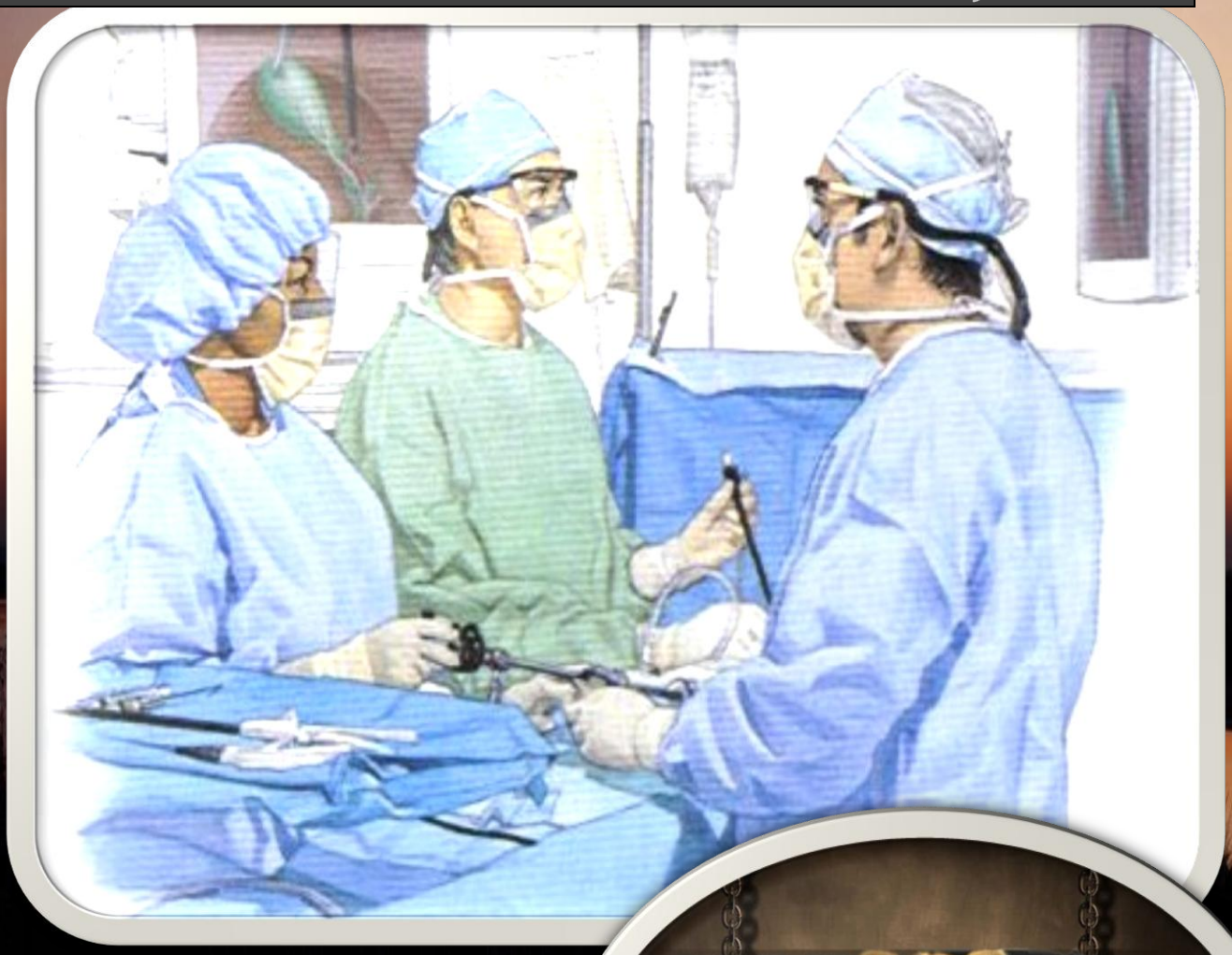
DCBOL

HOW TO TAKE HISTORY IN SURGERY?



UOG
GCMHS
2008/2015

VOL--I

Preface

Since text books on history taking skills in surgery are not available as needed, We hope this text book will be very helpful in giving you insight on how to write & prepare for the bedsides & examination.

Finally we want to emphasize that users who are interested to keep the quality of this book up to date are allowed to do so. For more information you can contact us anytime @ dannyfentaneh@gmail.com or birukbirhanu75@gmail.com

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Our message for you

Whenever you go through this book, notice...

✓ **HPI**

We have tried to dot down the possible clinical presentation of the patients in each case before we proceed to the sample hx. You are expected to characterize each CP based on your patient to compose ur HPI.Better to refer "physical examination & history taking skills" by Dr.Abillo (MD) & Browse.

- ***Positive-negative statements***

Throughout this text book we have tried to focus on this part because we find it challenging for a beginner. Whenever you go through the cases in this book please give attention for the first part of each case that contains the causes, risk factors, differential diagnosis & complications which are essential for construction of your positive & negative statements.

✓ ***Investigations***

Whenever you try to mention investigation modalities please try to mention starting from modalities that are available in our setting plus thus that are cost-effective then you can go up.

✓ ***DDx***

- ***Notice ➔Since almost all epidemiological data are from USA …the order the DDx are listed in books(common---least common) often mismatch with our country…***

Content

LONG CASES----------PAGE

SHORT CASES----------PAGE

Respiratory related

Gastro-intestinal related

Genito-urinary related

Musculo-skeletal related

HEENT related

others

VOL II

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LONG CASES

SAMPLE HISTORY ON THYROID ENLARGEMENT

Etiology + RFs

- Iodine deficiency
- Dyshormogenesis- inborn errors of metabolism
- Goitrogens
- Thyroid malignancy
- Autoimmune thyroiditis
  - Hashimoto
  - Postpartum thyroiditis
- Subacute thyroiditis
- Riedel thyroiditis
- Pituitary tumors , TSI
- Exposure to radiation

CP

1. Hx

- Inorder to write a good hx on thyroid enlargement follow the orders listed below
  - I. About the swelling
    - ✓ When it began?
    - ✓ How the pt noticed the swelling?
    - ✓ Painful /painless
    - ✓ Site & progression
  - II. Pressure symptoms
    - ✓ Dyspnea / stridor
    - ✓ Dysphagia
  - III. Abnormal function manifestations
    - ✓ Hyperthyroidism: symptoms
      - Irritability, emotional lability
      - Heat intolerance
      - Sleep disturbance
      - Weight loss despite increased appetite
      - Diarrhea
      - Palpitation
      - Tremor/ the pt may complain:as symptom or do PE/
      - N & V
      - Oligomenorrhea or amenorrhea…

- ✓ Hypothyroidism: **symptoms**
  - ➢ Weight gain
  - ➢ Anorexia
  - ➢ Cold intolerance
  - ➢ Constipation
  - ➢ Menorrhagia
  - ➢ Fatigue
  - ➢ Slowed intellectual & motor activity …

IV. Mention any medication hx

V. Compose ur +ve & -ve statements

- If you're trying to r/o or rule in simple goiter document
  - ❖ Is the pt from Iodine deficient area/ not
    - ✓ Asking if there're peoples in the surrounding with similar illness
    - ✓ Identifying the geographical location from where the pt comes from
      - ➢ Is it mountainous /not?
  - ❖ Goitrogen intake
    - ✓ Drug hx
      - ➢ Lithium, Sulfonamides, PAS…
    - ✓ Dietary hx
      - ➢ B/ce diets containing heavy metals compete with iodine to be taken by thyroid tissue
      - ➢ Peanuts, Cabbage, Soyabean…
  - ❖ Family hx of thyroid disease➔dyshormogenesis
- If u are trying to r/o or rule in Toxic goiter (Grave's Vs TMNG)…
  - ▪ *Ask the pt whether the Sign & symptoms of hyperthyroidism appear simultaneously or later after the intial simple nodular goiter*

