Vascular Disorders of the Hand
Self-Assessment
I. The patency rate of repairing a radial artery laceration with an intact palmar arch using modern microsurgical techniques is:

A. 20%
B. 40%
C. 60%
D. 80%
E. 100%
2. A 29-year-old man sustained a ring avulsion injury shown below. He presents to you 26 hours post-injury. The most appropriate treatment at this time would be:
A. Splinting and observation
B. Admission and anticoagulation
C. Vein repair/reconstruction
D. Arterial repair/reconstruction
E. Amputation
3. A healthy, 42-year-old carpenter complains of cold intolerance in his dominant little and ring fingers. Clinical examination and imaging studies reveal an isolated thrombosis of the ulnar artery in Guyon’s canal. The digital brachial index measured using his little and ring fingers is 0.9. Conservative treatment has failed to relieve his symptoms. Treatment should now include resection of the thrombosed arterial segment and:
A. Ligation of the proximal and distal arteries

B. End to end repair of the remaining artery

C. Interposition vein graft reconstruction

D. Periarterial palmar and digital sympathectomies

E. Gortex graft interposition and coumadin
4. A 45-year-old, right-hand-dominant carpenter complains of pain, numbness and cold intolerance in his right ring and small fingers. He is a one pack-per-day cigarette smoker. The Allen’s test demonstrates no flow via the ulnar artery. There is a non-pulsatile mass in the region of the hook of the hamate. Non-invasive vascular testing shows a Digital-Brachial Index of 0.4. Appropriate surgical management for this condition is:
A. Excision of the thrombosed segment of the ulnar artery and ligation

B. Excision of the thrombosed segment and reconstruction with reversed vein graft

C. Digital sympathectomy

D. Thrombectomy

E. Excision of the hook of hamate
5. A 20-year-old construction worker with hypothenar hammer syndrome has undergone angiography demonstrating occlusion of the ulnar artery at Guyon’s canal and an incomplete palmar arch. He has developed non-healing ulcerations on the tip of the small finger. What is the most appropriate treatment?
A. Observation
B. Aspirin
C. Calcium channel blocker
D. Thrombolytic therapy
E. Vascular reconstruction
6. Use of Botulinum neurotoxin A to treat Raynaud’s phenomenon is most likely associated with:

A. Ulcer exacerbation
B. Pain relief
C. Grip weakness
D. Permanent color improvement
E. Skin atrophy
7. In a person with non-occlusive, vasospastic disease and painful digital ulceration, Botulinum neurotoxin A, injected around the neurovascular bundle in the palm, has which expected outcome?

A. No proven benefit
B. Reliable healing of the painful ulcers
C. Temporary paralysis of the finger
D. Improved nutritional blood flow for six weeks
E. Decrease in digital pain without ulcer healing
8. In a patient with a digital ulcer, what underlying condition is most likely to benefit from periarterial sympathectomy?

A. Vasospasm associated with hypercoagulable state
B. Vasospasm associated with autoimmune disease
C. Vasospasm associated with atherosclerotic disease
D. Ulnar artery thrombosis without embolism
E. Ulnar artery thrombosis with associated embolism
9. A 42-year-old female with rheumatoid arthritis presents with painful cold intolerance, involving her right long and ring fingers, and small non-healing ulcerations at the tips of both digits. She smokes up to one pack of cigarettes per day. Arteriography reveals no occlusive disease proximal to her right wrist. The primary treatment should be:
A. Oral calcium channel antagonist
B. Botulinum neurotoxin A
C. Avoidance of cold, tobacco, and vasoconstrictors
D. Surgical sympathectomy
E. Surgical sympathectomy and arterial reconstruction
10. Which of the following is the best site to insert an intravenous catheter to minimize the risk of inadvertent chemotherapeutic extravasation?

A. Middle of the forearm
B. Antecubital fossa
C. Dorsum of the hand
D. Dorsum of the wrist
E. Radial side of the wrist
11. The soft tissue injury that occurs as a result of an extravasation of intravenous fluid is most likely related to which property of the extravasate?

A. Osmolarity
B. pH
C. Infusion volume
D. Vasodilation
E. Temperature
12. A 44-year-old woman with breast cancer is undergoing chemotherapy with the chemotherapeutic agent doxorubicin. Her chemotherapy nurse at the outpatient center noticed that the agent had an extravasation into the skin over the dorsum of her hand. Appropriate treatment for this painful extravasation would be which of the following?
A. Local warming or dry heat
B. Topical steroids
C. Systemic steroids
D. Application of ice
E. Surgical drainage of the lesion
13. A chemotherapy patient suffers an extravasation of doxorubicin in the antecubital fossa. Early treatment measures that decrease the extent of tissue loss include:

A. Infiltration of affected area with triamcinolone
B. Dapsone, 300mg daily for seven days
C. Vacuum suction
D. Early wide excision and skin grafting
E. Saline washout
14. The best systemic antidote for the treatment of anthracycline (e.g., doxorubicin) extravasation injury is:

A. Sodium thiosulfate
B. Hyaluronidase
C. DMSO
D. Dexrazoxane
E. Sodium bicarbonate
15. A patient who has previously had a mastectomy with lymph node dissection and has intermittent lymphedema requires hand surgery. In counselling the patient on risks, what should you advise the patient?
A. Tourniquet use will increase the risk of infection
B. Tourniquet use will result in a permanent increase in lymph edema
C. Tourniquet use is contraindicated
D. Tourniquet may be used only if any pre-existing lymph edema is eliminated prior to surgery
E. There is no current consensus on tourniquet use following lymph node dissection
16. The single-most important step in the salvage of tissue and limb function in frost bite injury is:

A. Immediate rewarming of the frozen extremities in warm water 40-44C
B. Elevation and splinting of the extremity
C. Daily hydrotherapy at 40C for 30 to 45 minutes
D. Administration of low dose aspirin
E. Immediate assessment of tissue viability with technetium-99m bone scanning
17. Which of the following treatments has been shown to decrease expected amputation rates when used in the treatment of acute frostbite injuries?

A. Blister debridement
B. Tissue plasminogen activator
C. Warfarin
D. Hyperbaric oxygen
E. Sympathectomy
18. Treatment of frostbite injury with NSAIDS is thought to work through the following pathway:

A. Hypertension leading to improved tissue perfusion
B. Heat shock proteins
C. Vasodilation of medium-sized vessels
D. Preventing platelet aggregation
E. Pain reduction
19. A patient presents with pain in the region of the distal phalanx for the last four years that worsens when she performs her job as a butcher. On exam there is slight discoloration of the nail bed. An MRI shows a well-circumscribed 4.5 mm high signal intensity mass on T2-weighted spin-echo images. The most likely diagnosis is:
A. Mucous cyst
B. Glomus tumor
C. Fibroma
D. Melanoma
E. Giant cell tumor
20. An 11-year-old female presents with progressive complaints of pain and numbness in the fingers of both hands when exposed to cold. Her fingers appear cyanotic especially the index and middle. She has normal range of motion and strength, with filling from the ulnar and radial arteries on Allen’s testing. Lab studies include a normal CBC, sed rate and rheumatoid factor. Her ANA screen is positive, with a titer of 1:160. She has a positive Scl-70 antibody test. The most likely diagnosis is:
A. Reiter’s syndrome
B. Systemic Lupus Erythematosus
C. Rheumatoid arthritis
D. Scleroderma diffuse form
E. Sjogrens syndrome
Self-Assessment Answers