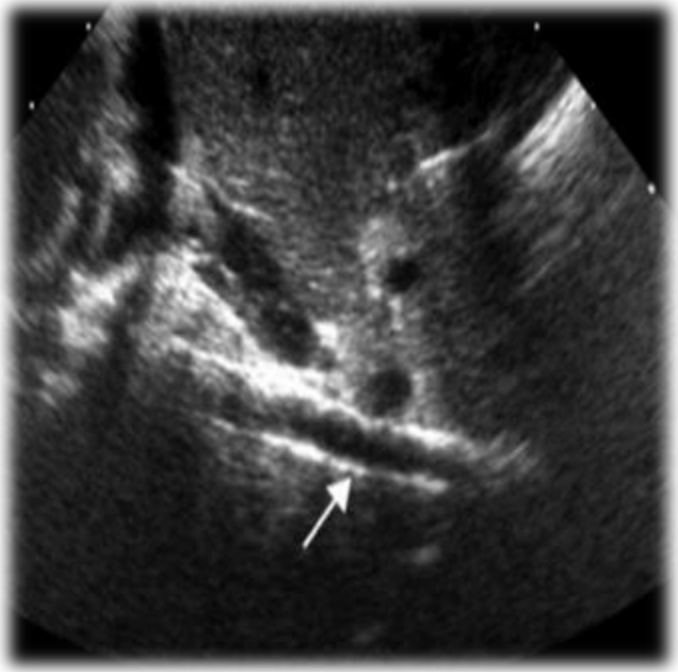
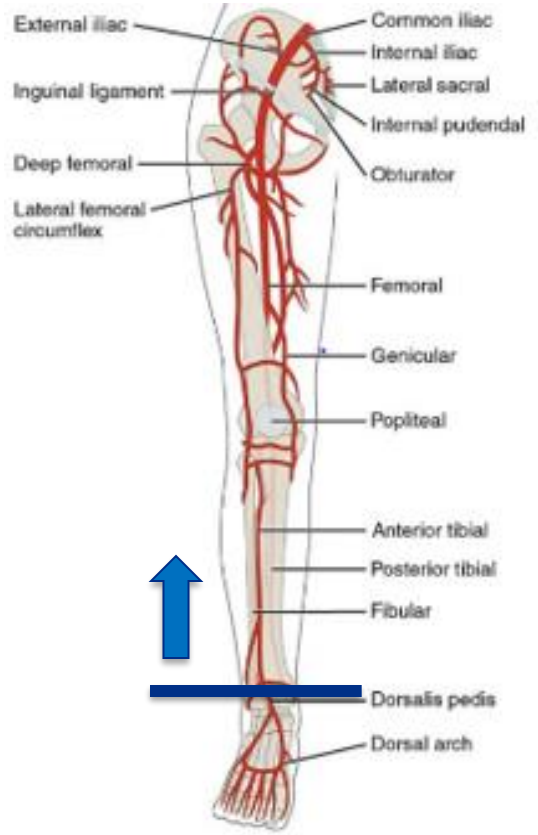
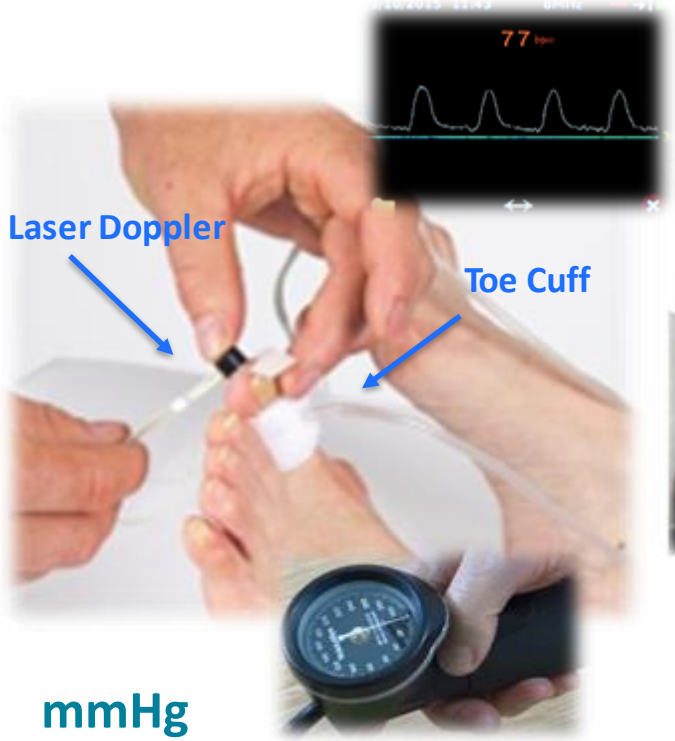