- If you're trying to r/o or rule in malignancy +++ if you suspect metastasis…ASK
  - ❖ Rapidly/ slowly growing mass
  - ❖ Constitutional symptoms of malignancy
    - ✓ Anorexia
    - ✓ Wt loss
    - ✓ Easily fatigability
  - ❖ Hx of hoarseness of voice
  - ❖ Hx of swelling /LAP
  - ❖ Hx of bone pain
  - ❖ Previous head & neck radiation therapy
  - ❖ Family hx of thyroid ca.
- If u want to r/o or rule in inflammatory causes …ASK
  - ➢ Pain in the neck
  - ➢ Fever, chills or rigor

2. PE

- GA
- VS
- HEENT
- Anterior neck examination
  - ✓ On inspection notice
    - Size & shape
    - site
    - Overlying skin color change
    - Movement with deglutition
    - Plumberton sign
    - Visible Pulsation
  - ✓ On palpation
    - T^{o} & tenderness
    - Surface
    - Border
    - Consistency
    - Retrosternal extension
    - fixity
    - thrill
    - kocher's test
    - Berry's sign
  - ✓ Percuss if u suspect retrosternal extension
  - ✓ Auscultation
    - Bruit

NB***Important things to notice during thyroid examination after doing anterior neck examination**

1. **Signs of thyrotoxicosis**
   - ❖ **Eye signs**
     - **Exophtalmos**
     - **Lid lag & retraction**
     - **Absence of wrinkling**
     - **Convergence**
   - ❖ **Tremor**
     - **Finger**
     - **Tongue**
   - ❖ **Tachycardia**
   - ❖ **Bruit/ thrill**
   - ❖ **Warm moist skin**
   - ❖ **Pretibial myxedema**
2. **Signs of hypothyroidism**
   - ❖ **Edema of face & legs**
   - ❖ **bradycardia**
   - ❖ **Hoarseness of voice**
   - ❖ **Delayed relaxation of deep reflexes**
   - ❖ **Pendred's sign**
     - **Goiter + severe sensory neural hearing impairment**
3. **Signs of retrosternal extension**
   - ❖ **Increased JVP**
   - ❖ **Horner syndrome…**
4. **Signs of metastasis**
   - ❖ **Hard cervical LNs**
     - **never forget to check LNs**
   - ❖ **Nodules on skull**
     - **Rapidly growing, pulsatile ,warm & erosion of the skull may be present**
   - ❖ **Long bone metastasis**
   - ❖ **Chest effusion & consolidation**
   - ❖ **Nodular liver & ascites**

DDX

1. Lipoma
2. Thyroglossal cyst
3. Simple goiter/euthyroid

Types

a. Diffuse

➔Due to persistent stimulation /TSH/

b. Multinodular

➔Due to fluctuation in stimulation

Complications

- Tracheal obstruction
- 2^0 thyrotoxicosis
  - 30% of pts
- calcification
- Premalignancy
  - Cmn in follicular one

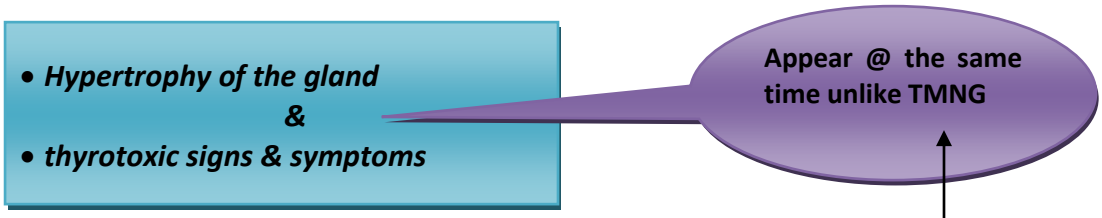
NB*Cmn in females b/ce of estrogen receptors in the thyroid tissue

4. Toxic goiter/ thyrotoxicosis

Types

a. Diffuse/grave's disease

- 1^0 thyrotoxicosis←TSI
- Eye signs + CNS symptoms→cmn



b. Multinodular /TMNG

- 2^0 thyrotoxicosis
- *The pt will tell u that Signs & symptoms of hyperthyroidism appear later after the intial simple nodular goiter*
- Eye signs-infrequent
- CVS symptoms →cmn
- overactive internodular tissue

c. Toxic adenoma/ plummer disease

- Autonomous, solitary overactive nodule with inactive surrounding tissue

5. Neoplastic goiter

a. Benign

- Follicular adenoma

b. Malignant

- **primary**
  1. Follicular epithelium → differentiated
     a. Papillary ca.
        - 60%-cmn
        - LN metastasis
     b. Follicular ca.
        - hematogenous
  2. Follicular epithelium → dedifferentiated
     a. Anaplastic ca.
        - early local infiltration → aggressive
        - Typically pts present with rapidly growing neck mass
          - Dysphagia
          - dyspnea
        - pts may notice
          - bone pain
          - weakness
          - cough
  3. Parafollicular
     a. Medullary ca.
        - Lump @ the base of the neck
        - MEN IIA/B
  4. Lymphoid cell
     a. Thyroid Lymphoma

- **Secondary/Metastasis/**

  → kidney, breast… or local infiltration

6. Inflammatory goiter

→ thyroiditis

- Chronic lymphocytic/autoimmune=hashimoto/ thyroiditis
- Granulomatous/subacute/ thyroiditis
  - Viral infection
  - Pain in the neck, fever & malaise
- Reide's thyroiditis

SAMPLE HX

CC

Anterior neck swelling of 2yrs duration

HPI

This pt was LRH 2yrs back @ which tm her families suddenly noticed a swelling on her left lower neck. The swelling is *painless* & it was initially pea sized but it started to grow up slowly & progressively to attain its current size & location. Associated with this she has stridor which worsen during sleeping but no difficulty of swallowing or change in *voice quality*.

05 months back she started to experience palpitation, heat intolerance, diarrhea & unquantified significant weightloss despite increased appetite.

For the above compliant she visited/was admitted/ to Debremarkos Hospital where she was given(?) …….

- **She is from highland area with many peoples in the surrounding & her mother with similar illness**
- **Her regular dietary habit is injera & shirowot**
- **no hx of drug intake except the medication explained above(?)**

- **no hx of fever,chills or rigor**

- **no hx of head & neck radiation therapy**
- **there is no swelling in other sites of the body noticed by the pt**
- **no hx of bone pain, hemoptysis, flank pain or yellowish discoloration of the eye**

- **no hx of chronic cough, contact with a chronic cougher or previous TB Rx**
- **no self/family hx of DM, HTN or asthma**
- **She has been screened for RVI 7months back & found to be NR (non-reactive)**

Finally she was admitted to our hospital walking by her self.

