جامعة الشارقة
UNIVERSITY OF SHARJAH

University of Sharjah
College of Medicine

Surgery I:
Clerkship Course Guide 2019-20
Clinical Sciences Department

Dear students,

This short study guide entails the topics that shall be covered during the Surgery I rotation by interactive lectures, tutorials and bedside clinical sessions for procedural skills. Since the surgical discipline is vast and cannot cover all the basic and clinical components in one rotation, this guide is a mere outline and there may be some additional surgically related topics that are not mentioned in this guide. For a more comprehensive detail of the entire course for Surgery I, please read the Surgery Lectures Guide.

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COURSE DESCRIPTION

Academic Year: Year 4

Course code: SURGERY I (0900504)

Credit Hours: 11

Duration: 10 weeks

Clerkship Description:

This course covers the basics of surgery knowledge, skills and attitudes regarding the management all physicians must acquire. Moreover, students are encouraged to enhance their surgical skills, partake in pre- and post-operative assessments, and participate in the morning rounds. In addition, students are receiving training in the clinical skills laboratory on "Basic Surgical Skills" and Emergency Management of Severe Trauma "EMST based on ATLS".

Clerkship Aims:

- Ability to conduct competent history and physical examination of patients
- Integration of strong clinical reasoning along with interpretation skills necessary for diagnosis of general surgical conditions
- Ability to formulate appropriate management and follow up plans for general surgical conditions and trauma emergencies
- Efficiency in working with other healthcare professionals in multi-disciplinary teams
- Demonstrate effective communication skills with patients and their respective families
- Development of adequate surgical skills for clinical settings application

Teaching Methodologies: Students are sent in small groups up to 6 to different hospitals attached to their respective surgical team, five days a week starting 8AM to 2PM. Members of the team are taking responsibility in teaching during hospital hours. Students are also gaining their clinical skills through observing and assisting in any available bedside procedures (e.g., insertion of NG tubes, blood withdrawals etc.). In addition, students are following patients closely and actively participating in discussions regarding the diagnosis and management.

Moreover, dedicated bedside teaching are taking place once per day within the hospital settings. Resource sessions are being given online by designated faculty to help bridge their knowledge needs. In addition, case-based discussions are taking place to help build students' constructive thinking. Finally, focused surgical workshops are provided to give an equal opportunity for all students to gain their basic surgical skills.

Assessment Tools:

Students are tested throughout their clerkship rotation for their clinical knowledge and management skills. During their continuous assessment, they are evaluated by two DOCEE examinations, and faculty evaluations by the clinical doctor. In addition, the students are

continuously evaluated by clinical E-Portfolios through Taskstream. At the end of each rotation, students are further assessed by written examination and OSCE.

I. Cognitive knowledge

A. Core principles of surgery

1. Wound healing

- Different types of wounds
- Pathophysiology of wound healing
- Factors affecting wound healing
- Early and late complications of wound healing

2. Shock

- Definition and types of shock
- Pathophysiology of different types of shock
- Presentation of shock; depending on the types
- Resuscitation for various types of shock
- Management of shock including the invasive procedures; Swanz Ganz catheter, intubation and ventilation

3. Surgical nutrition and metabolism

- The impact of trauma, surgery and sepsis on metabolism
- Causes of malnutrition and its effects on the outcome of patients
- Assessment of nutritional status of the patient
- Nutritional needs for different types of surgical disorders
- Indications and contraindications for each type of nutritional support
- Complications of enteral and parenteral nutrition

4. Fluid and electrolytes

- Normal body water and electrolytes distribution in extra and intravascular spaces
- Causes and clinical presentations of disturbances of body water and electrolytes
- Different forms of fluid and electrolyte losses and how to calculate the amount and the type of fluids to be infused for deficit, maintenance and replacement therapy
- Preoperative, intra operative and postoperative fluid and electrolyte monitoring and replacement

5. Surgical infections

- Causes, bacteriology, presentation, clinical signs, investigations, non-surgical and surgical treatment of abscess, furuncle, cellulitis
- Necrotizing soft tissue infections; clostridial and non clostridial
- Closed space infections
- Hospital acquired infections (Nosocomial)
- Surgical wound infections

6. Peri-operative care and surgical complications

- Patient safety and pre-op assessment
- Special investigations and care for patients with comorbidities
- Postoperative complications such as fever, atelectasis, pneumonia, respiratory failure, MI, DVT, pulmonary embolism, wound infections and dehiscence, etc.