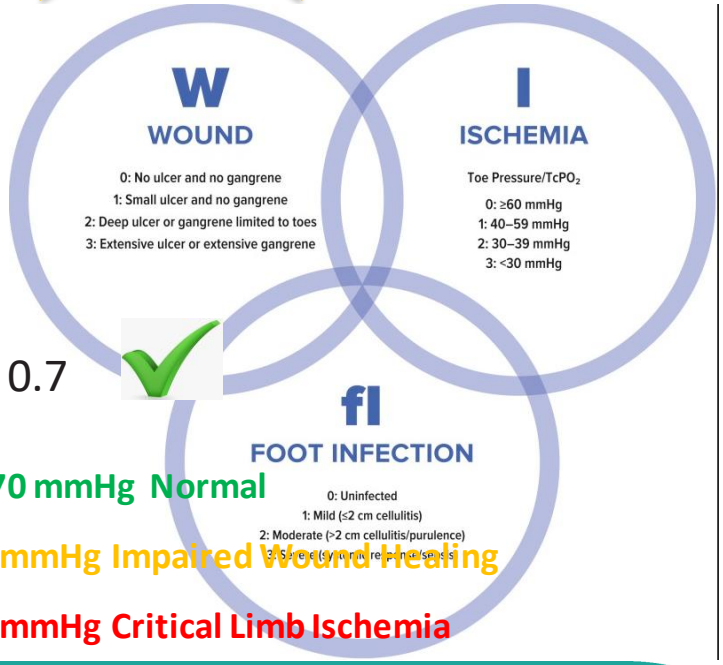


Toe pressures/TBI



mmHg

mmHg



TBI - > 0.7

- 50-70 mmHg Normal
- <40 mmHg Impaired Wound Healing
- <30 mmHg Critical Limb Ischemia

TBI Challegnes

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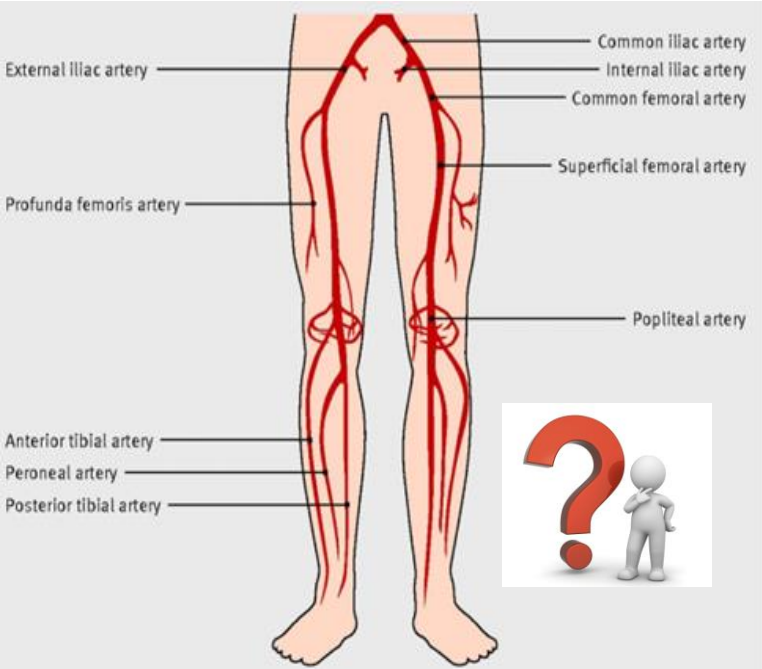
What Next?