Investigations

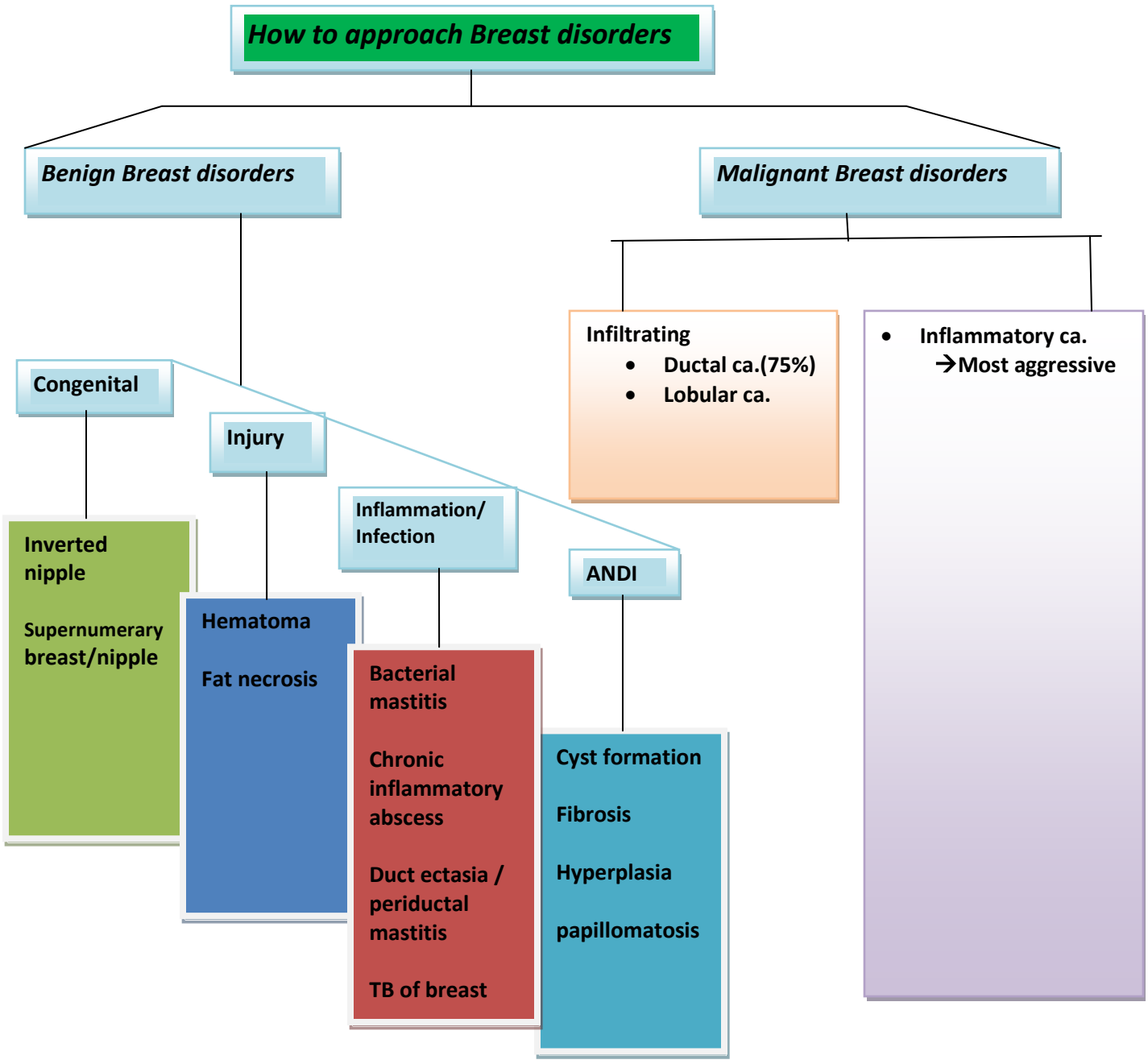
- **TFT /thyroid function test/**
  1. **TSH**
  2. **T3 & T4**
- **FNAC**
  - **Reliable**
    - **Papillary, medullary, anaplastic**
  - **not reliable**
    - **follicular adenoma vs follicular carcinoma**
    - **hurthle cell (benign Vs malignant)**
    - **hashimoto thyroiditis Vs thyroid lymphoma**
- **Imaging**
  1. **Chest & thoracic inlet radiograph**
     - **Retrosternal goiter**
     - **Tracheal deviation & compression**
     - **Pulmonary metastasis**
  2. **u/s**
     - **targeted aspiration-FNAC**
     - **solid Vs cystic**
  3. **CT, MRI & PET**
- **Thyroid/isotope scanning**
  1. **Activity of the gland**
     - **hot**
     - **Warm**
     - **Cold**
- **Anti-thyroid antibody assessment**

Principle ,indication & complication of thyroid surgery

- **Principle**
  - **symptomatic relief and decreasing the production of thyroid hormone**

- **Indications**
  - **Risk of neoplasia**
    - **Clinical criteria**
      - **Hard, irregular, apparent fixity**
      - **Evidence of RLN injury**
        - **Hoarseness of voice**
        - **Non-occulsive cough**
      - **LAP**
  - **Pressure symptoms**
  - **Cosmetics**
- **Complications**
  - **Bleeding**
  - **Infection**
  - **Hyperthyroidism**
  - **Hypothyroidism**
  - **RLN injury➔hoarseness of voice…**

SAMPLE HISTORY ON BREAST CANCER



BREAST CA

RFs

- Female
- Age 65+
- ***Hormonal***

  - ✓ increased estrogen exposure due to
    - ➢ early menarche
      - age <12
    - ➢ nulliparity
    - ➢ never breastfed
    - ➢ first full term pregnancy >30yrs of age
    - ➢ HRT within the last 5yrs
      - Increased risk among those taking combined HRT than single estrogen formulation
    - ➢ ? OCP use within the last 10yrs
      - Up to 25% of pts➔increased risk
      - >10 yrs of cessation➔risk returns to that of average population
    - ➢ late menopause
      - age >55
    - ➢ obesity
      - postmenopausal women➔major source of estrogen

- ***Non hormonal***

  - ✓ hx of radiation therapy/high dose/
    - ➢ e.g. mantle radiotherapy➔hodgkin's lymphoma
  - ✓ alcohol intake (females-not cmn in our country)
    - ➢ known to increase serum level of estradiol

u can use the CAGE questionary when ever u tnk alcohol abuse

- C=cutdown
- A=annoyed
- G=guilty
- E=eye opener

- **Genetics**

  - ✓ BRCA1/2 mutation
  - ✓ Hx first degree relatives with breast ca.
    - ➢ At what age it was diagnosed?
  - ✓ Hx of endometrial, ovarian or colonic ca

