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الهيئة السورية
للإختصاصات الطبية
Syrian Board of Medical Specialties
S B O M S

Training Curriculum for Vascular Surgery

PEPARED BY
VASCULAR SURGERY COMMITTEE

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Acknowledgment

The Vascular Surgery core curriculum team adopted the Saudi Board curriculum after proper modification according to the Syrian context, the Syrian Board of Medical Specialties thanks our colleagues in Saudi board for their great efforts to help Syrians Surgeons.

Introduction:

Vascular surgery is a six-year structured training program, upon completion of which the trainee will have developed basic knowledge, clinical skills, and professionalism. The key focus of the program is to develop a broad base of knowledge in Vascular surgery. Trainees progressively acquire in-depth knowledge of the diverse field of vascular surgery specialty during their training . Residents also develop clinical skills by utilizing appropriate diagnostic, investigative, and therapeutic judgment. Trainees acquire and sharpen their surgical skills in all vascular surgery specialties through training in safe practices, become competent in the management of common and serious diseases, and learn to effectively manage emergency cases .

The program focuses on professional behavior and medical ethics, as well as quality management and cost effectiveness. The foremost objective of the residency program is to graduate competent and well-trained residents, who are capable of functioning independently and able to provide optimal patient care in the field of vascular surgery

Nature and scope of the practice:

The curriculum is a six-year structured program for training in vascular surgery. It encompasses education in basic sciences, training in cognitive and technical skills, development of clinical knowledge and maturity, and acquisition of surgical judgment.

The program provides an opportunity for in-depth learning of the fundamentals of basic sciences as applied to clinical surgery.

Training hospitals

The Syrian Board of Medical Specialties requires hospitals to meet certain criteria before granting accreditation for training and requires the maintenance of these standards throughout the training period. Regular program evaluation visits are conducted by the committee for all accredited facilities.

Training Objectives:

Providing comprehensive training in vascular surgery therefore the trainee will be skilled surgeon

after completion, and his information and competency in surgery is reliable in all aspects of surgery including: diagnosis, differential diagnosis, treatment, surgical skill and quality care for the patient after the operation with sufficient qualification in both elective and emergency procedures.

Details training objectives:

1. Enable the graduate to obtain sufficient and core information for applied and practical surgical sciences (causes and treatment with the ability to track developments in the surgical sciences).
2. Enable the graduate to develop himself to be eligible to take responsibility as a surgeon able deal with the patient and with other medical and administrative staff.
3. Enable the graduate to self-follow-up medical education in the field of applied surgery, medical research and self-education so that he can specialize in sub-surgical specialty if he wishes.
4. Enable the graduate to obtain sufficient clinical information effectively, which guide him to make correct surgical decisions during his work as surgeon.
5. Enable the graduate to obtain sufficient surgical skill to perform accurate and safe surgical procedures.
6. Enable the graduate to acquire the proper professional behavior and knowledge of forensic medicine in terms of competence.
7. Teaching the surgeon ethics profession and medical responsibility.
8. Continuing medical education.
9. Encourage the use of Arabic in various medical field.

Entry Requirement:

Conditions for those who wish to obtain a certificate of specialization in vascular surgery:

- 1- The applicant must have a university degree in medicine or equivalent from a recognized university or a medical school in a foreign country, provided that the college is recognized in the country where he was born and recognized by the Training Committee.
- 2- Arabic Fluent Speaker
- 3- Each accepted applicant must be registered in the program according to the registration form, prepared by the committee for this purpose, at one of SBOMS office.

Training:

The training should be carried out in practical and scientific centers recognized by the Scientific Committee of vascular Surgery and SBOMS will annually issue the names of recognized centers.

Structure of the training program

The SBOMS residency program in vascular surgery is a six-year structured program. The first two years are at the junior residency level in general surgery and the last four years are at the residency in vascular surgery. During the junior level, the resident will spend 24 months in general surgery . Trainees are required to attend and participate in the academic and clinical activities of the department, such as ward rounds, journal clubs, surgical pathology, radiology, immunology, and other activities. Attendance and participation shall not be less than 75% of the number of activities within any training rotation/period.