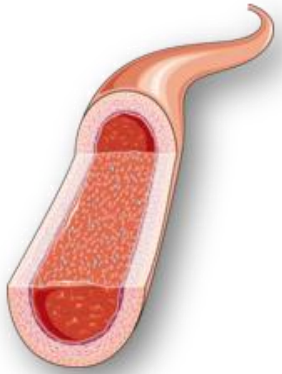


ABPI -< 1

TBI < 0.7

- <40 mmHg Impaired Wound Healing
- <30 mmHg Critical Limb Ischemia

Duplex Ultrasound



- Visualise anatomy
- Identify pathology

  Location, severity, new/old
- Aid clinical decision making

Ultrasound Assessment (Duplex)

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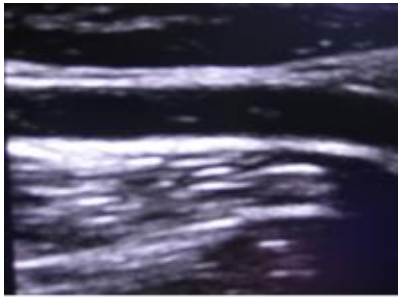
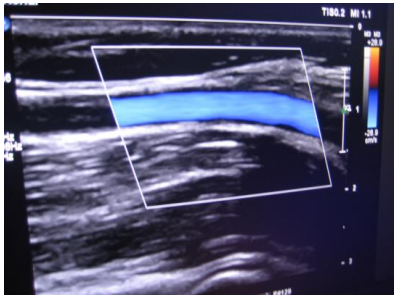
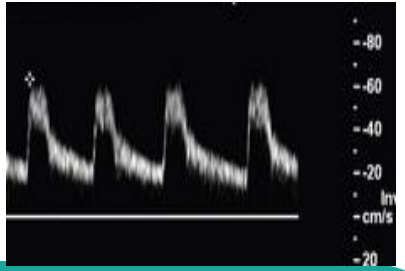
- *B-mode (Brightness)*
  - Grey scale image, structures of differing echo intensity
  - Identifies structures, course and gross pathology



- *Colour Doppler*
  - Qualitative assessment of flow dynamics
  - Direction
  - Signposts blood flow issues/ other pathology



- *Spectral analysis (PW- Doppler)*
  - Focused quantitative assessment blood flow
  - Measure blood velocity/grade disease severity



Arterial insufficiency diagnosis

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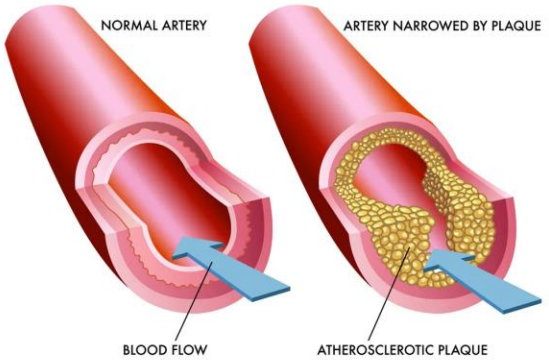

