

## Vascular Surgery (Bay Pines VAH)

### PGY 1

Goal: The resident will gain experience and knowledge in the management of vascular patients, particularly the supporting principles of surgery in general, with specific emphasis on issues/problems in vascular surgery.

#### PATIENT CARE

- a) Clinical evaluation and physical examination of patients with arterial, venous, or lymphatic disorders.
- b) Demonstrate proficiency in basic vascular surgical techniques, including: suturing an anastomosis, balloon catheter thrombectomy, handling of autogenous vein and prosthetic graft material, closure of vascular incisions (in situ bypass, femoral incisions, carotid surgery)
- c) Participate in surgery for varicose vein disease, including: radiofrequency saphenous venous closure, saphenous vein high-ligation and stripping, stab phlebectomy, management of venous ulcers, management of superficial thrombophlebitis
- d) Participate in amputations with specific attention to: selection of level required for healing, indications for primary amputation, surgical techniques of digit, metatarsal, and midfoot amputations; surgical techniques of below- and above-knee amputation
- e) Demonstrate proficiency in construction catheter, autogenous arteriovenous fistula, and prosthetic bridge grafts for hemo-dialysis.
- f) Assist and perform thromboendarterectomy and thrombectomy procedures.
- g) Evaluate indications for and management of patients undergoing sympathectomy procedures for reflex sympathetic dystrophy and hyperhidrosis.
- h) Perform the preoperative assessment and postoperative care of patients undergoing major vascular surgical procedures.

#### MEDICAL KNOWLEDGE

- a) Describe human arterial and venous anatomy; lower limb (arterial and venous), upper limb (arterial and venous), extracranial carotid, intracranial arterial, mesenteric and renal
- b) Describe basic "normal" arterial (carotid, visceral, peripheral) and venous (saphenous, deep venous system) hemodynamics, and the abnormalities associated with: "critical" stenosis, intermittent claudication of the lower limb, subclavian steal syndrome, chronic mesenteric angina, renovascular hypertension, acute deep venous thrombosis, chronic venous insufficiency, arteriovenous (AV) fistula
- c) Discuss the anatomy, pathology, and pathophysiology of the arterial wall; intima, media, adventitia
- d) Discuss the clinical manifestations of the following vascular disorders: atherosclerosis obliterans of the lower limb, aneurysmal arterial disease, thromboembolic disease, arterial and venous
- e) Describe invasive and noninvasive techniques for measurement of limb blood pressure and their use in the evaluation of vascular disease, including the arterial pressure criteria of a "hemodynamically significant" stenosis, ankle systolic pressure, ankle-brachial systolic pressure index (ABI), digit systolic pressure and pulse volume recordings, Doppler waveform analysis, exercise treadmill testing