Clinical Feature

Hx

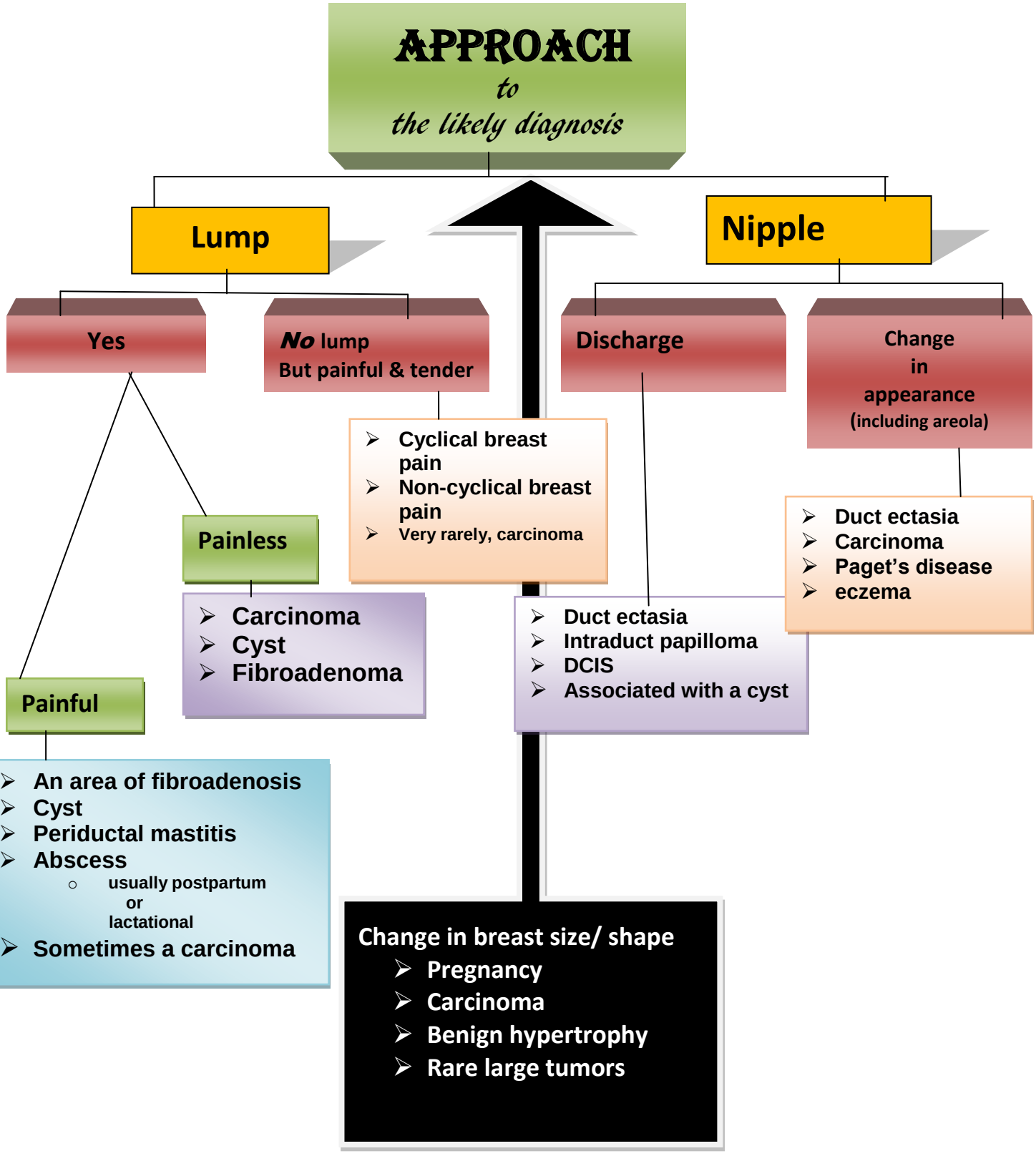
- Cmn presentations
  - Lump
  - Pain
  - Nipple discharge or change in appearance
- If u suspect metastatic spread ask
  - Bone pain
  - Breathing difficulties
  - Yellowish discoloration of the eyes & abd.distension
  - headache

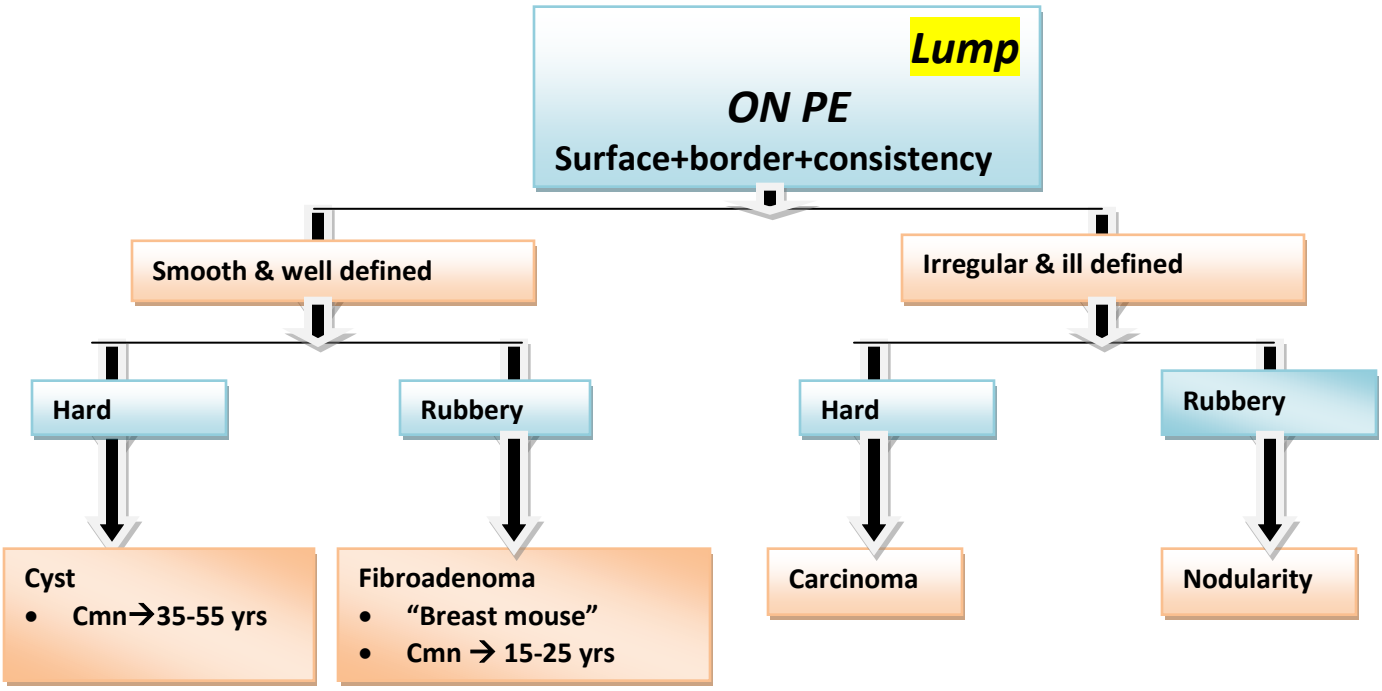
PE

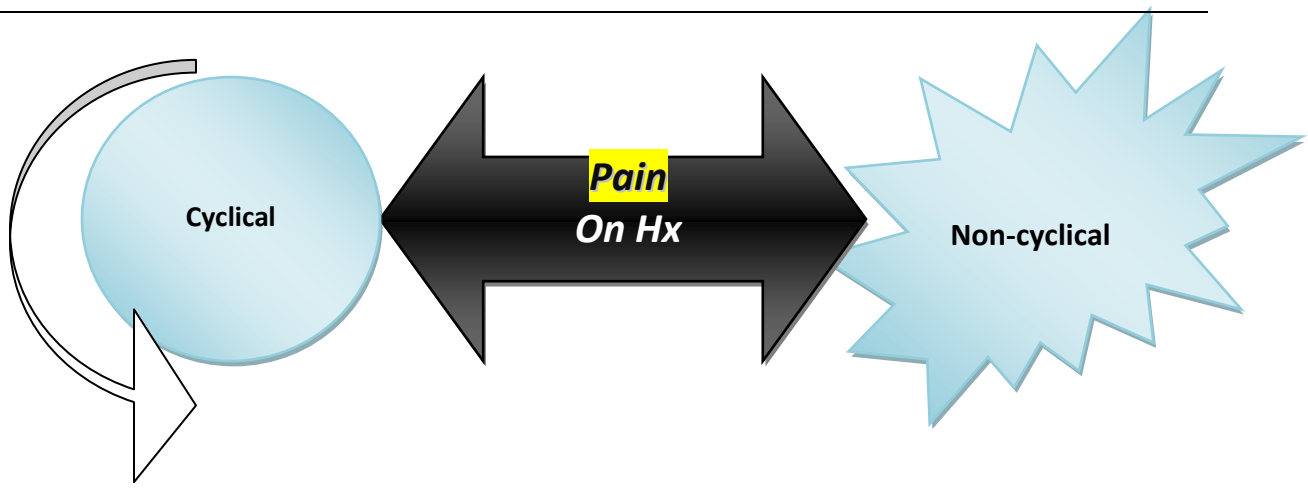
- Change in breast size & shape
- Symmetry with other breast
- Skin dimpling or skin change
- Recent nipple inversion /nipple abnormality
- Single duct discharge
  - Esp… if blood stained
- Dialated veins
- Ulceration
- Mammary paget disease
- Edema or peau d'orange

