a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Learning Objectives for Undergraduate Rotations in General Surgery Year 3 Basic Clerkship

CLINICAL PROBLEMS IN GENERAL SURGERY - EMERGENCY ROOM

I. TRAUMA

After the completion of the basic clerkship, the student should be able to describe:

1. The first three priorities in management.
   a) the techniques which can be employed, and precautions to be observed in controlling the airway
   b) the indications for ventilating the patient
   c) four life-threatening chest injuries, and how they can be diagnosed and managed in the emergency room
   d) the preferred methods of gaining venous access
   e) the physical signs which indicate that significant blood volume has been lost
   f) the guidelines for fluid and blood product administration
   g) the clinical features of cardiac tamponade.

2. The Glasgow Coma Scale.

3. A complete secondary survey of the trauma patient.

4. The clinical presentation of specific traumatic injuries of the abdomen and pelvis.
   a) the clinical features of intraperitoneal hemorrhage - name at least three (3) common causes of intra-abdominal bleeding after blunt trauma
   b) the features of urinary tract injury (renal, bladder, urethra)
   c) the features of (intra-peritoneal) perforation of a hollow viscus
   d) the features of retroperitoneal perforation of a hollow viscus
   e) an unstable, major pelvic fracture.

5. The immobilization of the spine (neck and back).

6. The immobilization of a fractured extremity.
   a) shaft of femur
   b) tibia/fibula
   c) forearm.

7. The general principles to be followed in the interhospital transfer of an injured patient.

Skills

1. Interpret a chest x-ray in a trauma patient, making reference to the presence/absence of indications of life-threatening injuries

2. Describe the clinical and radiologic assessment of the cervical spine. Interpret the cervical spine films, indicating the features to be observed.

3. Describe the placement of a chest tube with reference to potential technical errors.

4. Observe a peritoneal tap/lavage. Describe the indications for the test, and how the results are interpreted.

5. Be able to insert a foley catheter and nasogastric tube. Describe the signs of specific injuries which may contra-indicate these procedures.

II. ACUTE ABDOMINAL PAIN

After the completion of the basic clerkship, the student should be able to describe:

1. The important, relevant features of the history of present illness in patients with an "acute abdomen".

2. The important and relevant features of the physical examination (both general and regional abdomen).

3. The purpose/indications for insertion of:
   a) nasogastric tube
   b) foley catheter.

Be able to describe the gross pathology, natural history, essential clinical history and physical signs, definitive laboratory and x-ray findings of the following conditions:

1. Obstruction of a hollow viscus
   a) calculi in the biliary system with
      - obstruction of the gallbladder
      - obstruction of the common bile duct
   b) ureteric calculi
   c) obstruction of the small bowel, with or without strangulation
   d) obstruction of the colon.

2. Acute inflammatory process
   a) appendicitis
   b) salpingitis
   c) diverticulitis
   d) acute pancreatitis
   e) pyelonephritis.

3. Perforated viscus
    a) perforated duodenal or gastric ulcer
    b) perforated acute/gangrenous appendix
    c) perforated colonic diverticula.

4. Intra-abdominal or retroperitoneal bleeding
    a) ruptured ectopic pregnancy
    b) ruptured aneurysm (infrarenal, aortic)
    c) ruptured spleen
    d) ruptured hepatic tumors.

5. Occlusion of the mesenteric vessels and infarction, ischemia of gut.

In addition to the above basic knowledge the student should:

a) be able to develop a differential diagnosis and provisional diagnosis, using the objective features of the history, physical examination, laboratory and radiological examination in a logical manner
b) have a general knowledge of the time frame available for investigation and resuscitation in those conditions which do require operative or procedural intervention
c) be able to indicate those conditions where early operation would not be indicated
d) demonstrate awareness of conditions "outside" of the peritoneal cavity which may simulate an acute abdomen.

Skills

1. Demonstrate skill/thoroughness in gathering relevant history (from all sources).

2. Complete a physical examination which shows knowledge of and focus on the special features which may be exhibited by a patient with an acute abdomen.

3. Show reasonable skill in observing or eliciting the following physical signs:

    a) temperature elevation, jaundice, pallor, respiratory distress, indicators of hypovolemia and diminished peripheral perfusion
    b) distention, visible or palpable mass, localized tenderness, guarding, rigidity, rebound tenderness, absent bowel sounds.

4. Be able to perform the following procedures:

    a) insert a nasogastric tube, knowing the smaller skills which will facilitate this procedure
    b) start a peripheral intra-venous and describe the guidelines for administration of these fluids
    c) insert a foley catheter
    d) interpret x-rays of the chest and abdomen and make specific reference to

features to the searched for in patients with an acute abdomen.

