Surgical Scenarios for Medical Students
2024-10

by Dr. Ibrahim Odeh
Plastic & Reconstructive Surgery Specialist

History

1- Abdominal pain (appendicitis, cholecystitis, cholangitis, pancreatitis, perforated DU, diverticulitis,…)

2- Jaundice

3- Lower limb pain (arterial, venous, neurological)

4- Neck mass (thyroid) 5- Lower GI bleeding.

6- Dysphagia

7- Hematemesis

8- Breast lump / nipple discharge

9- Vomiting

10- Constipation

11-

12-

Physical examination

1- Ulcer (burn, surgical site infection, DF ulcer)

2- Abdominal mass

3- Neck mass

6- Drains

7- Stoma

8- Hernia

9- Abdominal examination

Appendicitis
cholecystitis
liver mass
pancreatitis

10- Lower limb examination (arterial, venous disease)

11-

History

Jaundice (history)

1- **Greeting**

2- **Introduce your self**

3- **Permission**

4- **Patient profile (name, age , occupation, location)**

5- **Chief complaint and duration**

6- History of present illness how did you know/ notice where did you notice course (on and off, gradual, sudden) previous bouts or attacks
GI tract symptoms (pain, vomiting, nausea, change in bowel habits, dysphagia, heart burn, ……) <u>associated symptoms</u> :- urine colour, stool colour, itching.

7- Constitutional symptoms

- **a. Fever (chills, rigors, night sweats, documented?, timing)**
- **b. Weight changes (intentional, significant, documented?, clothing)**
- **c. Change in appetite (fear of eating)**
- **d. Lack of energy**

8- Systemic review: (briefly)

9- Past medical & surgical history & social

- **a. Recent blood transfusion**
- **b. Recent travel**
- **c. Hemolytic diseases (**تفول، منجلي، تلاسيميا**)**
- **d. Recent biliary tree operation**
- **e. Alcohol**
- **f. Smoking**

DDx :-

Pre-hepatic (hemolytic disease)

Hepatic (hepatitis, crigler-najjar, dobin-jonson, liver mets, cirrhosis)

<u>Post hepatic:</u>

1- <u>Luminal</u>

- **a. CBD stones**

b. **Parasitic disease (Ascaris, pinworms)**

c. **Hydatid cyst rupture (daughter cysts)**

2- <u>Mural</u>

a. **Stenosis (iatrogenic trauma)**

b. **Cholangicarcinoma**

c. **Primary sclerosing cholangitis**

3- <u>Extra-mural</u>

a. **Merrizi syndrome**

b. **Head of pancreas tumor**

c. **Klaskin tumor**

Lab investigation

CBC: Hb , MCV , RDW , reticulocyte count

LFT (hepatic causes) , ALK-P (biliary tree injury – obstructive jaundice), GGT (more specific), S.Bil (T&D)

Urine Ax: absent uro-bilinogen, high bilirubin.

Imaging:-

Abd Xray (porcalan galblader, stone 5% of GB stones are radio-obaque) US (GB stones, dilated biliary tree (0.4 cm))

MRCP

ERCP

Lower limb pain (history)

1- Greeting

2- Introduce yourself

3- Privacy, permission

4- Patient profile (age, name, occupation, living situation)

5- Chief complaint and duration

6- HOPI (limb pain)

SOCR-A-TES

A – SOB, palpitation (DVT) acute lower limb ischemia

- LL swelling (edema – DVT)

- discoloration + skin changes + poor wound healing hair loss, joint deformity (toes overlapping), nail changes.

- neurological symptoms (paresthesia, weakness … etc) urine or stool incontinence Hx of trauma

7- Constitutional symptoms

a. **Fever (documented, timing, chills , rigors, night sweats)**

b. **Weight changes (intentional, significant?, documented?, clothing)**

c. **Appetite (fear of pain??)**

d. **General weakness (energy)**

8- Review of other systems:-

9- Past medical and surgical history:

a. **Cath stenting (risk for peripheral arterial disease)**

b. **DM**

c. **HTN**

d. **DVT (any cause of hypercoagulable state) (oral CCPs)**

e. **Hematological disease**

10- Social

a. **Smoking**

b. **Alcohol**

c. **Long flight or bed redden**

11- Family history (varicosities)

DDX

1- Neurological (cauda-equena , disc prolapse)