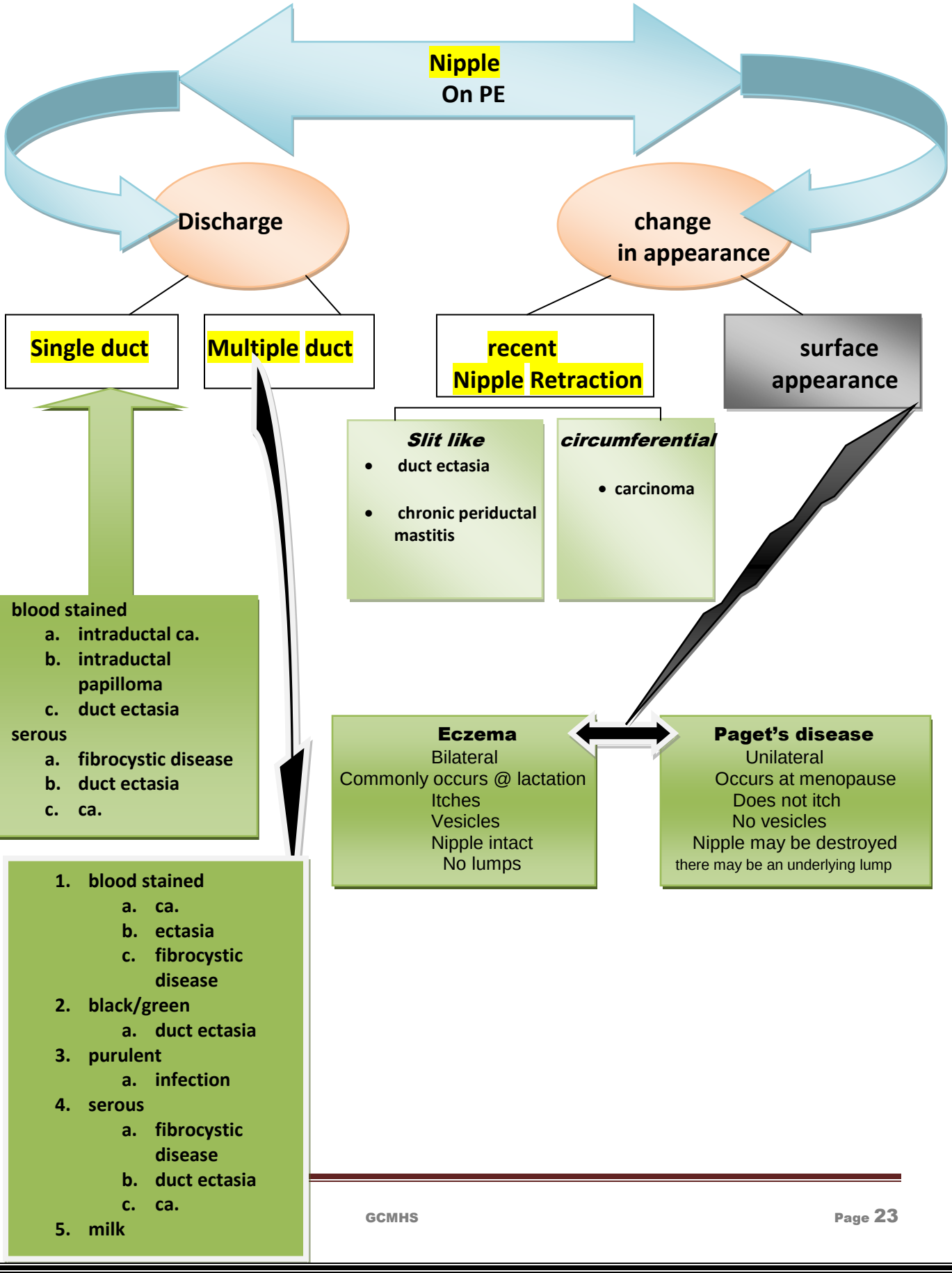
- Lump
  - Painfull / painless
  - Hard vs fluctuant
  - Well defined Vs illdefined
  - Focal nodularity
  - Fixation
    - Skin
    - muscle
- Axillary LAP + supraclavicular
- Upper extremity neurologic motor & sensory examination
  - Infiltration of brachial plexus

DDX


APPROACH
to
the likely diagnosis
Lump
Nipple
Yes
No lump
But painful & tender
Discharge
Change
in
appearance
(including areola)
Painless
Painful
Cyclical breast pain
Non-cyclical breast pain
Very rarely, carcinoma
Carcinoma
Cyst
Fibroadenoma
Duct ectasia
Intraduct papilloma
DCIS
Associated with a cyst
Duct ectasia
Carcinoma
Paget's disease
eczema
An area of fibroadenosis
Cyst
Periductal mastitis
Abscess
usually postpartum
or
lactational
Sometimes a carcinoma
Change in breast size/ shape
Pregnancy
Carcinoma
Benign hypertrophy
Rare large tumors


Lump
ON PE
Surface+border+consistency
Smooth & well defined
Irregular & ill defined
Hard
Rubbery
Hard
Rubbery
Cyst
• Cmn→35-55 yrs
Fibroadenoma
• "Breast mouse"
• Cmn → 15-25 yrs
Carcinoma
Nodularity


Cyclical
Pain
On Hx
Non-cyclical


Nipple
On PE
Discharge
change
in appearance
Single duct
Multiple duct
recent
Nipple Retraction
surface
appearance
Slit like
duct ectasia
chronic periductal mastitis
circumferential
carcinoma
1. blood stained
a. intraductal ca.
b. intraductal papilloma
c. duct ectasia
2. serous
a. fibrocystic disease
b. duct ectasia
c. ca.
Eczema
Bilateral
Commonly occurs @ lactation
Itches
Vesicles
Nipple intact
No lumps
Paget's disease
Unilateral
Occurs at menopause
Does not itch
No vesicles
Nipple may be destroyed
there may be an underlying lump
1. blood stained
a. ca.
b. ectasia
c. fibrocystic disease
2. black/green
a. duct ectasia
3. purulent
a. infection
4. serous
a. fibrocystic disease
b. duct ectasia
c. ca.
5. milk

NB*Breast abscess

- **Localized breast edema, erythema , warmth & pain**
  - **cardinal signs of inflammation**
- **Ass. symptoms**
  - **Fever, malaise & spontaneous drainage**
- **Fluctuant swelling can be felt unless deep seated (on PE)**
- **Hx of prior breast infection**
- **Lactation hx**
  - **Breast infection**
    1. **lactational**
       # hx of crackled nipple or skin abrasion
    2. **non-lactational**
       #periareolar
       ➔periductal mastitis
       #peripheral-rare
       ➔ask Hx of DM , RA, steroid Rx, trauma
- **It's safe to continue breast feeding since there is no communication b/n the inflamed area & the duct system!**

***Fat necrosis**

***Mondor disease**

Sample Hx

CC

Breast swelling of 6 months duration

HPI

This pt was LRH 6months back @ which time she noticed a small swelling on her left upper lateral breast while she was taking shower. Initially the swelling was marble size, painless, fixed to the skin without nipple discharge, then it starts to grow downward & medially to attain its current size & location with subsequent change in overlying skin appearance & nipple position.

She had hx of bright red colored discharge per nipple 1 month back, for which she visited a private clinic in Gondar where aspiration was taken from her left breast. Then she was told that she must undergo complete removal of her left breast & they referred her to our hospital.