III. LOWER GI HEMORRHAGE

At the conclusion of a basic clerkship, the student should be able to:

1. Assess the circulatory status.
2. Establish monitoring.
3. Order appropriate laboratory work.
4. Write appropriate orders for fluid and blood product administration.
5. Describe the clinical features of gastro-intestinal bleeding arising from:
   a) diverticular disease of the colon
   b) angiodysplasia
   c) Meckel's diverticulum
   d) small bowel tumor
   e) inflammatory bowel disease.
6. Take a history and perform a physical examination which reflects knowledge of the conditions/disease which might cause lower GI hemorrhage.
7. Observe lower GI endoscopy.

IV. UPPER GASTROINTESTINAL HEMORRHAGE

After completion of the basic clerkship, the student should be able to describe:

1. The first priorities in management:
   a) how to assess patency and control of the airway
   b) how to assure adequate ventilation
   c) the assessment of the status of the circulation; identify the clinical signs of hypovolemic shock and approximate volume of blood loss
   d) describe the complications of delayed resuscitation or recurrent episodes of hypotension.

2. How to establish monitoring of the patient (oxygenation, cardiac rhythm, blood pressure, blood flow, in the emergency room.

3. The laboratory investigation of a patient with gastrointestinal bleeding.

The student should be able to:

1. list six causes of upper GI hemorrhage

2. elicit a history and perform a physical exam which reflects a knowledge of the likely causes of upper GI hemorrhage

3. detect features of liver failure and portal hypertension

4. observe upper GI endoscopy and be able to describe the procedure

5. describe the pathology of conditions of the upper GI tract which would be anticipated to respond to medical measures

6. describe the pathology of conditions where urgent surgical intervention would be indicated

7. describe two procedures which could be employed to control bleeding from esophageal varices.

Skills

1. Insert a nasogastric tube.
2. Insert a foley catheter.
3. Establish a peripheral intravenous.

V. SOFT TISSUE INFECTION

The student should be able to:

1. gather clinical history from a number of sources and perform a physical examination which reflects knowledge of the complications of the infection in the arm, and other diseases/conditions to which the patient is at risk
2. describe the features of the infection and identify abscess formation, crepitation, lymphangitis, thrombophlebitis, skin necrosis
3. order appropriate laboratory and radiologic investigations which again reflect knowledge of the arm infection and general risk factors
4. describe potential problems with intravenous access
5. discuss the identification of the bacterial agent(s) and organisms most likely to be involved
6. describe the indication(s) for surgical intervention
7. outline the surgical principles to followed in the management of a large subcutaneous abscess.

VI. PAINFUL ANORECTAL CONDITIONS

The student should be able to:

1. Describe the features (history and examination) of the following conditions:

a) fissure-in-ano
   b) perianal abscess
   c) prolapsed, thrombosed hemorrhoids
   d) perianal hematoma
   e) pilonidal abscess or sinus.

2. Draw a coronal section of the ano-rectum and show the location of:

    a) hemorrhoids
    b) perianal abscess
    c) schorectal abscess
    (in relation to the sphincters, levator ani muscles, rectal/anal mucosa).

3. Describe the conservative (non operative) management of:

    a) fissure-in-ano
    b) stage I or II haemorrhoids.

4. Describe the basic principles of surgical management of:

    a) perianal or pilonidal abscess
    b) fistula-in-ano
    c) prolapsed haemorrhoids.

CLINICAL PROBLEMS IN GENERAL SURGERY - AMBULATORY SETTING

I. ABDOMINAL PAIN (subacute, recurrent, or chronic)

A 55-year-old woman presents complaining of at least 5 episodes of epigastric and right upper quadrant abdominal pain, each lasting several hours, occurring over the past month.

At the conclusion of the Basic Clerkship, the student should be able to:

1. Further develop the history of present illness, displaying knowledge of the conditions/diseases which might present in this manner.

2. Complete a physical examination identifying collateral risk factors which might be of importance in planning management. Perform a physical examination of the abdomen, using a sufficient level of skill, that localized tenderness, an abdominal mass, or significant enlargement of the liver and spleen would be identified.

3. Develop a differential diagnosis which **selects** the conditions **most likely** to be the etiology of the chief complaint.

4. Make an **appropriate** provisional diagnosis.

5. Order appropriate laboratory tests to be completed in an appropriate time frame and radiologic examinations, based on the differential diagnosis.

6. Decide on an appropriate management strategy, considering the potential complications of the condition/disease, the frequency and severity of pain and collateral symptoms, and issues such as the patients general vigour and support. Make an appropriate referral, in a timely

manner, when special investigations, medical therapy or surgical intervention seems indicated.

In order to develop differential diagnosis, make a provisional diagnosis, order appropriate laboratory examinations and make proper and timely referrals, it is essential to have a base of knowledge.

Be able to describe the gross pathological findings, natural history, the features of the clinical history and physical examination, and definitive laboratory, radiologic findings of the following conditions.

