

VASCULAR SURGERY

PGY-1

Medical Knowledge

1. Describe human arterial and venous anatomy.
2. Describe basic arterial and venous hemodynamics.
3. Review the basic clinical manifestations of vascular disorders.
4. Assess the vascular system by appropriate skills in history-taking and in clinical examination.
5. Explain the pathogenesis and management of atherosclerosis and related illnesses such as diabetes mellitus, hypertension, renal failure and congestive heart failure.
6. Describe life-threatening signs of vascular disease and indicate when immediate intervention is required.
7. Differentiate the diagnostic tools available for assessing vascular disease, including angiography, CT scanning and MRI/MRA, and explain the relative contribution of each.
8. Demonstrate understanding that vascular disease, and specifically arterial disease may be generalized and may be clinically silent but still represents a major threat to the patient.
9. Discuss basic principles of Doppler ultrasound and perform bedside arterial and venous Doppler testing.
10. Outline the principles of care for ischemic limbs.
11. Describe the natural history of lower extremity claudication.
12. Outline the principles of the non-invasive laboratory diagnosis.
13. Demonstrate the ability to manage shock and the care of critically ill patients.
14. Perform the preoperative assessment and postoperative care of patients undergoing major vascular surgical procedures.
15. Outline the fundamental elements of nonoperative care including the role of risk assessment and preventive measures.

Patient Care

1. Evaluate patient for vascular disease.
2. Demonstrate skill in basic surgical techniques including:

- a. Knot tying
 - b. Exposure and retraction
 - c. Knowledge of instrumentation
 - d. Incisions
 - e. Closure of incisions
3. Participate in surgery for varicose vein disease including:
- a. Ligation and stripping
 - b. Management of venous stasis ulcers
 - c. Management of venous thrombosis
4. Participate in amputations with specific attention to:
- a. Demarcation levels
 - b. Control of toxicity
5. Demonstrate the ability to perform arterial access including:
- a. Incisions
 - b. Closure of incision

Practice Based Learning

Familiarity with the literature regarding surgical management of conditions afflicting the vascular surgery population including areas of controversy is also expected.

Interpersonal and Communication Skills

1. The PGY 1 residents should instruct students about the preoperative and postoperative care of surgical patients and the principles of surgery.
2. Residents should develop good interpersonal skills with nurses, patients, and families.

Professionalism

1. Demonstrate commitment to patient care and acquiring the necessary knowledge to successfully carry out the duties of a PGY 1 resident.
2. They are expected to attend vascular surgery clinics as assigned the equivalent of at least one full day a week.

Systems-Based Practice

1. Develop an appreciation of multi-disciplinary approaches to Vascular surgery patients by participating in multi-disciplinary outpatient and inpatient activities.
2. Presentation of vascular surgery patients in multidisciplinary patient management conferences.

PGY-3

Medical Knowledge

1. Describe vascular anatomy and regional anatomy related to vascular disease.
2. Discuss the operative exposure of the major vessels.
3. Outline the indications for operations for claudication, abdominal aortic aneurysm, carotid stenosis, chronic mesenteric ischemia, popliteal aneurysm, and amputation.
4. Describe the indications for balloon angioplasty with(out) stenting with its risks and complications.
5. Describe the pathogenesis and complications of aneurysmal disease.
6. Discuss the etiology, microbiology and treatment of diabetic foot infection.
7. Explain the fundamental elements of nonoperative care in vascular disease, including the role of risk assessment and conservative and preventive measures.
8. Describe the pathophysiology of:
 - a. Claudication
 - b. TIA
 - c. Stroke
 - d. Mesenteric angina
 - e. Angina pectoris
 - f. Renovascular hypertension
 - g. A-V fistula
9. Explain the concept of critical arterial stenosis.
10. Differentiate acute arterial and acute deep venous occlusion.
11. Describe the pathology, diagnosis and management of acute arterial emergencies including:
 - a. Acute limb ischemia
 - i. Thrombotic
 - ii. Embolic
 - b. Acute Mesenteric Ischemia
 - c. Ruptured aortic aneurysm
 - d. Lower extremity sepsis
 - e. Retroperitoneal and iatrogenic hematomas
 - f. Iliofemoral DVT with phlegmasia
12. Discuss the principles of angiography, its indications and complications, including contrast-induced renal failure. Include the principles and techniques of intraoperative angiography.
13. Discuss the roles and indications for non-invasive vascular diagnosis including:
 - a. Duplex sonography
 - b. MR angiography
 - c. CT angiography
 - d. Physiologic vascular testing including pulse volume recordings and exercise treadmill
14. Discuss the principles of and contraindications for anticoagulation and thrombolytic therapy.

15. Discuss the interaction of the vasoactive substances (prostaglandins, kinins, etc.) and their manipulation by various therapeutic medications.
 16. Outline pharmacologic interventions available for patients with vascular disease including diagnostic and therapeutic options.
 17. Discuss the general principles of vascular surgical technique including vascular control and suturing and procedures such as endarterectomy, angioplasty and bypass grafting.
 18. Discuss the roles for endovascular treatments in the areas of:
 - a. Aortic aneurysm disease
 - b. Carotid stenosis
 - c. Renal artery stenosis
 - d. Claudication
 19. Describe the use of adjunctive measures in the management of patients with vascular disease such as:
 - a. Antibiotics
 - b. Anticoagulants
 - c. Thrombolytic agents
 - d. Antiplatelet agents
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1. Describe the common operative approaches to the vascular system.
 - a. Incisions and exposure
 - b. Handling of vascular tissues
 - c. Principles of vascular grafting
 - d. Emergency vascular surgery
 - e. Principles of endarterectomy
 2. Demonstrate an understanding of the decision making in vascular surgery
 - a. Risk-reward ratio
 - b. Morbidity and mortality probability
 - c. Preoperative and postoperative assessment
 - d. Noninvasive laboratories, duplex scanning
 - e. Role of advanced radiologic techniques: Angioplasty, CT scanning, MRI/MRA

Patient Care

1. Obtain vascular control of diseased or traumatically occluded blood vessels using:
 - a. Vascular clamp
 - b. Vessiloop
 - c. Balloon occlusion
2. Participate in thromboendarterectomy.
3. Demonstrate appropriate vascular suture techniques.

4. Demonstrate the appropriate incisions and exposure of:
 - a. Abdominal aorta and its major branches
 - b. Peripheral arterial system
 - c. Carotid arterial system
 - d. Arteriovenous fistula
5. Obtain vascular control in major vessels
 - a. Aorta
 - b. Vena cava
6. Participate in endarterectomy and bypass grafting.
7. Demonstrate ability to manage graft and suture materials.
8. Perform selected operative procedures or selected parts of the following operative procedures under supervision:
 - a. Aortic aneurysm repair
 - b. Carotid endarterectomy
 - c. Aorto-iliac occlusive disease
 - d. Femoral-popliteal occlusive disease
 - e. Peripheral vascular trauma
 - f. Hemodialysis access creation and revision
 - g. Endovascular procedures

Practice Based Learning

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Professionalism

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