B. Surgery topics according to systems

1. GIT

Esophagus

- ✓ Achalasia cardia
- ✓ GERD
- ✓ Barret's esophagus
- ✓ Upper GI bleeding
- ✓ Hiatus hernias
- ✓ Esophageal tumors
- ✓ Management of esophageal cancers

Stomach

- ✓ Benign gastric ulcer and stress gastritis
- ✓ Peptic ulcer disease
- ✓ Zollinger-Ellison syndrome
- ✓ Mallory-Weiss syndrome
- ✓ Gastric malignancies

Small bowel

- ✓ Small bowel obstruction- dynamic and adynamic
- ✓ Inflammatory bowel disease
- ✓ Mesenteric vascular disease of small bowel
- ✓ Short bowel syndrome

Large bowel

- ✓ Large bowel obstruction
- ✓ Colonic diverticular disease

- ✓ Colonic volvulus
- ✓ Ischemic colitis
- ✓ Colonic polyposis
- ✓ Colorectal cancer
- ✓ Benign diseases of peri-anal region- peri-anal fissure, haemorrhoids, rectal ulcers, peri-anal abscess, fistula in ano
- ✓ Lower GI bleeding

Blunt and penetrating abdominal trauma

2. **Hepatobiliary**

- ✓ Benign liver tumors
- ✓ Malignant liver tumors
- ✓ Metastatic liver disease
- ✓ Blunt and penetrating liver trauma
- ✓ Hepatic abscess
- ✓ Portal hypertension and the role of liver transplantation
- ✓ TIPS
- ✓ Acute and chronic cholecystitis
- ✓ Bile duct stones
- ✓ Acute cholangitis
- ✓ Benign and malignant strictures of bile ducts
- ✓ Gallstone ileus
- ✓ Obstructive jaundice
- ✓ Malignant tumors of gallbladder
- ✓ Management of obstructive jaundice
- ✓ Acute and chronic pancreatitis
- ✓ Pancreatic pseudocyst
- ✓ Benign and malignant pancreatic tumors
- ✓ Splenic salvage procedures
- ✓ Management of splenic trauma

3. Breast and endocrine

- ✓ Benign breast diseases
- ✓ Screening for breast cancer
- ✓ Classification and staging of breast cancer
- ✓ Risk factors and pre-malignant conditions for breast cancer
- ✓ Management of breast cancer
- ✓ Breast conserving therapy
- ✓ Breast reconstruction after surgical therapy
- ✓ Thyroid nodules and goitre

- ✓ Primary and secondary thyrotoxic disease including- Grave's disease
- ✓ Thyroid cancers
- ✓ Hyperparathyroidism- primary, secondary and tertiary
- ✓ Pheochromocytoma
- ✓ Adrenocortical tumors

4. Abdominal hernia and internal hernias

- ✓ Inguino-femoral hernia
- ✓ Incisional hernia
- ✓ Epigastric and para-umbilical hernia
- ✓ Hiatus hernia

5. Cardiovascular and thoracic surgery

- ✓ Blunt and penetrating chest wall trauma
- ✓ Pneumothorax, hemothorax, tension pneumothorax, flail chest
- ✓ Cardiac tamponade
- ✓ Indications of thoracotomy in chest trauma
- ✓ Peripheral vascular injuries and compartment syndrome
- ✓ Abdominal aortic aneurysm
- ✓ Varicose veins
- ✓ Intermittent claudication- presentation, tests, and non-operative and operative management
- ✓ Thrombo-embolic peripheral arterial occlusive disease
- ✓ Deep vein thrombosis
- ✓ Pulmonary embolism