1. partial or recurrent obstruction of a hollow viscus
   a) obstruction of the biliary system
      i) cholelithiasis
      ii) choledocholithiasis
      iii) carcinomas of the pancreas and biliary system
   b) ureteric calculi or other causes of obstruction of the urinary tract
   c) partial obstruction of the small bowel
      i) peritoneal adhesions
      ii) inflammatory bowel disease
      iii) metastatic or primary neoplasm of small bowel
   d) partial obstruction of colon
      i) carcinoma of the colon
      ii) diverticular disease

2. chronic, subacute inflammatory process
   a) diverticulitis
   b) pelvic inflammatory disease
   c) chronic, recurrent pancreatitis
   d) chronic recurring peptic ulcer disease of stomach or duodenum

3. chronic recurring peptic ulcer disease of stomach or duodenum

II. ABDOMINAL MASS

A 30-year-old male complains of pain in the left lower quadrant of his abdomen. On examination, he is found to have a large mass, filling the left iliac fossa.

At the conclusion of the Basic Clerkship, the student should be able to:

1. Elicit a history which reflects knowledge of the possible causes of a mass in this region, in a patient of this age.

2. Perform a physical exam which results in an accurate characterization of the mass (size, consistency, fixity, tenderness, etc). The exam should reflect a developing knowledge of the

possible etiologies (searching for primary tumors, metastatic disease, etc).

3. Order appropriate laboratory examination which supplement the general medical assessment as well as attempt to identify the specific lesion.

4. Order imaging studies which would be essential for diagnosis and assess the operability/resectability of the mass, should operation be indicated.

5. Develop a differential diagnosis which includes the most likely causes of a lower abdominal mass of a male patient in the 2nd or 3rd decade.

6. Make an appropriate referral, based on the provisional diagnosis.

The student should be able to describe neoplastic, vascular, inflammatory and obstructive disease in the abdomen and retroperitoneum which may present as a palpable abdominal mass. The student should also be able to develop a regional classification of abdominal masses (quadrants, flanks, epigastric, central, suprapubic, pelvic).

The student should be able to identify those masses which may not represent organic pathology (distended bladder, fecal material, pregnant uterus).

The student should be able to distinguish a mass which is in the abdominal wall as opposed to intra-abdominal.

III. RECTAL BLEEDING

A 60-year-old man describes bright red blood on the surface of his stool. He has noted this for about 4 weeks. He volunteers no other symptoms.

1. Ask further direct questions which reflect a knowledge of the different causes of rectal bleeding.

2. Carry out a physical examination which screens for collateral medical problems, as well as reflects knowledge of the possible causes of rectal bleeding, both 'benign" and malignant.

3. Properly prepare for an examination of the perianal region and digital rectal examination.

4. Assemble a proctoscope, light source and insufflator and perform a proctoscopic examination to 15 cm.

5. Order appropriate laboratory tests and request appropriate radiological studies.

6. Make appropriate and timely referral for essential further special investigation or surgical management.

Knowledge base - be able to describe:

1. the natural history, gross and microscopic pathology of adenomatous polyps, villous polyps and carcinoma of the colo-rectum

2. the familial polyposis syndromes

3. the venous plexuses at the ano-rectal junction and the progression of "hemorrhoids"

4. the causative factors in the condition of bleeding or prolapsing hemorrhoids

5. symptoms which could be attributable to stage I, II, or III hemorrhoids, and the findings on examination of the perianal region or by proctoscope

6. the essentials of conservative (medical) treatment of hemorrhoids and the indications for procedural or surgical treatment

7. clinical features of a chronic anal fissure

8. the investigation of a patient found to have a severe hypochronic, microcytic anemia (Fe-deficiency).

IV JAUNDICE

A 70-year-old man presents because his family members have noted a yellowish tint to his skin and sclerae. He admits to "feeling punk" in the last 2 months.

The student should be able to:

1. Elicit a complete history by direct questioning, showing knowledge of the possible causes of insidious onset of painless jaundice.

2. Complete a physical examination which reflects knowledge of the possible pathologies and their natural history. Collateral conditions which would impact on management should also be identified.

3. Order appropriate laboratory and radiologic examination, which are non-invasive, and yield significant information.

4. Develop a differential diagnosis and make a provisional diagnosis.

5. Outline the essentials of the problem to family and patient, using the information gathered, then make an appropriate and timely referral.

Knowledge base - be able to describe:

1. metabolism of hemoglobin degradation and bilirubin excretion

2. a classification of hemolytic and cholestatic jaundice
3. gross and microscopic findings in liver disease leading to failure of bilirubin excretion
4. gross pathology of malignant neoplasms of the biliary ducts, pancreas and ampulla
5. the symptoms and physical signs of:
   a) acute or chronic intrinsic liver diseases which may be associated with cholestasis
   b) pancreaticobiliary cancers which obstruct the extra hepatic ducts
   c) calculous disease of the gallbladder with common bile duct stones

V HERNIA

A 70-year-old man has noted the gradual appearance of a soft swelling in the right inguinal area, which extends towards the scrotum. Recently it is painful on standing, lifting and coughing.