2- Arterial (chronic or acute lower limb ischemia)

3- Venous (DVT, varicose veins, thrombophlebitis)

4- Musculos- skeletal causes (muscle spasms, OA, trauma)

Lab investigations:

CBC (PLT, WBC)

Uric acid

D-dimer

PT, PTT, INR

Blood film

Radiological investigations:-

Venous disease: duplex US, venography

Arterial disease: CT Angiography

Neurological disease: - LSS - XR, LSS MRI

Dysphagia (history)

Greeting

Introduce your self

Permission, privacy

Patient profile

Chief complaint and duration (make sure it is not odynophagia)

History of present illness

1. **Site**
2. **Onset (progressive, sudden)**
3. **Course (on and off, continuous, episodic)**
4. **Solid vs liquid (functional vs mechanical causes)**
5. **Timing (myasthenia gravis occur late in the day)**
6. **Exacerbating factors (cold and hot things) or relieving factors (position)**
7. **Associated symptoms**
    a. **Pain (abdomen or chest) if present > SOCRATES**
    b. **Reflux (heart burn)**
    c. **Repeated vomiting**
    d. **Neck mass**
    e. **Change in voice**
    f. **Shortness of breathing**
    g. **Foul breathing smell (esophageal diverticulum)**
    h. **Recurrent chocking attacks (mechanical causes)**
    i. **Drooling or excessive salivation**
    j. **Hx trauma**
    k. **Hx of F.B swallowing (in the childhood)**

<u>GI symptoms</u> (vomiting, hematemesis, hemoptysis, change in bowel habits, upper GI bleeding, and hiccups)

Constitutional symptoms

(Weight loss, appetite? fever, general fatigue (MG, plummer vinson's syndrome) Review of other systems (briefly)

Past medical and surgical history

Recurrent respiratory tract infections
Hx of FB, corrosive material swallowing
Hx of Iron deficiency
Family history of esophageal disease
social (alcohol and smoking history, food and drink habits)

<u>DDx</u>

1- **<u>Functional</u> (Liquids>Solids)**
    a. **Achalasia**
    b. **Nutcracker esophagus**
    c. **Esophageal dysmotility (diffuse esophageal spasm)**
    d. **Myasthenia gravis disease**
2- **<u>Mechanical</u> (solids first)**
    a. **Luminal**
        i. **FB ii. Esophageal web (plummer vinson)**
    b. **Mural**
        i. **Esophageal cancer (adeno vs SSC) ii.**

        Leiomyoma

iii. Stenosis / stricture (corrosive material swallow, iatrogenic injury)

c. Extramural

i. Para esophageal hiatal hernia ii.

Retrosternal extension of thyroid mass

Lab investigations

CBC (iron deficiency anemia) (Hb, MCV, RDW, reticulocyte count) Stool for occult blood

Imaging studies

Chest x-ray (F.B, hiatal hernia, achalasia {air-fluid level})

Barium swallow (birds peak sign) – filling defect (cancers)

Esophageal Manometry

24- PH monitoring (GERD)

Upper endoscopy (mass-FB)

Breast mass (History)

1- Introduce yourself
2- Take a permission
3- Patient profile

4- Chief complaint and duration

5- History of present illness

a. How did you discover it

b. Size + measurements changes

c. Number

d. Site

e. Axilla

f. Associated symptoms

i. Pain (if applicable > SOCRATES) +cyclical or no-cyclical pain

ii. Nipple discharge (color, quantity, smell, spontaneous or not)

iii. Nipple retraction (recent?, uni- or bi lateral) iv. Skin changes or ulceration

v. Lactation history

vi. History of trauma

g. Review of other systems

i. Regular / irregular periods

ii. Back pain (breast cancer mets!!)

h. Constitutional symptoms

i. Fever

ii. Appetite

iii. Weight changes

iv. Lack of energy

i. Past medical and surgical

i. Use of CCPs, exogenous estrogen, breast surgery or biopsy

j. Family history of breast cancer

k. Social history

i. number of her children (the age of the first child)

ii. age of menarche/menopause

iii. Smoking iv. Alcohol

DDx

1- <u>Non-neoplastic</u>

a. Inflammatory (abscess, duct ectasia)
b. Traumatic (fat necrosis)
c. Cystic (cystic changes, simple cyst)
d. Retention (galactocele)