- ***Her menses start @ the age of 12 with regular 28 days interval, lasts for 3days, moderate in amount***
- ***She is nulliparous***
- ***The pt doesn't notice any cyclical changes of the swelling with her menses***
- ***No family hx of similar illnesses***
- ***No hx of HRT or OCP use***
- ***No hx of radiation therapy***
- ***No hx chronic alcohol consumption***
- ***No hx of breast tauma***
- ***No hx of breast or abdominal surgery***
- ***No swelling in any other site noticed by the pt***
- ***No hx anorexia ,wt loss ,easily fatigability***
- ***No hx of bone pain, breathing difficulty , yellowish discoloration of the eye, headache***
- ***No hx of cough, contact with chronic cougher or previous TB Rx***
- ***No self or family hx of DM, HTNor asthma***
- ***Has been screened for RVI 1yr back & found to be sero-negative***

Finally she was admitted to our hospital walking by herself

Investigations

Radiological

1. **Mammography**
   - **sensitivity of this investigation increases with age as the breast becomes less dense**
2. **u/s**
   - **can be used in young women with dense breasts in whom mammograms are difficult to interpret,**
   - **can distinguish cysts from solid lesions**
   - **Can localize impalpable areas of breast pathology**
   - **USG-FNA**
3. **MRI**

Pathology

4. **FNA**
5. **Corecut**

Staging of BREAST CA

The International TNM classification

T_1= 2 cm diameter or less. No fixation or tethering
T_2 =2–5 cm diameter (or less than 2 cm) with tethering or nipple retraction
T_3= 5–10 cm diameter (or less than 5 cm) with infiltration, ulceration or peau d'orange over the tumour, or deep fixation
T_4 =Any tumour with infiltration or ulceration wider than its diameter. Tumours > 10cm

N_0 =No palpable axillary nodes
N_1= Mobile palpable axillary nodes
N_2 =Fixed axillary nodes
N_3 =Palpable supraclavicular nodes. Oedema of the arm

M_0 =No evidence of distant metastases
M_1 =Distant metastases

Rx principle

- **Surgery**
  - **Breast conservation**
  - **Mastectomy**
  - **lumpectomy**
- **Radiation Therapy**
- **Chemotherapy**
- **Hormonal Therapy**

Sample history on GOO

Etiology

Approach

Benign causes

- ***PUD***
  - Decreasing in incidence due to triple therapy
- Gastric polyp
- Caustic ingestion
- Gastric TB
- Pyloric stenosis
  - Pediatric groups
- Pancreatic pseudocyst
- Bezoars
  - Child
  - Adults 2^0 to bariatic surgery
    - From vagotomy induced hypomoti;ity
- Post surgical complication

Malignant causes

- **Gastric ca.**
- **Pancreatic ca.**

- Less frequent
  - Gastric lymphoma
  - Duodenal ca.
  - Ampullary ca.
  - cholangiocarcinoma

Mechanism of obstruction depends up on the underlying etiology

I.Gastric cancer

RFs

1. Environmental & host factors
    a) diet
        - Salted & smoked foods – as preservative
    b) Chronic H.pylori infection
        - H.pylori affects about 50% of the population but only 5% of the pop_n develop cancer, why is that?
    c) Previous gastric surgery
        - rationale→surgery may alter the normal PH production
    d) Pernicious anemia
        - IF deficiency
    e) Radiation exposure
    f) Smoking
        - #pack years
2. Genetic factors-10%
    a) Family hx
    b) Blood group A
    c) Others that'll predispose to gastric ca
        - HNPCC
        - FAP…

CP

1. Hx

a) Early- asymptomatic

b) Advanced
- symptoms
    - ✓ Indigestion
    - ✓ N & V
    - ✓ Dysphagia
        - ✓ Cmn if the tumor arises from GE junction
    - ✓ Early satiety
        - ✓ May be b/ce of
            - Tumor mass, or
            - Poor stomach distensibility

- ✓ **Overt bleeding (<20% of the cases)**
  - **Melena**
  - **Hematemesis**
- ➢ **Chronic occult blood loss—cmn→manifests as iron deficiency anemia**
- ✓ **Pallor from anemia**
- ✓ **Constitutional symptoms of malignancy**
  - **anorexia**
  - **Wt loss**
  - **Easily fatigability**

2. PE=late events

a) **Distended stomach with succession splash**
b) **Visible peristalsis may be present**
c) **Periumblical metastasis**
   - ➢ **Sister Mary Joseph nodules**

d) **LAP**
   - ➢ **Virchow's node**
   - ➢ **Irish node**

e) **DRE/PR examination**
   - ➢ **Blumer shelf- douglas pouch**

Complications

- **GOO**
- **Obstruction of gastoesophageal junction…**

II.PUD

RFs

1. H. pylori infection
2. Drugs
   a) NSAIDS
      - E.g. Asprin…
3. Lifestyle
   a) Tobacco use
   b) Smoking
      - interfere with blood flow→affects healing
   c) Ethanol consumption
4. Severe stress
   a) Burns or trauma/ curling/, intracranial surgery or tumors /Cushing/…
5. Neurological causes
6. Genetic factors -20%

CP

1. Hx

a) Epigastric pain…gnawing, burning →both GU & DU
   - After a meal
     - ✓ Immediately→GU
     - ✓ After 2-3hrs →DU
       - Food is usually emptied in 2-3 hrs. But food stimulated acid secretion persists 3-5hrs
       - DU –relieved by food or antacid
       - DU-often awakens the pt @night –nocturnal
         - 1/Hunger aggravates it
         - 2/circadian stimulation of acid secretion is maximal from 5PM-2AM

b) Dyspepsia
   - Belching, bloating & fatty food intolerance

c) If the symptoms are severe, sudden onset & sharp abdominal pain (generalized/ epigastric) →u btr expect the complicated one, i.e. perforated PUD

2. PE

a. Uncomplicated
   i. Clinical findings are few & non-specific
b. Complicated
   i. Abdominal examination based on the size of perforation
      …You may explore generalized tenderness, rebound tenderness, guarding & rigidity

- ***Complications***
  - **Bleeding---frequent**
  - **Perforation---fatal**
  - **obstruction**

NB**GOO **2^0 PUD can occur both in**
- **acute setting -due to inflammation & edema**
- **chronic setting -due to scarring & fibrosis➔part of the healing process**

Clinical presentation ➔GOO 2^0 ???

Hx

- **cardinal symptoms**
  - **N & V**
    - **Non-bilious**
    - **Undigested food**
- **Others-if the obstruction is incomplete**
  - **Gastric retention**
    - **Early satiety**
    - **Bloating/ epigastric fullness**
    - **Indigestion**
    - **Anorexia**
    - **Epigastric pain**
      - **It is not frequent in GOO. Usually related to the underlying cause.**
    - **Wt loss**

PE

- **Dehydration signs**
- **Distended stomach & succession splash may be audible**

Sample hx

CC

Vomiting of 1month duration

HPI

This pt was LRH 1month back @which time he started to experience projectile, non-bilious, blood tingled, non-foul smelling vomiting of ingested matter 2-3X/day about 2hrs after taking a meal. Associated with this he has also the feeling of early satiety, constipation & unspecified significant wt loss for the past 1month.

