



Vascular Technology Content Outline

1. Gross Anatomy and Physiology (10%)

- A. *Cerebral Arterial System*
 - 1. Anterior circulation (carotid)
 - 2. Posterior circulation (vertebro-basilar)
 - 3. Intracranial circulation (circle of Willis)
 - 4. Peri-orbital circulation
- B. *Central and Peripheral Arterial System (including anatomical variations)*
 - 1. Thoracic arteries
 - 2. Upper extremities
 - 3. Abdominal arteries
 - 4. Lower extremity arteries
- C. *Venous System (including anatomical variations)*
 - 1. Central veins
 - 2. Portal, mesenteric and renal veins
 - 3. Lower extremity veins (origins, termination, venous valves, number of valves)
 - a. Deep veins
 - b. Superficial veins
 - c. Perforators
 - d. Venous Sinuses
 - 4. Upper extremity veins (including anatomic variants)
 - a. Deep veins
 - b. Superficial veins
- D. *Microscopic Anatomy, Microcirculation*

2. Test Validation (3%)

- A. *Statistics*
- B. *Measurement of Stenosis*

3. Peripheral Arterial Disease (28%)

- A. *Epidemiology of Arterial Disease*
- B. *Patient History and Physical Examination*
- C. *Risk Factors and Contributing Diseases*
- D. *Lower Limb Arterial Disease*
 - 1. Claudication
 - 2. Critical limb ischaemia
 - 3. Chronic arterial occlusive disease
 - 4. Healing of ulcers and amputations
 - 5. Acute arterial occlusion – thrombosis, emboli, trash foot
 - 6. Aneurysms
 - 7. Popliteal entrapment



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8. Iliac endofibrosis
 9. Graph surveillance
 10. Aetiology
- E. Upper Limb Arterial Disease*
1. Acute and chronic upper limb arterial disease
 2. Subclavian steal
 3. Thoracic outlet syndrome and other neurovascular compression syndromes
 4. Arterial occlusive diseases of the upper extremity
 5. Trauma, dissection, vasospasm, vibration, thermal injury
 6. Hand-arm vibration syndrome
 7. Upper extremity aneurysms
 8. Hypothenar Hammer aneurysm
 9. Aetiology
- F. Abdominal Arterial Disease*
1. Abdominal aortic and iliac artery aneurysms
 2. Duplex evaluation for EVAR
 3. Renovascular
 4. Mesenteric ischaemia
 5. Aetiology
- G. Global Arterial Diseases (duplex examination, epidemiology, risk factors, patient history, physical examination, treatment)*
1. Non-atherosclerotic lesions to include emboli and trauma
 2. Fibromuscular dysplasia
 3. Young patients with claudication
 4. Arteritis
 5. Vasospastic disorders
 6. Raynaud's syndrome and other vascular syndromes related to environmental temperature
 7. Cold sensitivity testing
 8. Digital Ischaemia and vasospastic disease
 9. Dissection-intimal, medial, spontaneous, traumatic
 10. Acrocyanosis
 11. Entrapment syndromes
 12. Arterial syndromes, e.g. Buegers, Takayasu's
 13. Arteriovenous fistulae
- H. Duplex Imaging*
1. Lower extremity
 2. B-mode, Pulse wave Doppler, Colour Doppler, Power Doppler
 3. Quantitative interpretation (i.e. Pulsatility Index, Resistive Index, Acceleration time/Systolic rise time)



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- I. *Pressures*
 - 1. Lower extremity
 - 2. Upper extremity
 - 3. Penile pressures
- J. *Other Non-invasive Tests (patient positioning, technique, interpretation, capabilities, limitations)*
 - 1. Doppler velocimetry
 - 2. Plethysmography (venous occlusion technique, volume pulse measurements - techniques, interpretation, capabilities, limitations)
- K. *Other Methods of Investigation (methods, interpretation, limitations)*
- L. *Intervention*
 - 1. Medical therapy
 - 2. Surgical therapy
 - 3. Non-surgical intervention

4. Cerebral Arterial Disease (28%)

- A. *Epidemiology of Cerebro-Vascular Disease*
- B. *Patient History and Physical Examination*
- C. *Risk Factors and Contributing Diseases*
- D. *Extracranial Cerebro-Vascular Diseases*
 - 1. Stenosis
 - 2. Embolism
 - 3. Thrombosis
 - 4. Subclavian steal
 - 5. Dissection/fibromuscular dysplasia
 - 6. Aetiology
- E. *Duplex Imaging*
 - 1. Patient positioning, technique, interpretation, capabilities and limitations
 - 2. B-mode, Pulse wave Doppler, Colour Doppler, Power Doppler
- F. *Intracranial Cerebro-Vascular Disease*
 - 1. Vasospasm
 - 2. Sources of emboli
 - 3. Sickle cell anaemia and STOP criteria
 - 4. Aetiology
- G. *Transcranial Doppler (patient positioning, technique, interpretation, capabilities, limitations, indications)*
 - 1. Imaging
 - 2. Non-imaging (to include intra-operative monitoring)
- H. *Other Non-invasive Vascular Tests (technique and interpretation)*



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- I. *Intervention*
 - 1. Medical therapy
 - 2. Surgical therapy
- J. *Other methods of investigation (methods, interpretation, limitations)*

5. Venous Disease (28%)

- A. *Epidemiology of Venous Disease*
- B. *Aetiology of Venous Disease (Upper and Lower Limb)*
 - 1. Valvular incompetence (superficial and deep)
 - 2. Thrombosis (superficial and deep)
 - 3. Differential diagnoses
- C. *Patient History / Signs and Symptoms of Physical Examination (Upper and Lower Body)*
 - 1. Acute deep vein thrombosis
 - 2. Pulmonary embolism
 - 3. Chronic venous insufficiency
- D. *Risk Factors and Contributing Diseases*
 - 1. Venous insufficiency
 - 2. Venous Thrombosis
 - 3. Venous insufficiency and venous thrombosis
- E. *Duplex Imaging (Upper and Lower Limb and Pelvic veins)*
 - 1. Patient positioning, technique, interpretation, capabilities and limitations
 - 2. B-mode, Pulse wave Doppler, Colour Doppler, Power Doppler
 - 3. Differential for DVT
- F. *Pre-Operative Marking*
 - 1. For vein to use in arterial bypass
 - 2. Prior to varicose vein surgery
- G. *Other Non-invasive Tests (technique and Interpretation)*
 - 1. Handheld Doppler examination
 - 2. Plethysmography
- H. *Other Methods of Investigation (methods, interpretations, limitations)*
 - 1. Venography
 - 2. MRV
 - 3. D-dimer tests
 - 4. Wells Diagnostic algorithm
 - 5. Homan's sign
 - 6. CT scanning
 - 7. Pulmonary embolism diagnosis



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- I. *Intervention*
 1. Medical therapy
 2. Surgical therapy
 3. Non-surgical intervention

6. **Other Conditions (2%)**

- A. *Arteriovenous Fistula*
- B. *Trauma*
- C. *Compartment Syndromes*
- D. *Carotid Body Tumours*
- E. *Carotid Aneurysms*
- F. *Congenital Vascular Abnormalities*
- G. *Klippel-Trenaunay syndrome*
- H. *Sickle Cell Anaemia*
- I. *Blood Clotting Disorders*
- J. *False Aneurysms*
- K. *Cystic Adventitial Disease*
- L. *May Turner Syndrome*
- M. *Coeliac Artery Compression Syndrome*

7. **Nice Guidelines to Include DVT, Arterial Disease and Carotids (1%)**