2- <u>Neoplastic</u>

a. Benign
    i. Fibro-adenoma
    ii. Fibrocystic changes
    iii. Phylloid tumors
b. Malignant
    i. In-situ
        1. D
CIS
        2. L
CIS ii.
Invasive
        1. Invasive ductal
        2. Invasive lobular
        3. Malignant phylloid
        4. Inflammatory breast cancer

***3-* Investigations**

a. Triple assessment (history, physical examination, imaging study and biopsy) b. CA 15-3
c. Breast US
d. Mammography (for patient who are older than 40)
e. Biopsy (tru-cut biopsy)
Immune-histo-chemistry
(ER-PR receptors, Her2/neo)

CONSTIPATION

(history)

2- Greeting
3- Introduce yourself
4- Permission and privacy
5- Patient profile
6- Chief complaint and duration
7- History of present illness
   a. Associated abdominal pain (SOCRATES if present)
   b. Bleeding per rectum?
   c. Mucus discharge from the anus
   d. Stool caliper and consistency and color
   e. Tenesmus
   f. Alternating with diarrhea?
   g. Associated anal pain
   h. GI symptoms (vomiting, dysphagia, heart burn, nausea, mouth ulcers,…)
   i. Abdominal distention
   j. Previous episodes?
8- Constitutional symptoms (V. important) {fever, weight changes, loss of appetite, and general weakness}
9- Review of other systems (anemia – palpitation, dizziness) (prostatic enlargement – obstructive urinary symptoms like weak urinary stream) (back pain for possible bone mets from a colorectal cancer).
10- Past medical and surgical history (drugs, abdominal surgery, DM,
11- Family history (bowel cancer , polyps)
12- Social history (alcohol, smoking, diet and habits (fiber, protein) , illicit drugs)

DDx (primary constipation, colorectal cancer, ano-rectal condition, diabetic neuropathy…)

Labs (CBC, Stool for occult blood)

Imaging (abdomen x-ray erect and supine, colonoscopy)

Physical Examination

Drains

1- **Greeting**

2- **Introduce yourself**

3- **Permission**

4- **Privacy**

5- **Exposure**

6- **Position**

7- **Vital signs**

8- **General inspection (patient condition, comfortability, breathing pattern, pallor, jaundice, dehydration ……) 9- Drain (abdominal examination/ neck/ chest)**

Inspection (15 item) – discoloration, scars, umbilicus, symmetry, hair distribution, hernia orifices …….)

1- **Site (there is a drain tube arising from ……)**

2- **Type of drain (connected with {<u>open/closed</u>} drain system).**

a. <u>open</u>:-

- gauze, corrugate, pen rose

b. <u>closed</u>:-

Redi-Vac, Jackston Pratt,

- <u>Active</u> (negative pressure) :-

Neck, abdominal wall (hernia), breast, axilla

- Passive (positive pressure):- intra-abdominal 1- blockage of the tube (omentum)
2- pressure necrosis (bowel)

- Under water seal (chest tube bottle) chest (plural cavity) - under gravity (NG-tube, folly's catheter)

3- Color and most probable content (tube) a. straw colour (serous)
b. yellow (bile or pus)
({shacking} bile will produce foam)
c. red (bloody, serosanguinous) – clots in blood, but not in serosanguinous content d. white (chyle)
e. pinkish_creamy (chyle with blood)
f. golden (bile)
g. greenish (bile or pus)

4- Volume??
Redi-vac (50 ml per circle if positive, 25 ml if negative) urine bag (scale) chest tube bottle (scale)

5- special considerations for Chest tube a-oscillation (functioning – which means in the right position (pleural cavity) b- bubbling ??

(continuous air leak > bronco-plural fistula) c. open/closed (lock to the of the bottle)

The aim of Drain?
Is the eye of the surgeon in the cavity of concern To drain any possible accumulated fluid.
For early detection of the possible post-op complication

When to remove the drain? when we achieve the aim if intra-abdominal > if discharge less than 20 ml per day.

Burn

Physical examination (picture)

(The same description of an ulcer)

1- **Site**
2- **Size**
3- **Shape**
4- **Margins (rim of erythema, fibrosis)**
5- **Edge (it will be slopping in the burn wounds)**
6- **Floor (granulation tissue, necrotic tissue, fibrin, crust tissue)**
7- **Surrounding (hair loss, Bulli, hyperkeratosis, nail changes)**

how to determine the degree of the burn by inspection (the gross appearance)?