Weekly Training program

The training center should provide the following activities according to programs placed at least weekly basis:

- 1- Bedside Rounds.
- 2- Operating Room.
- 3- Out-patient Department.
- 4- Emergency Department
- 5- Scientific Training such as:
 - i) Grand Round
 - ii) Journal Club
 - iii) Morbidity and Mortality Meeting
 - iv) Surgical Pathology Meeting
 - v) Surgical Radiology Meeting
 - vi) Multi-disciplinary team Meeting

Trainee's Duties

- ◆ The trainee must ensure that the following information exists in each patient's file:
 1. Complete medical history with physical examination
 2. Radiological and laboratory tests results
 3. Treatment plan pre and post-surgical procedure
 4. Post-operative progress notes
 5. Other consultations
 6. Surgical informed consent copy
 7. Surgical report
 8. Anesthesia report
 9. Daily progress notes
 10. Discharge summary
- ◆ The trainee must work at the outpatient clinic at least once a week to examine and treat patients in the surgery department under the supervision of the trainer.
- ◆ Maintain good relations with the patient and his family and the medical, nursing and administrative staff.
- ◆ **Confidentiality.**
- ◆ Trainee must record his scientific activities in logbook:
 - 1- Operations (types, number and medical records)
 - 2- Meetings and conferences
 - 3- Logbook must be recognized and signed by trainer
- ◆ Core training Courses (when available):
 - 1- Basic Surgical Skills
 - 2- ATLS
 - 3- Basic statistic and research skills.
 - 4- Evidence based Surgery
 - 5- Presentation Skills.
 - 6- Communication Skills.
 - 7- Audit.
- ◆ Research activity

The trainee shall be encouraged to participate in research activities during the training program under the guidance and supervision of the trainers. At least one research project should be published before taking the final examination.

Clinical Rotations:

Junior level (R1, R2)

Rotation in general surgery (24 months) includes :

- General surgery (18 months)
- Intensive care unit (3 months)
- Emergency department (3 months)

Senior level (R3 ,R4 ,R5and R6)

Candidates shall spend the final four years of training as senior residents in vascular surgery unit, where they will be responsible for managing emergency and elective admissions, organizing educational activities. Senior residents shall acquire gradual independence during this period of training.

Training Requirement:

- a. Applicants should fulfil all admission requirements set by the SBOMS rules and regulations for admission into the programs.
- b. Trainees shall abide by the training regulations and obligations as set by the SBOMS
- c. Training is a full-time commitment. Residents shall be enrolled in full-time, continuous training for the entire program period.
- d. Training is to be conducted in institutions accredited for training by the SBOMS Recognition Committee for vascular surgery.
- e. Trainees shall be actively involved in patient care with gradual progression of responsibility.

Surgical Procedures Registry:

Candidates should contribute in the surgical procedures according to the following "Four Point Scale" level of contribution and at least the number of procedures shown in the table:

F1	Observed
F2	Assisted
F3	Did with assistance
F4	Did independently

- * In some training hospitals trainees are not allowed to do major surgical operations independently and in such a situation it could be accepted to consider F3 equals F4 (adding number of procedures together).

The following schedule shows the minimum number of surgical procedures required during the 5-year training programs:

Code	Procedures	Level of contribution			
		F1	F2	F3	F4
1	Aortoiliac Disease				
1.1	Aortobifemoral bypass graft	4	4	2	1
1.2	Aortounifomara bypass graft	4	4	2	1
1.3	Aortoiliac Endarterectomy	1	2	1	
1.4	Iliofemoral bypass graft	8	6	2	1
1.5	Abdominal Aortic Aneurism repair	2	2	1	
1.6	Iliac Artery Aneurism		1	1	
2	Extra – Anatomic Bypass				
2.1	Femorofemoral crossover bypass	2	2	2	1
2.2	Axillofemoral bypass	1	1	1	
3	Infrainguinal Disease				
3.1	Common femoral artery (CFA) Endarterectomy	2	3	2	1
3.2	Femoral–Above knee popliteal bypass	8	8	6	3
3.3	Femoral–Below knee popliteal bypass	2	3	2	1
3.4	Profundaplasty		2	2	
3.5	Popliteal Artery Entrapment Syndrome	1	1		
3.6	CFA True Aneurism		1	1	
3.7	CFA Pseudoaneurism	2	1	1	1
3.8	Femoral posterior tibial bypass	1	1	1	
3.9	Femoral anterior tibial bypass	1	1		
3.10	Femoral peroneal bypass	1			