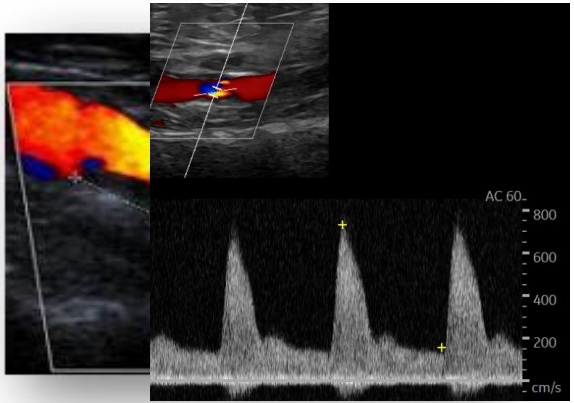

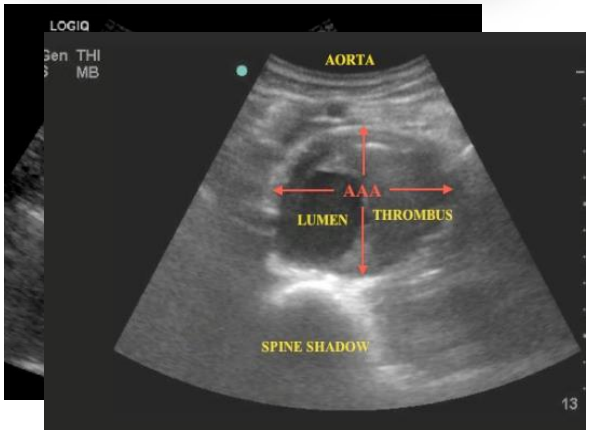

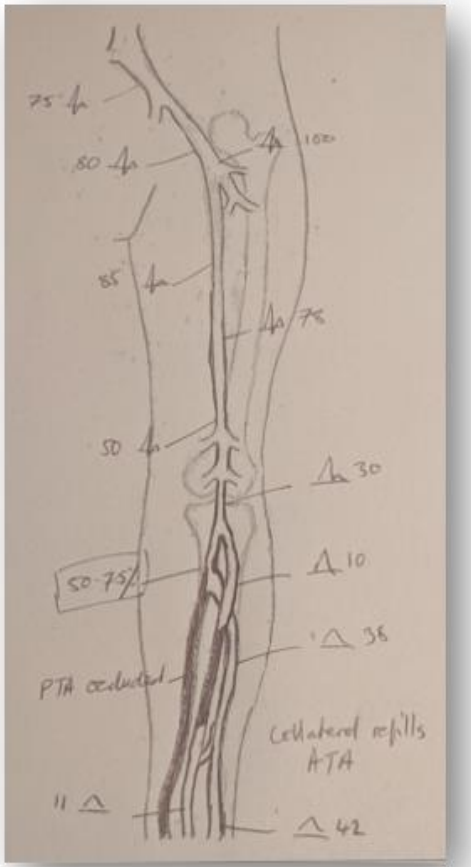

Conclusion:
Widely patent aorto-iliac segment on the left.

Common femoral artery, profunda femoris artery origin, superficial femoral and popliteal artery widely patent with multiphasic signals.

50-75% stenosis of the tibioperoneal trunk.

Run-off disease:
Occluded posterior tibial artery. Segmental occlusion of the anterior tibial artery mid calf. Peroneal artery patent throughout calf

Venous insufficiency diagnosis

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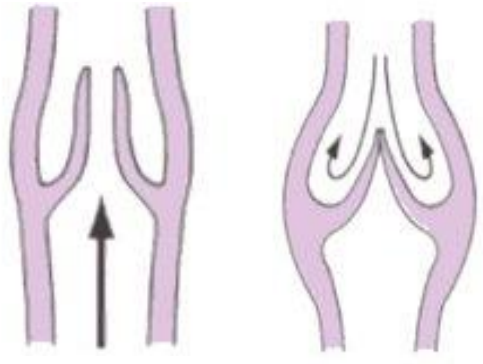