Total body surface area (the role of nine)
Type of fluid for resuscitation fluid
resuscitation (parkland formula)
Management of pain

Ulcer (physical examination)

1- **Greeting**

2- **Introduce yourself**

3- **Maintain privacy**

4- **Position**

5- **Exposure**

6- **Vital signs**

7- **General inspection (pallor, dehydrated?, cyanosis, jaundice, and breathing pattern … etc)**

Ulcer description

1- **Site (tip of the toes, gaiter area, heals, head of metatarsals)**

2- **Size**

3- **Shape (circular, oval , irregular)**

4- **Margins (erythema > active ongoing infection, fibrosis > chronicity- venous , bulge)**

5- **Edge (punched out, rolling , everted , undermined, sloping)**

6- **Floor (granulation (pink), bone , tendon, pus or discharge, FB, necrotic tissue, fibrosis, blood clots)**

7- **Surroundings**

a. **Erythema > cellulitis**

b. **Swelling > venous insufficiency**

c. **Skin discoloration > hyperkeratosis, hyper pigmentation >> venous ulcers**

d. **Hair loss > chronic lower limb ischemia**

e. **Brittle nails , oncholyosis (trophic changes)**

f. **(prominent bone prominance > Muscle wasting**

g. **Toes overlapping (loss of proprioception)**

h. **Skin shining > lower limb ischemia**

i. **Varicosities (popliteal fossa , medial malleolus)**

j. **Hidden ulcers (between toes, under heals)**

k. **Previous amputations (stump)**

Ulcer palpation

1- skin temperature
2- tenderness
3- edema
4- capillary refill
5- base (fixed?, content, discharge – squeeze)

Lympho-vascular examination:-

1- **Dorsalis pedis (between first and second metatarsal bones just lateral to the HLT against navicular bone)**

   Never forget to exam both sides

2- **Posterior tibialis (just behind medial malleolus) – bilateral**

3- **Popliteal artery (middle structure , hard to palpate) – bilateral ++++ check if there is lymph node enlargement (LNE)??**

4- **Femoral artery (mid-point of the inguinal ligament) – bilateral**

++++ **LNE**
+++ **radio-femoral delay**

Neurological examination: >

A- fine touch
B- proprioception

NECK MASS (physical examination)

1- Introduce your self
2- Maintain privacy
3- Take a permission
4- Position (sitting)
5- Exposure (face-upper chest)
6- v/s
7- general inspection
   a. pallor, jaundice, cyanosis
   b. peri-orbital puffiness
   c. eye-brow hair loss
   d. exophthalmos, lid-lag
   e. Face flushing, fascial expression?
   f. Palmar erythema
8- Local inspection (mass)

a. Site (submental- submandibular – anterior (para-medial, @ midline, lateral) b. Size (olive, lemon, egg)

c. Shape
d. Surface
   - (smooth, lobular)

- skin changes
- scars
- punctum
- dilated veins (retro-sternal extension)
    i. pulsation

e. Single/multiple
f. Circumference (well/ill defined)
g. Surroundings (erythema, swelling, supra-clavicular fossa, supra-sternal notch). h. Special tests
    i. Swallow test (ligament of berry)
    ii. Tongue protrusion (thyro-glossal cyst)
    iii. Lid lag iv. Fine tremor
    v. Trans-illumination test (cystic – fluid filled)

9- Palpation (from <u>posterior side</u> of the patient)

a. Temperature
b. Tenderness
c. Texture (soft, hard, rubbery, stony hard)
d. Thrill (vascular masses, hyperthyroidism)
e. Tethering (mobility > overlying skin or underlying structure)
f. Surface (smooth, nodular)
g. Pulsation
h. Compressible or not
i. Surroundings (LNE – submental, submandibular, preauricular, posterior auricular, occipital, anterior neck triangle , posterior neck triangle, supraclavicular) j. Special test
    i. Swallow
    ii. Tongue protrusion
    iii. Fluctuation iv. Skin pinch test

10- Percussion

a. To the manubrium (retro-sternal extension) – dullness)