3.11	SFA true aneurism	1	1		
3.12	SFA Pseudoaneurism	1	1		
3.13	Popliteal artery aneurism	1	1	1	
4	Upper Extremity Arterial Disease				
4.1	Subclavian Artery Aneurism	1	1		
4.2	Axillary Artery Aneurism		1		
4.3	Brachial Artery Pseudoaneurism	1	1	1	
4.4	Thoracic Outlet Syndrome		2	1	1
5	Hemodialysis Access				
5.1	Autogenous Radio-Cephalic Arteriovenous Access		10	10	10
5.2	Autogenous Brachio-Cephalic Arteriovenous Access		5	8	8
5.3	Autogenous Brachio-Basilic Arteriovenous Access		5	3	3
5.4	Prosthetic Upper arm Arteriovenous Access		1	1	1
5.5	Open surgical repair of thrombosed AV Access		4	2	2
5.6	Arteriovenous ligation		4	2	2
5.7	Insertion of central venous line / Portacath		10	10	10
6	Mesenteric Vascular Disease				
6.1	SMA Embolectomy	1	1	1	
6.2	Aorto- SMA bypass		1		
7	Sympathectomy				

7.1	Lumbar Sympathectomy	2	2	1	1
7.2	Cervicothoracic Sympathectomy	1	1		
8	Cerebrovascular Disease				
8.1	Carotid Endarterectomy	5	5	2	2
8.2	Carotid Artery Aneurism	1	1		
8.3	Surgical Resection of Carotid Body Tumor	1	1		
9	Acute Ischemia				
9.1	Embolectomy –common femoral		5	5	3
9.2	Embolectomy –brachial artery		4	2	2
9.3	Embolectomy –popliteal artery		4	2	1
10	Chronic Venouse Disorders				
10.1	Great Saphenous Vein Stripping	10	10	8	8
10.2	Small Saphenous Vein Stripping	3	3	3	2
11	Endovascular Treatment				
11.1	Angioplasty iliac artery	4	2	2	1
11.2	Angioplasty femoral artery	4	2	2	1
11.3	Angioplasty Infrapopliteal	3	2	2	1
11.4	Angioplasty Renal artery	1	1	1	
11.5	Angioplasty Subclavian	1	1	1	
11.6	Carotid artery stenting	1	1		
12	Miscellaneous				
12.1	Surgical excision of Arteriovenous Malformation		1	1	

Method of clinical requirement documentation

The trainee shall be required to document all his/her clinical procedures throughout the program using an electronic logbook when available by the commission; otherwise, an ordinary logbook is to be used. Activities should be dated and categorized into the period/rotation of training and whether they were performed by the trainee or with the trainee as an assistant or participant. Each activity registered in the logbook should be countersigned by the Program Director when deemed complete. The logbook should include the operative procedures and technical skills acquired during the training.

Profile of practice

The graduate is expected to meet the following criteria with respect to capabilities and skills:

- Have sound knowledge of the principles of surgery.
- Formulate reasonable and comprehensive differential diagnoses for common surgical disorders and vascular diseases .
- Recognize emergency surgical situations in vascular system and manage them effectively.
- Select relevant investigations logically and conservatively and interpret their results accurately.
- Manage common problems in general surgery and have knowledge of management alternatives.
- Perform specified surgical, diagnostic, and therapeutic procedures and operations; especially those used in the management of emergencies and common surgical problems.
- Communicate well with patients, their relatives, and colleagues.
- Keep orderly and informative medical records.
- Stay educated and updated and inform others in the field.
- Advise colleagues from other specialties with regard to problems related to surgery.
 - Possess high ethical and moral standards.

Description of Core General Surgery Teaching Topics

A. Basic Principles of Surgery

Fluid and Electrolytes in Surgical Patients:

1. Normal body fluids and compartments
2. Common changes in bodily fluids (volume and concentration)

3. Electrolytes changes: etiology and diagnosis (sodium, potassium, calcium, magnesium, and phosphorus)
4. Acid-base homeostasis
5. Intravenous fluids: types, compositions, and clinical uses
6. Electrolytes abnormalities in specific surgical patients: neurological patients, malnourished patients, acute renal failure, and cancer patients

Management of Shock

- Identification of critically ill patients
- Pathophysiology of shock and systemic responses
- Metabolic response to shock
- Immune and inflammatory responses to shock
- Types of shock: diagnosis and treatment
- Assessment of endpoints in resuscitation

Hemostasis in Surgical Practice

- Biology of hemostasis
- Coagulation disorders: congenital and acquired
- Principles of blood transfusion
- Indications and contraindications of transfusion
- Complications of transfusion
- Evaluation of hemostatic risks in surgical patients

