

**General Surgery Residency  
Loma Linda University Medical Center**

**LLUMC Vascular Goals and Objectives**

**PGY 1**

**Goals:**

Loma Linda University Medical Center will provide a learning environment for all aspects of vascular disease. Surgical basic science, wound healing and nutrition will be emphasized. Clinically, residents will assess surgical pathology pre-operatively, develop clinical judgment on managing these issues, and learn operative skills to address the problem. In addition, residents will become proficient in interpreting the different diagnostic modalities commonly used in vascular surgery. Careful postoperative care and follow up will be emphasized. Residents will develop cognitive and technical skills in dealing with complex vascular pathology.

**Objectives:**

**Medical Knowledge**

Describe human arterial and venous anatomy.

Describe basic arterial and venous hemodynamics.

Discuss the anatomy, pathology, and pathophysiology of the arterial wall.

Review and describe the basic clinical manifestations of the following vascular disorders:

- Obstructive arterial disease – including peripheral arterial disease and cerebrovascular disease
- Aneurysmal arterial disease
- Thromboembolic disease--arterial and venous
- Chronic venous insufficiency and lymphatic obstruction
- Congenital vascular disease
- Vascular aspects of care for the hemodialysis patient

Assess patients' vascular systems using appropriate skills in history-taking and clinical examination.

Discuss basic principles of Doppler ultrasound and duplex imaging in preparation for performing bedside arterial and venous testing.

Outline the principles of care for ischemic limbs.

Describe the natural history of medically treated vascular disease in the following categories:

- Carotid arterial stenosis
- Abdominal aortic aneurysm

- Chronic limb threatening ischemia

Summarize principles for the preoperative assessment and postoperative care of patients undergoing major vascular surgical procedures.

Outline the fundamental elements of nonoperative care of the vascular patient, including the role of risk assessment and preventive measures.

Indicate the role of anticoagulant agents, including antiplatelet agents, in the management of patients with vascular disease.

Analyze the role of the endothelium in atherosclerosis, thrombosis, and thrombolysis.

Describe the hemodynamics and pathophysiology of:

- Claudication
- Transient ischemic attack (TIA)
- Stroke
- Mesenteric angina
- Angina pectoris
- Renovascular hypertension
- Arteriovenous (AV) fistula

Explain the concept of critical arterial stenosis.

Differentiate between acute arterial and acute deep venous occlusion.

Discuss the principles of angiography to include the following considerations:

- a. Indications and complications (including contrast-induced renal failure)
- b. Principles and techniques of intra-operative angiography
- c. Principles and techniques of emergency room angiography

Discuss the principles of and contraindications for anticoagulation and thrombolytic therapy.

Describe the surgically correctable causes of hypertension and their diagnostic modalities.

Explain the risk:reward ratios of surgical care for patients with vascular disease.

Discuss the mechanics of action and the therapeutic role of the following pharmacologic types of agents:

- Vasopressors
- Vasodilators
- Adrenergic blocking agents
- Anticoagulants
- Antiplatelet agents
- Thrombolytics

Illustrate the general principles of vascular surgical technique including:

- a. Vascular control and suturing

- b. Endarterectomy
- c. Angioplasty/stenting
- d. Bypass grafting

Determine a plan for assessment of operative risk in these categories:

- Cardiac
- Metabolic
- Pulmonary
- Levels of anesthetic risk
- Renal

Discuss clotting factors and how they interact (coagulation cascade).

Discuss the role of the following factors in maintaining homeostasis in the coagulation pathways:

- Protein S
- Platelet granules
- Protein C
- Endothelial cell
- Platelets
- Antithrombin III

Describe the use of adjunctive measures in the management of patients with vascular disease such as:

- Antibiotics
- Thrombolytic agents
- Anticoagulants
- Antiplatelet agents
- Statin medications

### **Patient Care**

Establish basic proficiency in providing pre-operative and post-operative care (writes appropriate pre-op and post-op orders for floor patients, handles nursing calls appropriately, and manages most routine post-operative care with minimal intervention by supervisor).

Take an appropriate history to evaluate patients with vascular issues to include:

- a. A complete history of present illness
- b. Presence of any co-morbidities
- c. A review of social and family history impacting the present problem
- d. A complete review of systems

Demonstrate an increasing level of skill in the physical examination of the vascular patient with a special emphasis in recognition of pertinent vascular findings.

Develop a proficiency in evaluation and interpretation of the different diagnostic modalities including: X-Rays, ultrasounds, Doppler, CT scans, Angiograms and MRIs.

Discuss treatment options, risks and potential complications of patients with vascular issues.

Assist in the performance of vascular procedures.

Demonstrate skill in basic surgical techniques, including:

- Knot tying
- Exposure and retraction
- Knowledge of instrumentation
- Incisions
- Closure of incisions
- Handling of graft material

### **Professionalism**

The resident should be receptive to feedback on performance, attentive to ethical issues and be involved in end-of-life discussions and decisions.

Understand the importance of honesty in the doctor-patient relationship and other medical interactions.

Treat each patient, regardless of social or other circumstances, with the same degree of respect you would afford to your own family members.

Learn how to participate in discussions and become an effective part of rounds, attending staff conference, etc.

Complete all assigned patient care tasks for which you are responsible or provide complete sign out to the on-call resident.

Maintain a presentable appearance that sets the standard for the hospital this includes but is not limited to adequate hygiene and appropriate dress. Scrubs should be worn only when operating or while on call.

Assist with families of critically injured/ill patients and guidance of families towards or through difficult decisions.

Demonstrate mentoring and positive role-modeling skills

### **Systems-Based Practice**

Understand, review, and contribute to the refinement of clinical pathways

Understand the cost implications of medical decision-making

Partner with health care management to facilitate resource efficient utilization of the

hospital's resources.

Describe in general terms the benefits of clinical pathway implementation

Develop a cost-effective attitude toward patient management.

Develop an appreciation for the benefits of a multi-disciplinary approach to management of critically ill surgical patients.

Comply with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations regarding patient privacy and confidentiality

### **Practice Based Learning & Improvement**

Demonstrate the ability to:

- Evaluate published literature in critically acclaimed journals and texts
- Apply clinical trials data to patient management
- Participate in academic and clinical discussions

Accept responsibility for all dimensions of routine patient management on the wards

Apply knowledge of scientific data and best practices to the care of the surgical patient

Facilitate learning of medical students and physician assistant students on the team.

Use the LLUMC library, databases and on-line resources to obtain up to date information and review recent advances in the care of the surgical patient.

Demonstrate a consistent pattern of responsible patient care and application of new knowledge to patient management.

Demonstrate a command and facility with on line educational tools.

### **Interpersonal & Communication Skills**

Work as effective team members

Cultivate a culture of mutual respect with members of nursing and support staff

Develop patterns of frequent and accurate communication with team members and attending staff

Gain an appreciation for both verbal and non verbal communication from patients and staff

Demonstrate consistent respectful interactions with members of nursing and

support staff

Demonstrate consistent, accurate and timely communication with members of the surgical team

Demonstrate sensitivity and thoughtfulness to patients concerns, and anxieties.

The resident will demonstrate the ability to provide and request appropriate consultation from other medical specialists