11- Auscultation

a. Brui (vascular mass vs hyperthyroidism)

Stoma (physical examination)

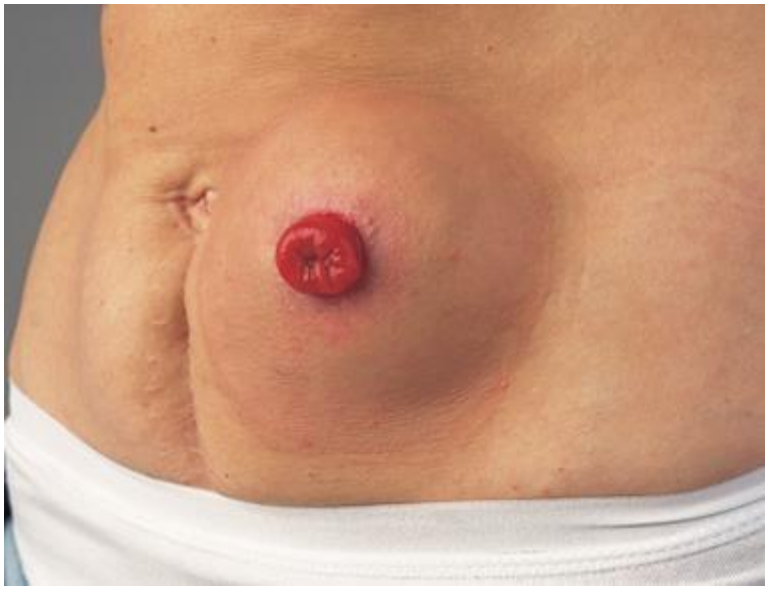
1- Greeting
2- Introduce yourself
3- Take a permission.
4- Maintain privacy
5- Position (semi-sitting / supine).
6- Take vital signs
7- General inspection (comfortability, breathing, pallor, jaundice, dehydration …..)
8- Abdominal inspection
9- Stoma description
   a. Site (RLQ, LLQ, midline)
   b. Surface (flat, retracted, spout- nippling)
   c. Stoma color (dusky, red, pinkish, gray)
   d. Surrounding (skin excoriation, para-stomal hernia,..)
   e. Content (chyme, well-formed stool, urine,….)
   f. Amount (on scale of the bag)

A stoma is an opening that a surgeon creates on a person's abdomen to allow them to pass bodily waste by connect part of a person's intestines or urinary tract to their abdominal wall.