Surgical Site Infections: Prevention and Management

- Pathogenesis of infection
- Microbiology of infectious agents
- Prevention and management of surgical infections
- Surgical site infections
- Nosocomial infections

Surgical Management of Organ-Specific Trauma

- Initial evaluation and resuscitation of the injured patient: primary and secondary surveys
- General principles of management in a trauma patient

- Evaluation of head injuries
- Approach to neck and cervical spine injuries
- Approach to chest trauma: wall and diaphragm, heart and great vessels, respiratory tract and esophagus
- Approach to abdominal solid organ injuries: liver, spleen
- Approach to abdominal hollow viscus injuries
- Approach to abdominal vessels injuries
- Intensive care management in trauma and postoperative considerations

Surgical Complications, Prevention, and Management

- Common surgical complications
- Preventive measures
- Specific surgical complications: pain, fever, wound-related complications, and systemic complications
- Specific management of common surgical complications
- Health education: approach to a patient with surgical complications

Nutrition in Surgical Patient

- Causes and consequences of malnutrition in the surgical patient
- Fluid and electrolyte requirements in the preoperative and postoperative patient
- Nutritional requirements of surgical patients
- Nutritional consequences of intestinal resection
- Methods of providing nutritional support
- Complications of TPN

Acute and Postoperative Pain Management

- Principles of analgesia
- Anesthetic agents: local, regional, and general
- Postoperative pain management

Complications of postoperative pain.

Preoperative Assessment of Surgical Patients

- Tasks involved in preparing a patient for theatre
- Common problems affecting a patient's fitness for operation
- How to optimize a patient's medical state prior to anesthesia and surgery
- How to obtain informed consent
- The organization of an operating list

Understanding the Principles of Wound Healing

- Normal healing and how it can be adversely affected
- How to manage wounds of different types, of different structures, and at different sites
- Aspects of disordered healing that lead to chronic wounds
- Types of scars and their treatment

Management of Diabetic Foot

- Pathophysiology of diabetic foot
- Comprehensive clinical assessment of diabetic foot patients: history, physical examination, diagnostic images
- Short-term management of diabetic foot
- Long-term management of diabetic foot
- Patient education and continuity of care

B.Clinical/Vascular System Surgical Topics

An Approach to Abdominal Aorta and its branches

- Development and anatomy of the aorta
- Physiology and investigation of aortic disease
- Indications for and techniques of aortic surgery
- Management of emergency belonged of aorta and its branches

An Approach to Upper Extremities Vascular System

- Structure of a normal vascular tree (anatomy and physiology)
- Surgical management of disorders and emergency in vascular of upper extremities

- Approach to veins and arteries in upper extremities

Approach to Lower Extremities Vascular System

- Normal vascular tree (anatomy and physiology)
- Proper history taking and physical examination of vascular system
- Approach to all veins and arteries in lower extremities
- Surgical management of disorders and emergency in vascular of lower extremities

Approach to neck vessels

- Surgical anatomy of the arteries and veins of the neck
- Surgical therapy for carotid disorders

Approach to visceral vessels

- Surgical management of visceral vessels disorders and deal with emergency cases

Approach to vascular tumors and arterio venous malformation(AVM)

Approach to hemodialysis access and its complications

Learn the basic principles of endovascular therapy

C. Professional Development Topics

Communication Skills Topics

Communicating with Patients and Relatives

- Effectively facilitate the doctor-patient relationship, and the dynamic exchanges that occur before, during, and after the medical encounter.
- Convey relevant information and explanations accurately to patients and families, colleagues, and other professionals.
- Convey effective oral and written information about a medical encounter.

Documentation

- Recognizing the importance of proper documentation
- Principles of medical documentation
- Maintain the standard of documentation

Informed consent

- Principles of informed consent (autonomy, beneficence, and justice)
- The process of obtaining informed consent

LIST OF SUGGESTED REFERENCES FOR VASCULAR SURGERY PRACTICE

Textbooks

1. RUTHERFORD VASCULAR SURGERY AND ENDOVASCULAR THERAPY 9th edition.

- 2• Emergency.Vascular.Surgery.1st.ed.2007.Springer.3HAXAP
- 3• Vascular Surgery, Alun and Colleen
- 4• Vascular reconstructions : anatomy, exposures and techniques / Jamal J. Hoballah

Journals

1. Journal of Trauma and Acute Care Surgery
2. Archives of Surgery
3. The American Journal of Surgery
4. British Journal of Surgery
5. Canadian Journal of Surgery
6. Journal of Surgical Research
7. International Journal of Surgery