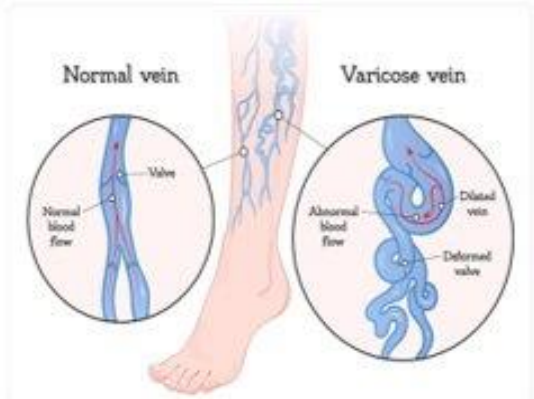

Venous Insufficiency diagnosis

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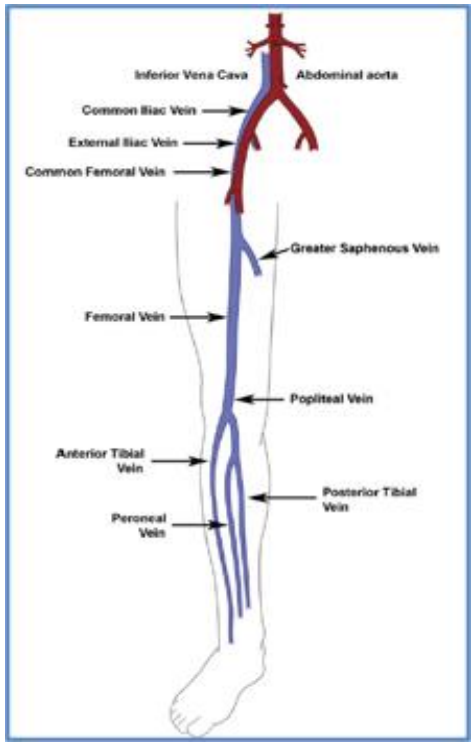
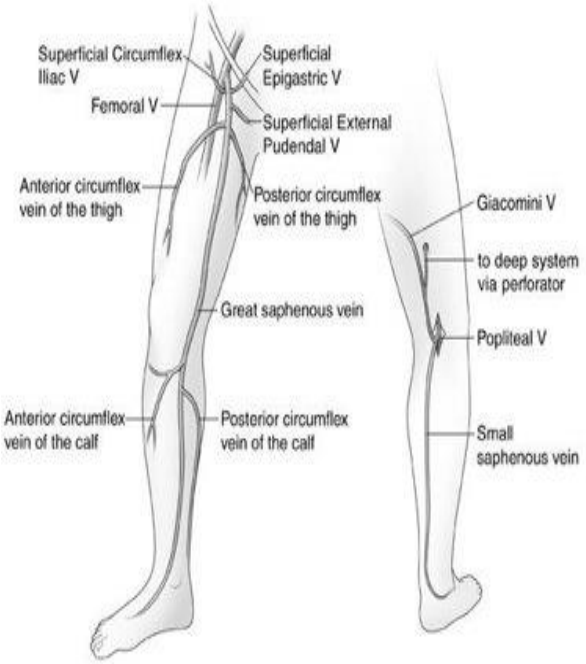
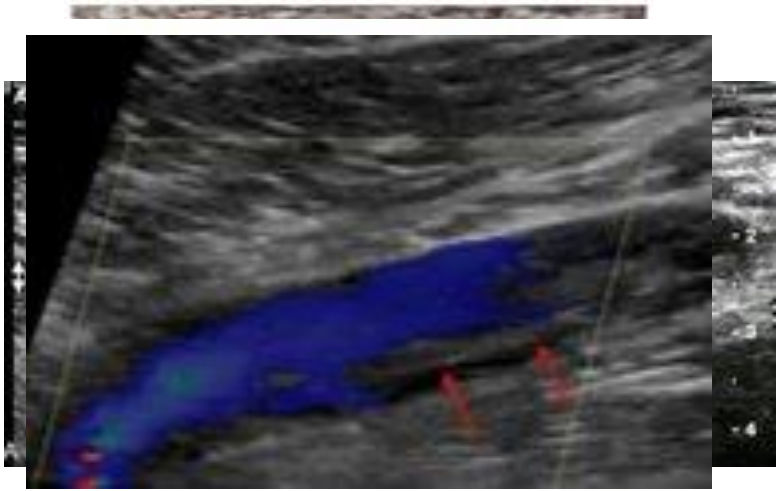


Deep Veins



Superficial veins



Guide Treatment

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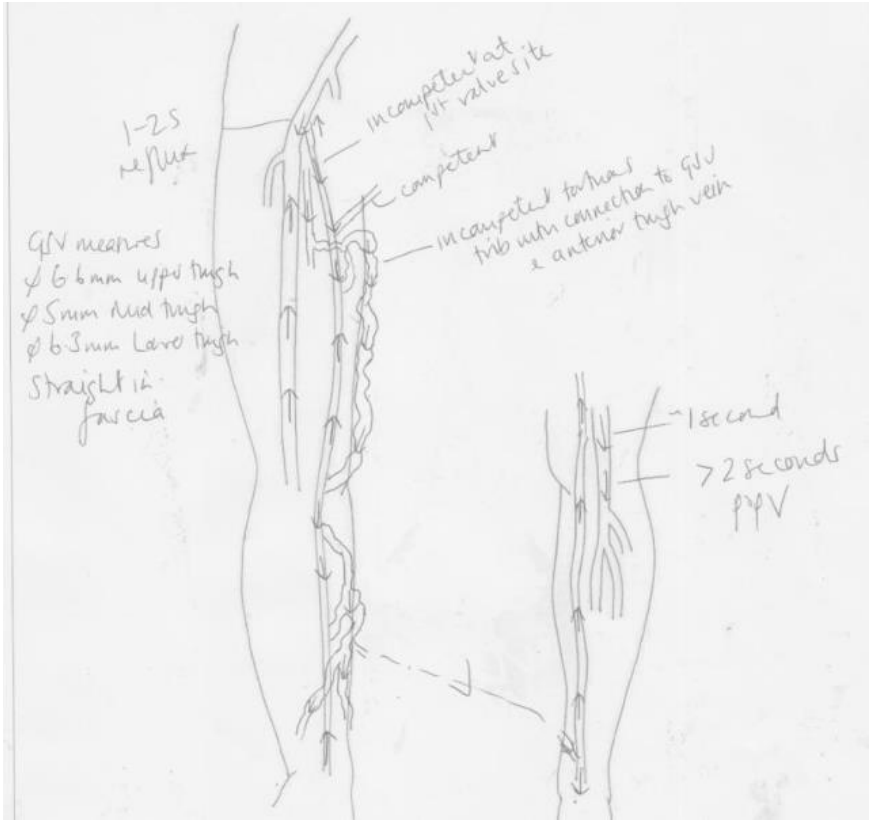