- **He has hx of intermittent burning epigastric pain for the past 1yr which was aggravated by taking spicy foods like "key wot" but without relieving factor noticed by the pt. The pain usually awakens the pt @ the night. For the above compliant he visited a nearby health center & he was given omeprazole to be taken 2X/day for 10days. For the past 1yr even if his symptoms reappear after a brief time of improvement he kept taking this drugs.**
  - **Has hx of tinnitus, blurring of vision & light headedness**
  - **He has hx of anorexia & easily fatigability**
  - **He has hx of previous abdominal surgery for gallstone**
  - **No hx NSAIDS use**
  - **No hx of cigarette smoking or chronic alcohol consumption**
  - **No hx of similar illness in the family**
  - **No hx of yellowish discoloration of the eye or itching sensation**
  - **No hx of difficulty/pain on swallowing**
  - **No hx of radiation therapy**
  - **No hx of burn or trauma**

  - **No hx of chronic cough, contact with known TB pt or previous TB Rx**
  - **No self/family hx of DM, HTN or asthma**
  - **Has been screened for RVI 08 months back & found to be NR**

Finally he was admitted to our hospital supported by his families.

Investigations

1. **Lab.studies**
    a. **CBC**
        i. **Hct & Hgb➔to r/o anemia**
    b. **Electrolyte panel**
    c. **LFT**
        i. **When malignancy is suspected**
    d. **H.pylori test If PUD is suspected**
        i. **fecal Ag test**
        ii. **rapid urease test**
    e. **fasting serum gastrin level**
        - **if ZES is suspected**
2. **Imaging studies**
    a. **Plain abdominal radiographs**
    b. **Contrast upper GI studies**
    c. **CT-scan with oral contrast**
3. **Diagnostic procedures**
    a. **Upper GI endoscopy**
        i. **Can visualize the ulcer & any active bleeding**
4. **Histological studies**

***Adenocarcinoma=90-95%**

a. **Endoscopic biopsy**
    i. **What if the malignancy is extra luminal ➔Limitation**
b. **Surgical biopsy**
    i. **Gastro duodenal TB**

Mgt principles

1. **Dealing with metabolic abnormality**
    - **Rehydration with IV isotonic saline with potassium supplementation**
        - **NB** Metabolic abnormalities (acid-base disturbance) will be less pronounced if it's due to malignancy**
2. **Dealing with mechanical obstruction based on the underlying etiology**
    - **Benign obst.**
        - **If GOO 2^0 PUD**
            1. **Vagotomy & antrectomy**
            2. **Truncal vagotomy…**
    - **Malignant obst.**
        - **Surgical bypass**
          Gastrojejunostomy…
        - **Chemotherapy…**

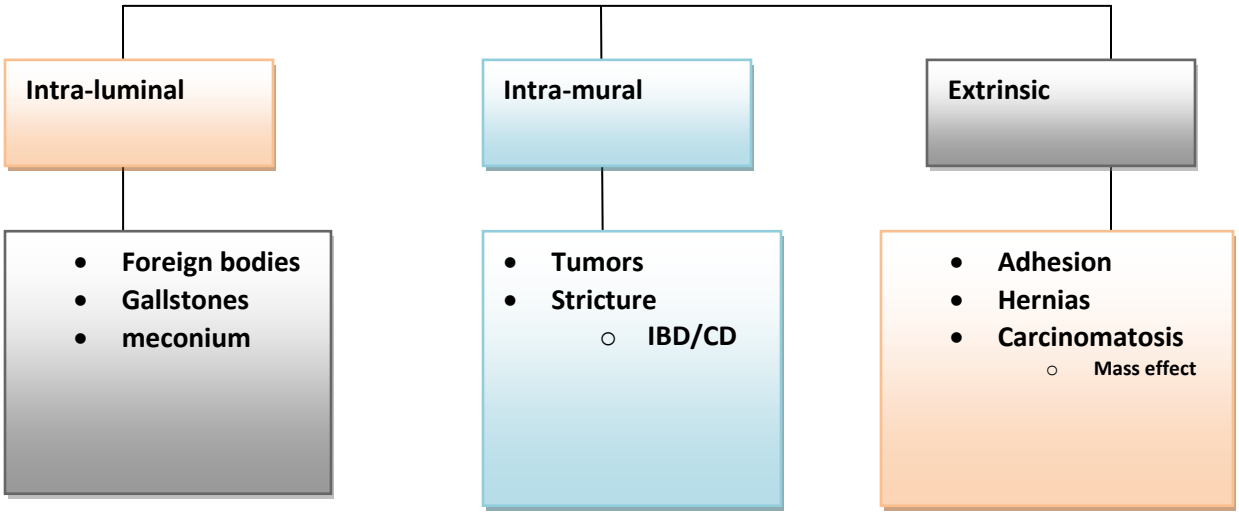
SAMPLE HISTORY ON SBO/LBO

SBO

Etiologies + RFs

- Volvulus
  - Cmn in rural areas of Ethiopia.
    why?
    1. Redundant small bowel (vegeterians)
    2. Heavy meal (1-2X/day)
    3. Strong abdominal muscle
- Previous abdominal or pelvic surgery
  - Post-surgical adhesion
    # Cmn in developed countries & major cities of Ethiopia
- Incarcerated hernia
  - Incarcerated=permanent trapping
  - Strangulation=arterial + venous occlusion
- Malignancy
  - E.g. lymphoma…
- Inflammatory Bowel Disease
  - CD
- Infection
  - TB
- Pediatric groups
  - Intussusceptions
    'Internal prolapse'

Approach



CP

1. Hx

a. Nausea

b. *Vomiting*

   i. Frequent

      - It tells us the level of obstruction
        - More frequent in proximal obstruction

   ii. Timing (b/n the onset of the pain & the vomiting)

      - Early➔suspect proximal obstruction

NB*Be careful➔➔dehydration➔electrolyte derangement

c. *Crampy Periumblical pain*

   i. Simple➔intermittent

   ii. Strangulated➔steady pain

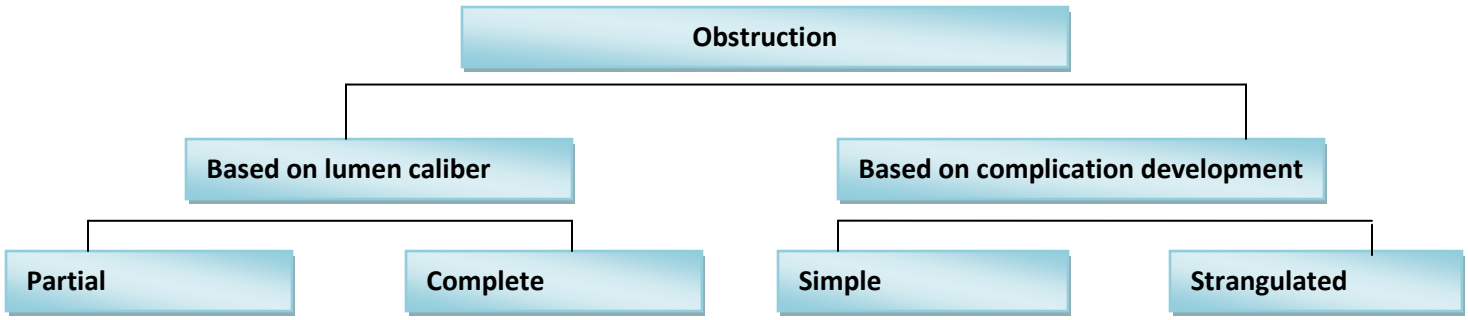
d. *Constipation*

   i. Absolute constipation/ obstipation

      - absence of feces + flatus ➔complete

   ii. Relative

      - Can pass flatus➔partial



2. PE

- GA
- Vital signs
- HEENT

Abdominal examination # notice…

- ***Abdominal distension***
  - Proximal vs distal
    - more pronounced in distal obstruction
- Bowel sounds
  - Early
    - Hyperactive
  - Late
    - Hypoactive
- visible peristalsis
- Look for surgical scars
- Examine hernial sites carefully
- PR examination
  - Gross/occult blood
    - Malignancy
    - strangulation
  - Presence or absence of fecal matter
    - Complete vs partial

***Signs of intestinal ischemia----strangulation

1/ pain→constant
2/Fever
3/ Tachycardia
4/ Peritoneal signs
i. Any unusual tenderness
ii. Rigidity
iii. Quietly lying down→GA

NB# when u try to Dx… approach→

1. Is it mechanical obstruction or ileus?
2. What causes it?
3. Is it partial or complete?
4. Is it simple or strangulated?