At the completion of the basic clerkship, the student should be able to:

1. Take a history and elicit, on functional inquiry, those factors which might pre-dispose to the development of a hernia.

2. Perform a physical examination which reflects knowledge of the anatomy of hernia at the inguinal or femoral canal.

3. Define the term "direct" and "indirect" as applied to inguinal hernias.

4. Develop a differential diagnosis in a case of a mass in the inguinal or femoral region, or in the scrotum, making reference to those features which may distinguish hernias from other soft tissue masses.

5. Describe the complications of untreated abdominal wall defects.

6. Define the terms "incarceration" and "strangulation".

7. Describe the principles of a surgical repair of a "direct" and "indirect" inguinal hernia.

VI BREAST MASS

At the conclusion of the basic clerkship, the student should be able to:

1. Take a history and perform a functional inquiry which reflects knowledge of the possible causes of a discrete breast mass and their natural history, as well as factors which are know to increase the risk of malignancy.

2. Perform a physical examination of the breast and regional lymph nodes. Identify those features of a breast mass that suggest malignancy, versus those which are more in keeping with benign conditions.

3. Describe appropriate laboratory and radiological investigations for a patient with a breast mass, in general, and for a patient with a breast cancer, specifically.

4. Describe the methods of establishing a tissue diagnosis.

5. Given a confirmed diagnosis of breast cancer, describe in fundamental terms, the options in surgical management

6. Describe the essentials of adjuvant therapy for a Stage 2 breast cancer.

7. Describe the approach to the patient with a non-palpable suspicious lesion on screening mammography.

Base of knowledge - be able to:

1. Describe the features and management of the common benign breast lesions: fibrocystic change, breast cysts and fibroadenomas.

2. List the risk factors for breast cancer.

3. Describe the clinical staging of a patient with breast cancer.

4. Describe the features that make a mammographic abnormality "suspicious"

5. Explain the relevance of "estrogen receptor positivity"

VII TUMOURS OF THE SKIN AND SUBCUTANEOUS TISSUES

At the conclusion of the basic clerkship, the student should be able to:

1. Describe the appearance of
   a) actinic keratosis
   b) leukoplakia
   c) squamous carcinoma of the skin
   d) basal cell carcinoma
   e) melanoma of superficial or nodular type
2. Identify each of the above in an actual patient, or from photographs.
3. Describe the criteria for clinical staging of cutaneous melanoma (Clark or Breslow).
4. Describe features which would suggest malignant transformation of a nevus.

VII MASS IN THE NECK

A 60-year-old Chinese woman presents with a palpable mass in the upper 1/3 of the neck, just

medial to the sterno-mastoid. It is slightly painful and tender, and has been noted for 2 - 3 weeks.

At the conclusion of the basic clerkship, the student should be able to:

1. Develop the history by direct questioning which reflects a knowledge of the possible causes of a mass in this location.
2. Perform a physical examination which characterizes the neck mass (size, consistency, mobility, etc). The examination should also reflect a knowledge of the possible causes of this mass. The student should show skill in examining and describing any abnormality of the ear canals, drums and oropharynx.
3. Describe those special examinations of the nasopharynx and larynx which may be indicated.
4. Order appropriate basic laboratory tests and radiologic examinations.
5. Develop an appropriate differential diagnosis and provisional diagnosis.
6. Make an appropriate and timely referral for special investigations and definitive treatment.

The student should be able to :

1. develop a classification of neck masses, according to etiology (neoplastic, inflammatory, congenital).
2. classify parotid and thyroid tumors and describe the natural history of these tumors.

III ANORECTAL CONDITIONS

A 50-year-old man complains of purulent discharge from a small opening in the skin close to the anus. This has persisted for several weeks and soils his clothing. He notes tenderness and a firmness to the tissue in the region.

At the conclusion of the basic clerkship, the student should be able to:

1. Develop further history of this complaint, including possible etiologic factors. Direct questions should reflect knowledge of other anorectal conditions which might be considered in the diagnosis.
2. Examine the perianal area and perform a digital rectal examination; be able to accurately describe the findings.
3. Assemble the equipment and perform a proctoscopic examination.
4. Arrive at the correct diagnosis and make an appropriate referral.

The student should be able to describe the clinical presentation of:

1. anal fissure
2. perianal abscess and fistula in ano
3. perianal hematoma
4. hemorrhoids, according to 'stage'
5. condylomata
6. carcinoma of the anus.