6. Soft tissue infections, plastic surgery and burns

- ✓ Necrotizing soft tissue infection
- ✓ Diabetic foot
- ✓ Gas gangrene
- ✓ Hand infections
- ✓ Skin cover by grafts, flaps, and prosthetic materials
- ✓ Types and degrees of burns
- ✓ To calculate the burn area in adults and children and its importance
- ✓ To calculate the fluid requirement of burnt patients
- ✓ The criteria of admission in ICU or in burn unit
- ✓ Early and late complications of burn and their management

7. Head and neck and CNS

- ✓ Hydrocephalus
- ✓ Cranio-spinal trauma
- ✓ Neck and facial injuries
- ✓ Airway management including tracheostomy

II. Procedural skills

Surgical Procedures to Watch

- Abscess drainage
- Amputation
- Appendectomy
- Axillary dissection
- Biopsy of breast and other masses
- Central venous access
  - triple lumen catheter
  - Broviac, Hickman, or Port-o-cath
- Chest tube insertion
- Laparoscopic cholecystectomy
- Colectomy
- Diagnostic peritoneal lavage
- Gastric operations; perforated DU, vagotomy and drainage
- Herniorrhaphy
  - inguinal
  - ventral/incisional
- Mastectomy
  - without reconstruction
  - with reconstruction
- Splenectomy
- Stoma creation (colostomy, gastrostomy)

Surgical Procedures to perform under supervision

- **Must-do procedures:**
  - Changing a dressing
    - wet-to-dry
    - open abdominal wound
  - Demonstrate sterile technique.
  - Drawing arterial blood
  - Rectal exam
  - In-line neck immobilization
  - Peripheral neurovascular exam

- Scrub, gown, and glove in surgery
- Drawing blood from a peripheral vein
- Inserting a Foley catheter
  - in a man
  - in a woman
- Inserting an NG tube
- Jackson-Pratt drains
  - management
  - removal
- Starting a peripheral IV
- Suturing a skin laceration
- Techniques of:
  - infiltration of local anesthetic and nerve blocks for cutaneous excision
  - incision and drainage
- Skin biopsy (punch and excisional) Tying simple knots in patient sutures
  - one-handed
  - two-handed
- Calculate the nutritional needs and describe preferred routes of administration of nutritional therapy for patients with various surgical problems
- Intravenous fluid therapy post-op and volume resuscitation
- arterial blood gas interpretation
- Discuss prevention of disease or injury with patients: smoking cessation, foot care to prevent diabetic foot infections

- **Optional:**

  - Colostomy care
  - Needle decompression of tension pneumothorax.
  - Tube thoracostomy
  - Anoscopy/proctoscopy
  - Emergency airway management
  - Technique of needle aspiration (both for cyst and cytology)

Suggested resources

There is no single text book or resource that can be suggested for the undergraduate medical students. The following books and resources are suggested only for your guidance and you can choose anyone of the suggested or other books and resources for your studies.

- **Clinical**

1. An introduction to the symptoms and signs of surgical disease By Norman Browse (Published by Hodder Education Publishers in 1991, ISBN 9780340528495)

2. Churchill's Pocketbook of Differential Diagnosis By A. Raftery E. Lim, A. Ostor (Published by Churchill Livingstone in 2014, ISBN 9780702054020)

- **Theory**
  A. Essential of General Surgery by Peter Lawrence (Published by Lippincott Williams & Wilkins, 2012. ISBN 9780781784955)
  B. Essential of Surgical Specialties by Peter Lawrence (Published by Lippincott Williams & Wilkins, 2000. ISBN 9780683301342)
  C. Bailey and Love's Short Practice of Surgery 27th Edition (Published by CRC Press, 2018. ISBN 9781498796507)

3. Online resources

- e-Medicine
- Medscape
- College of medicine e-Platform Blackboard
- UpToDate
- Clinical key