Peripheral Vascular Emergencies

Acute limb ischemia, grafts and access sites, carotid procedures, DVT and PICC clots, VTE prevention, arterial vs venous care, compression stockings, Buerger and Raynaud

ARTERIAL VS VENOUS AT THE BEDSIDE

FEATURE	PERIPHERAL ARTERIAL DISEASE	VENOUS INSUFFICIENCY
Pain	Claudication with walking, eased by rest; rest pain at night, worse with the legs raised	Aching, heaviness, worse standing, better with the legs up
Skin and pulses	Cool, pale on elevation, dusky red when dependent, hair loss; weak or absent pulses	Edema, brown pigment, stasis dermatitis, varicose veins; pulses present
Ulcer	Toes or heel, after minor trauma, painful; can reach tendon or bone	Around the medial malleolus, shallow and moist
Position	Legs level or slightly dependent; never elevated	Elevate above heart level; avoid long sitting or standing
Compression	No	Yes: stockings or wraps
Heat	Warm socks only; no heating pad (poor sensation, burns)	No heat on ulcers

ABI 0.90 or less confirms PAD; over 1.40 means stiff arteries, so use a toe-brachial index (abnormal 0.70 or less). Rest pain, nonhealing wounds or gangrene for over 2 weeks is chronic limb-threatening ischemia.

ACUTE LIMB ISCHEMIA

Sudden pain, pallor, pulselessness, poikilothermia (cold), paresthesia, then paralysis. Usual causes: embolus (atrial fibrillation), thrombosis of a diseased artery, graft or stent. Muscle tolerates about 4 to 6 hours.

CATEGORY	SENSATION AND MOVEMENT	DOPPLER	PLAN
I viable	Normal	Arterial and venous heard	Urgent workup
IIa marginally threatened	Sensory loss only in toes; no weakness	Arterial often lost, venous heard	Prompt revascularization
IIb immediately threatened	Sensory loss beyond toes, mild to moderate weakness	Arterial lost, venous heard	Revascularize now
III irreversible	Complete numbness, paralysis	Neither heard	Usually amputation; limb not expected to be saved

- Notify the provider at once; expect IV heparin on diagnosis and emergency vascular review
- Keep the limb level, padded and protected; no elevation, heat or massage
- Neurovascular checks often; motor weakness moves the limb to IIb

AFTER REVASCULARIZATION

PROBLEM	CLUES	ACTION
Graft or stent thrombosis	New pain, pallor, coolness; a Doppler signal that was there is gone	Report at once; anticipate imaging and thrombectomy, lysis or revision
Reperfusion compartment syndrome	Pain out of proportion, pain on passive stretch, tense calf; pulse may stay	Notify surgeon for fasciotomy; limb at heart level (see CEN Musculoskeletal)
Reperfusion chemistry	Dark urine, rising potassium and CK, acidosis	Labs and urine output
Atheroembolism (days to weeks after catheterization or aortic work)	Painful blue toes with pulses, livedo, eosinophilia, creatinine climbing for weeks	Supportive care and statin; question new anticoagulation

ACCESS SITES AFTER CATHETERIZATION

COMPLICATION	CLUES	FIRST ACTION
Groin hematoma	Swelling, pain at the site	Firm pressure, mark edges, recheck pulses
Retroperitoneal bleed	Back or flank pain, rising HR, falling BP; groin may look normal	Notify at once; flat, IV access, CT, hold anticoagulant as ordered
Pseudoaneurysm	Pulsatile tender mass, systolic bruit	Report; duplex, then compression or thrombin injection
AV fistula	Continuous bruit and thrill, no pulsatile mass	Report; duplex
Limb ischemia	Cool, pale, pulse lost distal to the site	Treat as acute limb ischemia
Radial occlusion	No radial pulse; hand usually warm and working	Report; early anticoagulation or ulnar compression can reopen it

AFTER CAROTID ENDARTERECTOMY OR STENTING

PROBLEM	CLUES	ACTION
Neck hematoma	Swelling, stridor, trouble swallowing	Airway first; call the surgeon now
Hyperperfusion syndrome	Same-side headache, high BP, seizure, new deficit	Tight BP control to the ordered target; seizure precautions
Carotid sinus reaction	HR under 60, SBP under 90, alert	Fluids, atropine, vasopressor as ordered
Cranial nerve injury	Tongue deviates, hoarse voice, facial droop at the lip	Swallow check before eating; report
Stroke	New deficit, aphasia	Stroke alert

DVT AND PICC CLOTS

- Signs: one-sided swelling, warmth, redness, calf pain; report at once (PE risk)
- Care: anticoagulate as ordered, elevate the leg when resting, walk as tolerated; no bed rest, no calf massage
- Sudden dyspnea or chest pain: PE (see Pulmonary Embolism)
- Phlegmasia: whole leg swollen, purple, very painful, pulse fading; heparin; urgent clot removal is considered
- PICC arm DVT: anticoagulate at least 3 months and while the line stays; a working, needed PICC can stay

VTE RISK AND PREVENTION

- High risk: prior VTE, immobility 3 days or more, heart or respiratory failure, critical illness, cancer, thrombophilia, hormones, age 70 or older
- Drug prophylaxis (LMWH preferred) unless bleeding risk; mechanical (pneumatic compression) when drugs cannot be used
- Walking and leg exercises for everyone who can
- Platelets falling day 5 to 10 on heparin: think HIT (see Coagulation)

COMPRESSION STOCKINGS AND VENOUS ULCERS

- Measure for size; put on in the morning before getting out of bed
- Smooth every wrinkle; never roll or fold the top down
- Off at least once a day to wash and inspect the skin
- Wash daily; replace every 3 to 6 months
- Report numbness, color change, blisters or pain
- Venous ulcer: compression, elevation above the heart, daily walking, moist dressings

SAFETY No compression on a leg with significant arterial disease. Arterial pain at night: legs dependent, not up.

BUERGER AND RAYNAUD

FEATURE	BUERGER DISEASE	RAYNAUD
Who	Young tobacco users, mostly men 30 to 45	Mostly young women; primary in 80 to 90%
Picture	Cold, painful fingers and toes, foot-arch claudication, ulcers	White, then blue, then red with cold or stress
Key teaching	Stop all tobacco or the disease progresses to amputation	Keep warm, gloves, no smoking or caffeine; avoid vasoconstricting drugs

Sources (21) are listed with links at icubasics.com/sheets/peripheral-vascular.html. For education and exam preparation only. Not medical advice; follow current guidelines and your institution's protocols. ICU Basics is an independent study aid not affiliated with any certifying body.