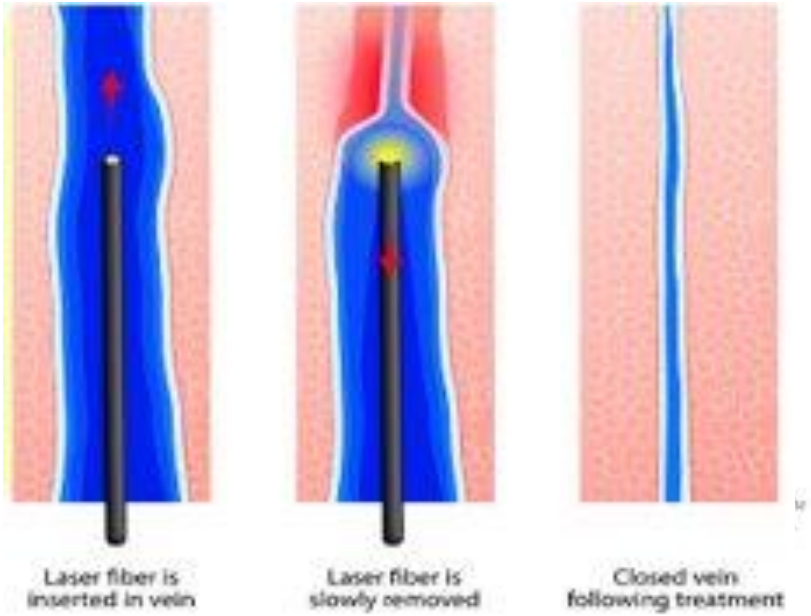

Patient treatment Focus

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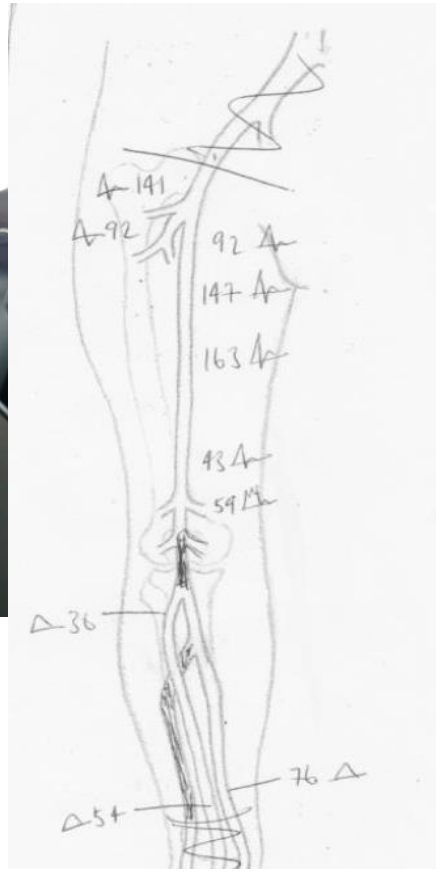

What next? Revascularisation

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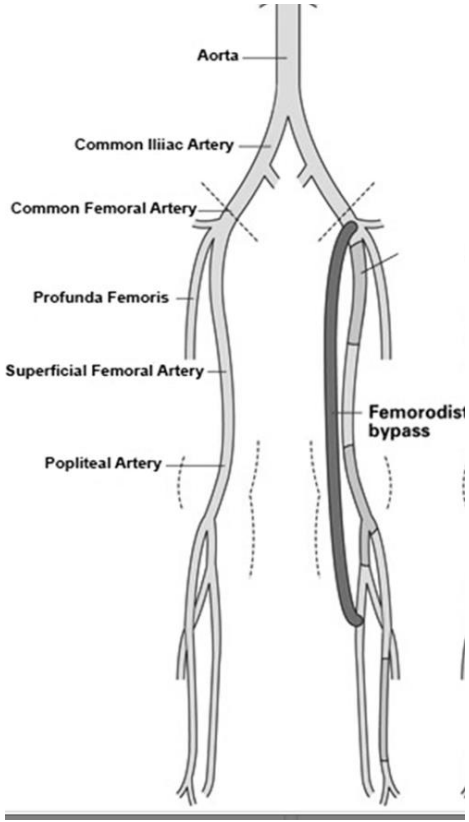

Summary

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- Who we are
- Role in secondary care wound management
- Fit into patient treatment pathway
  - Pre-treatment
  - Post - treatment

Thank you for listening

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