UPPER LIMB VASCULAR DISEASE

OCCLUSIVE DISEASES

BRACHIOCEPHALIC

Symptoms: ischaemia of right upper limb, carotids, vertebrobasilar system
Investigations: duplex US/angio/CTA/MRA
Surgical options (better mid-term results than endovascular):
1. AORTO-BRACHIOCEPHALIC BYPASS
2. BRACHIOCEPHALIC ENDARTERECTOMY can lead to aortic dissection/distal embolization in proximal lesion
Endovascular option: stent BCA

SUBCLAVIAN ARTERY

Almost 75% have carotid/vertebral lesions too
Features:
Management (i)BMT (ii)Surgery if necessary due to severe VBI/ishaemia symptoms inc steal

1. CAROTID-SUBCLAVIAN BYPASS (95% 10yr patency)

Horizontal supraclavicular incision/clamp common carotid low/protect vagus and phrenic nerves
PTFE anastomosed laterally → passed behind jugular vein → end-to-side with distal subclavian (axillary if diseased)

2. CAROTID TRANSPOSITION (100% long-term patency, better than CS bypass)

Reimplant subclavian into common carotid (transect prox end and put distal end onto CC; end-to-side)
Protect RLN

3. CROSSOVER GRAFTS (86.5% 5 year patency for ax-ax)

Subclavian-subclavian or axillary-axillary (can be compressed behind sternum; problem at future sternotomy)
Durability impaired by (a)long graft (b)reverse take-off

ENDOVASCULAR: balloon dilatation of subclavian (fem/brachial access)

UPPER ARM

AXILLARY/BRACHIAL usually due to DXT; present with fatigue; segmental so tunnelled vein graft (90% 5yr patency)

LOWER ARM/HAND

Ath/Buerger's/CTDs/occupation
Give lifestyle advice (re: cold, vibration, emotion, smoking); consider sympathectomy/vein graft bypass

SUBCLAVIAN/AXILLARY VEIN THROMBOSIS

PRIMARY SVT (Paget-Schroetter syndrome)

75% are RUL
Causes: C-rib
Symptoms: swelling, cyanosis, exertional pain (venous claudication)
Investigations: duplex US/CT to rule out Pancoast tumour/XR for C-rib
Management:
Immediate: Thrombolysis/Open thrombectomy (if lysis fails/contraindicated eg 10 days post-onset)
Resection: 1st rib resection (recommended within 3-4 months vs re-thrombosis risk)

SECONDARY SVT

CVC-related usually (one third develop SVT but 15% symptomatic)
Aetiology: fibrin sheath around catheter
Factors: size/type/duration/injected agent eg chemo/systemic risks for thrombosis (Virchow's triad)
Treatment: heparin until CVC removed +/- thrombolysi

THORACIC OUTLET SYNDROME

Compression of brachial plexus or subclavian vessels in thoracic outlet (90% neurogenic/10% arterial/<1% venous)
C-rib = 0.4% population 70% bilateral; 60% symptomatic

NEUROGENIC TOCS 90%
Aetiology: congenital fibrous band between clavicle and R1/scalene hypertrophy$_{\text{eg swimmers}}$/bone: R1 or clavicle callus; C-rib
Symptoms: pain/paraesthesia/weakness ie LMN in C8/T1
Signs: supraclav fossa tenderness; paraesthesia on compressing scalene; Roo's test (ext rotation and abduction)
Investigations: XR/MRI/EMG Adson's test (hyperabd/extension, radial pulse)
Treatment: (i)Conservative (physio/avoid overhead work; most improve)
(ii)Excise C-rib/Resect R1 if fails

ARTERIAL TOCS 10%
Aetiology: usually bony esp C-rib
Arterial fibrotic thickening and intimal damage → post-stenotic dilatation → aneurysm → digital ischaemia from emboli
Clinical features: resembles unilateral Raynaud's
Investigations: US arterial duplex/MRA
Surgery: (i)resect R1/excise C-rib + scalenectomy + excise fibrous bands
(ii)subclavian aneurysm repair (supra/infraclav incisions + Daron)

VENOUS TOCS <1%
Features: swelling, cyanosis, venous claudication *often present as DVT*
Investigations: US venous duplex/CXR/CT Chest to exclude Pancoast tumour
Management: (i)CDT +/- stent or thrombectomy $_{\text{if >10d/fail CDT}}$ (ii)C1/R1 vs re-thrombosis

HYPERHIDROSIS

Sweating in excess of that required for normal thermoregulation
1^{o}= disorder of eccrine sweat glands (young, family history, weekly, daytime, bilateral, face/scalp/palms/axillae/soles)
2^{o}= Endocrine$_{\text{(hyperpitutarism/hypoT4/phaeo/DM/menopause)/}}$Neurological$_{\text{(autonomic dysreg)/}}$Drugs$_{\text{(SSRIs)}}$/Malig/TB

Sites
Face/scalp/palms/axillae/soles in primary; secondary tends to be generalised

Clinical Features
History: HPc=(i)Sites/bilaterality; (ii)onset$_{\text{(young?)}}$, timing$_{\text{(day or night?)}}$, frequency$_{\text{(weekly?)}}$ (iii)Endocrine/Neuro symptoms
PMHx= Endocrine/Neuro/TB/Malig
Medx= SSRIs
FHx= 1^{o} hyperhidrosis

Investigations:
(i)Iodide starch test: iodine over affected area, starch turns black) (ii)Underlying causes

Management:
(i)Medical: topical $AlCl_3$ antiperspirant/oral anticholinergic $_{\text{glycopyrrolate}}$/botox$_{\text{repeatedly}}$
(ii)Surgical: (a)thoracoscopic sympathectomy$_{\text{(T1 face, T2/3 palms, T4 axillae)}}$
(b)Excision/liposuction (axillary)

*complications of symnpathectomy: compensatory sweating (90%), gustatory sweating, recurrence (10%)
intercostal neuralgia/PNTx/Horner's