- f) Describe the relationship of the following disorders/risk factors to atherosclerotic arterial occlusive/aneurysmal disease: diabetes mellitus, hypertension, renal failure, congestive heart failure, hyperlipidemia, smoking
- g) Describe the clinical manifestation and intervention for: ruptured abdominal aortic aneurysm, embolus to the brachial artery, acute lower limb deep venous thrombosis, acute superior mesenteric artery thrombosis, acute lower limb graft thrombosis
- h) Differentiate between the following diagnostic techniques for assessment of vascular disease: angiography, computed axial tomographic (CAT) scanning, magnetic resonance imaging (MRI) and MR angiography, duplex scanning (ultrasonography) Explain the concept of "silent" vascular disease and cite examples when it represents a major threat to the patient.
- i) Summarize the etiology, pathophysiology, and therapeutic options of specific venous disorders: varicose veins involving the great saphenous system, post-phlebotic (chronic venous insufficiency) syndrome, pulmonary embolus, superficial thrombophlebitis of the great saphenous vein, iliofemoral venous thrombosis
- j) Summarize the etiology, pathophysiology, and therapeutic options of specific lymphatic disorders: lymphedema praecox, lymphedema tarda, postoperative lymphedema
- k) Summarize the etiology, pathophysiology, and therapeutic options of specific arterial disorders: aortoiliac occlusive disease, abdominal aortic aneurysm, arterial embolic disease, extracranial carotid stenosis, thoracic outlet syndrome, visceral ischemic syndromes, trauma, arteriovenous malformations
- l) Describe the type of the non-invasive vascular laboratory testing used to evaluate: arterial occlusive disease, venous disease, arterial aneurysmal disease, digit ischemia, vascular trauma, thoracic outlet syndrome, extracranial carotid stenosis
- m) Describe the bedside technique of Doppler ultrasound arterial and venous testing.
- n) Outline the patient care principles for lower limb ischemia.
- o) Describe the natural history of the following vascular disorders: carotid bifurcation atherosclerotic stenosis, abdominal aortic aneurysm, superficial femoral artery stenosis/occlusion – intermittent claudication, iliofemoral deep venous thrombosis, calf vein thrombosis
- p) Summarize principles for the preoperative assessment and postoperative care of patients undergoing: carotid endarterectomy, lower limb arterial bypass, abdominal aortic aneurysm repair, thromboembolectomy of extremity arteries, placement of hemoaccess for hemodialysis in the upper limb, varicose vein excision, placement of an inferior vena cava filter, direct thrombin injection and surgical repair of femoral artery false aneurysm, blunt popliteal artery trauma, catheter-directed thrombolysis for acute graft thrombosis, femoropopliteal PTFE graft infection, STSG of venous ulcer.
- q) Discuss the principles of and contraindications for anticoagulation and thrombolytic therapy. Describe the evaluation and treatment of the sequelae of vascular intervention including: groin lymphocele/fistula, lower limb swelling, stroke after carotid endarterectomy, infrainguinal vein graft stenosis, graft-enteric erosion/fistula, arterial steal syndrome following AV bridge graft placement for dialysis.
- r) Discuss the technique of: pulmonary catheter placement, perma-cath insertion for hemodialysis, digit amputation, below-knee amputation, I&D of diabetic foot infection, varicose vein excision (microphlebectomy), high ligation of the greater saphenous vein, stent-assisted angioplasty, arterial suturing, vena cava filter insertion.
- s) Describe measures to reduce the progression of vascular disease.
- t) Determine a plan for assessment of operative risk in these categories: coronary artery disease, congestive heart failure, chronic obstructive lung disease (COPD), renal insufficiency, level of anesthetic risk.

- u) Demonstrative ability to prepare patients for definitive operative and endovascular interventions, rehabilitation, and discharge planning.
- v) Discuss the diagnosis and management of non-atherosclerotic vascular diseases: systemic vasculitis, giant cell arteritis, Takayasu's disease, radiation induced arterial disease, arterial infection, adventitial cystic disease, popliteal entrapment syndrome, Buerger's disease, coarctation of the abdominal aorta, persistent sciatic artery aberrant subclavian artery, arteriopathies, Marfan's syndrome, Ehlers-Danlos syndrome, arterial magna syndrome, Behçet's disease, homocystinuria.

#### PRACTICE BASED LEARNING AND IMPROVEMENT

- a) The resident will demonstrate progression in obtaining knowledge in the work-up, operative principles, and post-operative management of the vascular surgery patient.
- b) The resident will utilize information sources to learn/improve knowledge based on clinical situations.
- c) The resident will demonstrate the ability/willingness to teach skills/knowledge to others.

#### INTERPERSONAL AND COMMUNICATION SKILLS

- a) The resident must communicate clearly with patients, their families, and the medical staff.
- b) The resident will demonstrate knowledge and skills to communicate and coordinate care.
- c) Maintain complete and timely medical record documentation

#### PROFESSIONALISM

- a) The resident must ensure involvement in the post-operative care of patients and create a positive public image.
- b) The resident must acknowledge the anxieties of patients and their families and answer questions and allay anxiety.
- c) The resident will gain an appreciation for and engage in discussions involving critical issues.
- d) The resident will exhibit compassion, respect, sensitivity, and commitment in their daily approach to patient care.
- e) Maintain the highest standards of ethical behavior

#### SYSTEMS BASED PRACTICE

- a) The resident must understand when it is appropriate to seek help through appropriate consultation with colleagues.
- b) The resident must demonstrate an appropriate understanding and appropriate utilization of the electronic patient information system.
- c) The resident will gain an appreciation for and skills in coordinating ancillary services for continuity of patient care.
- d) Perform risk-benefit analysis and consider cost in providing high quality care