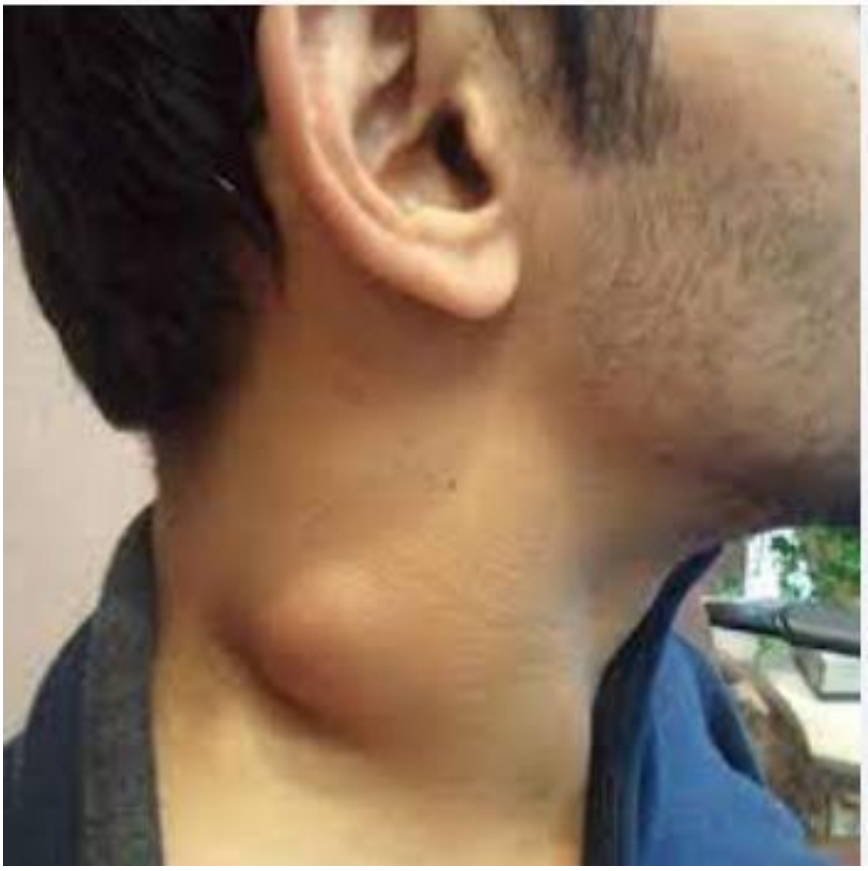
Types of stomas

Colostomy, ileostomy and urostomy.

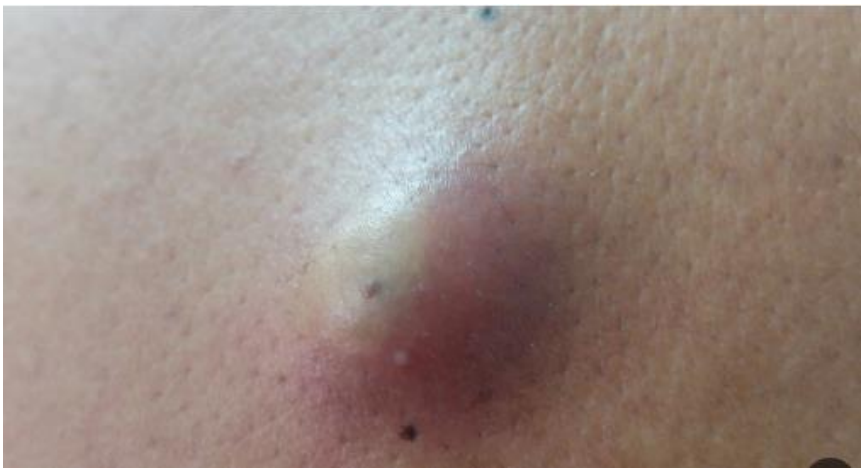
How to differentiate between colostomy and ileostomy?



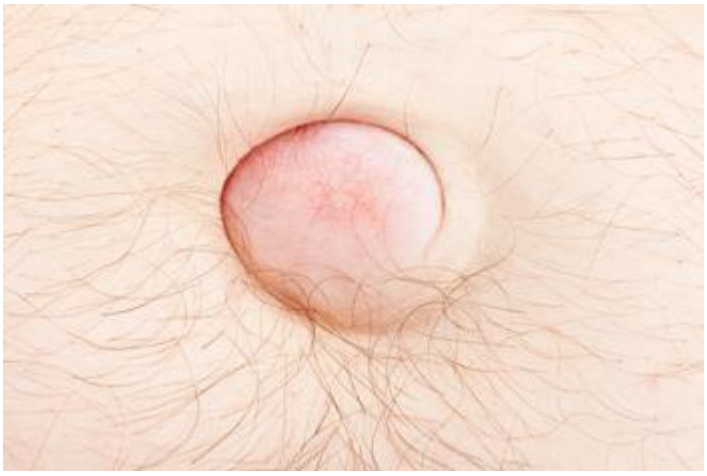
para-stomal hernia



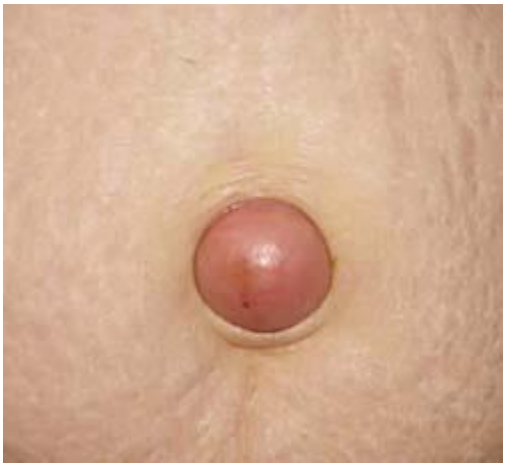
punctum sebaceous cyst



para – umbilical hernia (crescent-shaped umbilicus)



umbilical hernia (round shape umbilicus) + everted

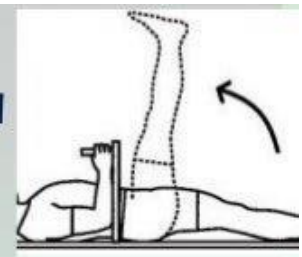


PROCEDURE:

The patient lies on his back, and asked to raise his legs one after the other keeping the knees straight.

The legs of normal individual remain pink even if they are raised to 90˚.

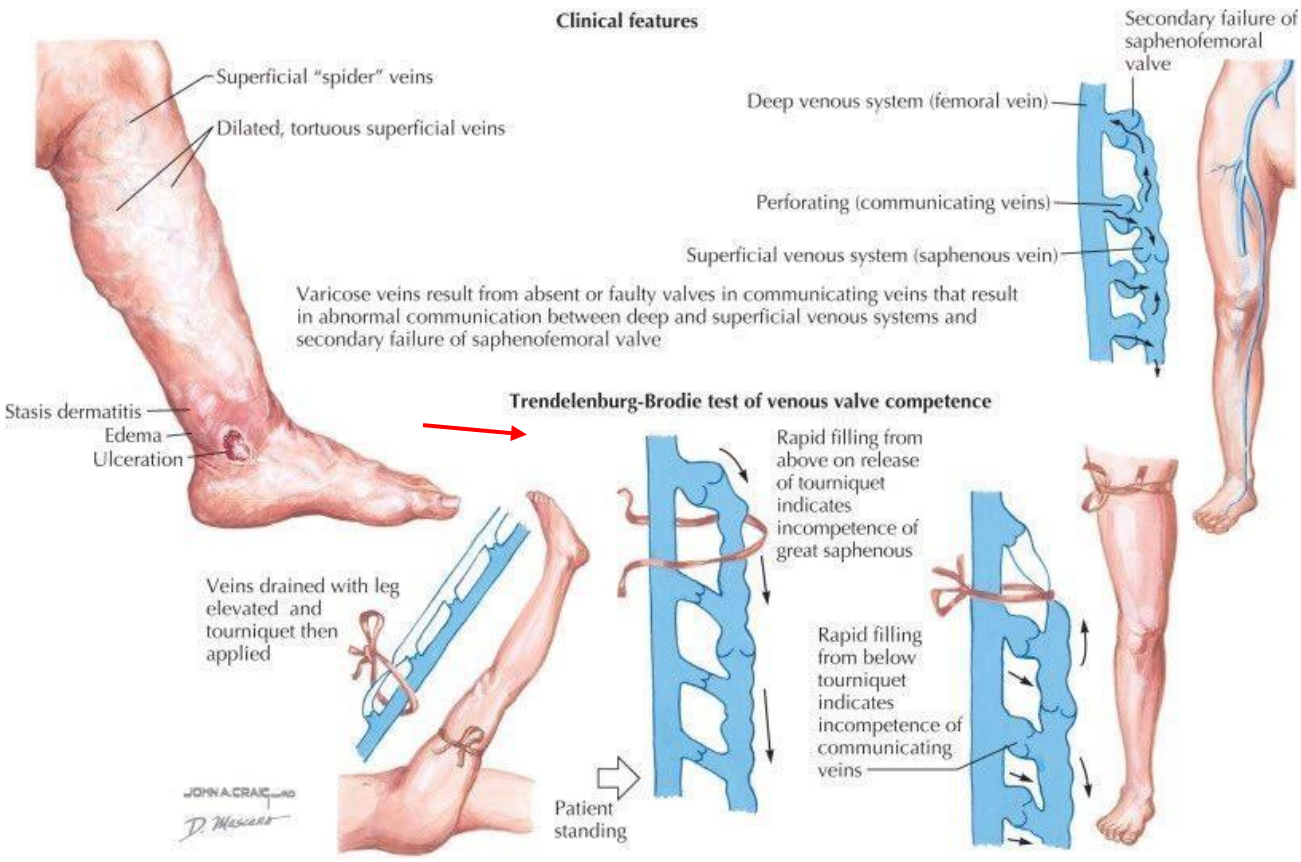
But in case of ischaemic limb elevation to a certain degree will cause marked pallor and the veins will be empty and guttered.



Buerger's angle or Vascular angle.

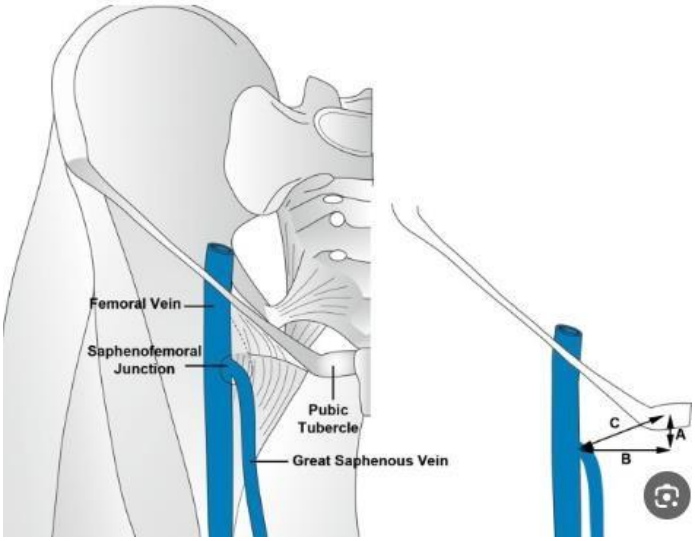
<30˚ - severe ischaemia

If not pallor – occlusive arterial disease is suspected



The SFJ (sapheno-femoral junction) can be located in the groin crease, or in a 3 × 3 cm region situated up to 4 cm to the side and up to 3cm

below to the pubic tubercle. It is nearer to the pubic tubercle in younger and thinner subjects. The GSV has two valves near the SFJ.



MOCK TEST (lower GI bleeding)

- Patient profile
- Duration
- Color
- Mixed
- Associate mucus
- Tenesmus
- Bowel habits
- Associated abdominal pain
- Associated hematemesis
- Epistaxis or hematuria (other orifice bleeding) •SOB general fatigue
- Fever??
- Weight loss?
- Smoking
- Family history (for colorectal cancer vs inflammatory bowel disease)
- Iron supplements
- Anticoagulants
- Diet (fiber)

•**DDX – inflammatory bowel disease**
•Lab : **CBC** – anemia _ blood film
• stool Ax
•Investigation – **lower endoscopy**

MOCK TEST (lower limb pain)

Introduce him/her-self

Patient occupation? (guardian – long standing)

Chief complaint (left leg pain)

Pain character (soreness- muscular)

Site (mainly calf)

Pain severity (seek medical help- 6/10)

Relieving factory (leg elevation)

Radiation (no)
Hx of trauma (no)

Associated symptoms (skin changes) – redness
(numbness) - no
(weakness) – no

Fever (yes)
past surgical history (hip joint replacement surgery)
Family history of hyper-coagulable state DDx –
Deep vein thrombosis
varicose veins and chronic venous insufficiency

Imaging study > duplex venous US
venography

4th Y Medical Students OSCE B – 29/02/2024

Name

Student Number:

Question/ Answers	Mark
Student Introduced him/her self -take permission - privacy	/1
A- Show me how could you demonstrate the exact location of Mc Burney's Point?	/2
B- Show me the Anterior Superior Iliac Spine?	/1
2 Perform the Following:	
A- Show me if the patient has a Para umbilical hernia?	/1
B- Show me the location of Linea Alba?	/1
C- Show me how you can differentiate between Spleen and Left Kidney? **Student Must be able to demonstrate these skills Comfortably** • Cannot get above it 1 • Moves down with Breathing 1 • Notch 1 • Ballotability 1	/4
3- Perform the Following Maneuver	
A- Show me the Location of the Gallbladder? (Surface Anatomy) Mid Clavicular line crossing costal margin at the tip of RT 9th costal cartilage. (1) (Student must show Acromioclavicular Joint , Sternoclavicular joint , Costal margin)(3)	/4
B- Perform Rebound Tenderness Maneuver	/1
C- Examine the Dosralis Paedis Pulse?	/2
TOTAL out of 17	

Examiner: ..... Signature: .....

How to study surgery as medical student.

1- **Raftery notes. Applied Basic Science**

2- **clinical skills lectures of surgery Surgical recall first aid for surgery - USMLE**

3- **MCQs surgery sheets**
++ (Lang, pretest, Absite slyer,)

Dr. Ibrahim Odeh
Plastic & Reconstructive Surgery Specialist