NB #SBO= sudden onset
#peritonitis= gradual onset…because of relatively gradual bacterial proliferation
ureteral colic= GA→restless patient…busy finding comfortable position

DDx

1. Acute gastroenteritis
   - ✓ Abdominal pain
   - ✓ Vomiting
   - ✓ diarrhea
2. alcoholic ketoacidosis/ AKA
   - ✓ alcoholics

     #period of heavy drinking with subsequent abrupt withdrawal/1-2 days before presentation----check fruity breath odor /if in comma/
3. Perforated PUD
4. Acute appendicitis
5. Acute pancreatitis
6. cholangitis
   - ✓ charcot triad
     - ❖fever
     - ❖RUQ pain
     - ❖Jaundice , pruritis
7. cholecystitis
   - ✓ upper abdominal pain→stays for hrs
   - ✓ N & V
   - ✓ fever
8. cholelithiasis
   - ✓ biliary colic--epigastrium/RUQ
   - ✓ N & V
   - ✓ Afebrile unless complicated
9. diverticular disease
   - ✓ diverticulitis→CP depend on the site
     - ❖abdominal pain
     - ❖N & V
     - ❖Change in bowel habit
10. IBD
    - ✓ CP depend on the site
    - ✓ Irritable bowel syndromes/IBS/
      - ❖Cramping
      - ❖Irregular bowel habit
      - ❖Passage of mucus w/o blood or pus
    - ✓ Systemic effects
      - ❖Wt loss
      - ❖Fever
      - ❖Sweats
      - ❖Malaise
      - ❖arthralgia
11. Dysmenorrhea
    - ✓ Menstrual hx
      - ❖Age @ menarche, cycle length, duration & amount of blood flow
      - ❖E.g. 15/28/3-moderate blood flow
12. Endometrosis
    - ✓ Lower abdominal or back pain
    - ✓ N & V
    - ✓ Dysmenorrhea
    - ✓ Heavy or irregular bleeding
    - ✓ Family hx of similar illness…

Sample Hx

CC

Periumblical abdominal pain of 3day duration

HPI

This pt was LRH 3day back @ which time he started to experience sudden onset severe intermittent crampy periumblical pain without aggravating & relieving factor. About 3-4hrs after the onset of the pain he experienced non-projectile, bilious , non-blood tingled, non-foul smelling vomiting, 5-7X/day.Associated with this he also experienced failure to pass feces & flatus.
For the above compliant……..

- **No hx of previous abdominal surgery**
- **No hx of yellowish discoloration of the eyes or itching sensation**
- **No hx of anorexia, easily fatigability or significant wt loss**
- **No hx of smoking, NSAIDS use or chronic alcohol consumption**
- **No hx of chronic cough, contact with known TB pt or previous TB Rx**
- **No self/ family hx of DM,HTN or asthma**
- **Not screened for RVI but he has no hx of MSP, chronic diarrhea or HZV attack**

Finally he was admitted to our hospital……..

Investigation

➔**Radiologic studies**

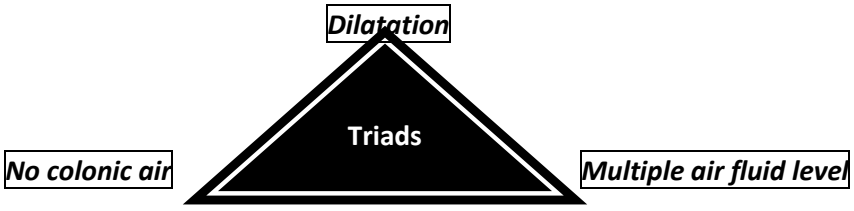
#Plain abdominal radiograph

➔***What to look for***

#air-fluid level

#width of the bowel

➔***SBO***



****Limitation-little assistance in differentiating strangulation from simple obstruction***

others

#Enteroclysis

➔**gold standard…partial vs complete**

➔**barium as a contrast is contraindicated if perforation exists➔peritonitis**

#CT & MRI

#U/S

➔**Lab. Studies**

#degree of dehydration---BUN, creatinine, hct

#leukocytosis (CBC) --------strangulation

Principle of mgt

1. **Conservative**
   - **Fluid resuscitation**
   - **Bowel decompression➔NGT**
   - **Analgesics & antiemetics**
   - **antibiotics**
2. **Surgery**
   - **Indication**
     i. **Signs & symptoms of strangulation & intestinal ischemia**

LBO

Etiologies + RFs

- Age
  - elderly
- Volvulus
  - Sigmoid
  - Cecal
  - Colonic
- Neoplastic
  - Benign
  - Malignant
    - E.g. colorectal ca.
- Stricture
  - Inflammatory
    - diverticulitis
- Intussusceptions
  - Enterocolic
  - Colocolic
- Fecal Impaction

CP

❖ Hx

a. Abdominal distension
   →Ask hx of obstipation
b. N & V
   -LBO may not cause vomiting despite markedly distended abdomen
c. Crampy abdominal pain
d. Ask abt
   #the onset
   1. Abrupt→acute obstructive events
      →Cecal or sigmoid volvulus
   2. Chronic constipation, long term cathartic use, straining @stool
      →Diverticular disease
      →Cancer

   #stool caliber change
   →Cancer

NB* sigmoid colon & rectal tumors cause colonic obstruction earlier than right sided colon.

#attempt to distinguish

- ✓ Real Obstruction vs ileus vs ACPO (Acute colonic pseudo-obstruction)→d/t mgt
- ✓ Complete vs partial

❖ PE

a. **Abdominal examination**
   i. **Hyper-resonant on percussion**
   ii. **Hypoactive bowel sound**
   iii. **May be tender**
b. **Inguinal & femoral hernial examination**
c. **PR examination**
   i. **Hard stool➔ impaction**
   ii. **Soft stool➔ obstipation**
   iii. **Empty vault➔obstruction proximal to the level that our finger can reach**

DDx

1. ***Colonic polyps***
   - ✓ ***Rectal bleeding***
     - ***Chronic bleeding➔anemia***
   - ✓ ***Diarrhea/constipation***
   - ✓ ***Decreased stool caliber***
   - ✓ ***Family hx***
2. ***Diverticulitis***
   - ✓ ***Crampy Abdominal pain***
     - ***70%=LLQ***
   - ✓ ***Change in bowel habit***
   - ✓ ***N &V***
3. ***Pseudomembraneous colitis***
4. ***SBO***
5. ***Toxic megacolon***
   - ✓ ***Diarrhea***
   - ✓ ***Abdominal pain***
   - ✓ ***Rectal bleeding***
   - ✓ ***Tenesmus***
   - ✓ ***Vomiting***
   - ✓ ***Fever***
   - ✓ ***Recent travel hx, antibiotic use, immunosuppresion***

Sample Hx

CC

Failure to pass feces of 2days & flatus of 1day duration

HPI

This pt was LRH 2days back @ which time he started to notice failure to pass feces associated with distension of the lower abdomen which was relieved by passing flatus.
One day back he totally failed to pass both feces & flatus with severe intermittent crampy lower left abdominal pain which later progresses to encompass the whole abdomen.
He had hx of similar episode 3months back for which he was deflated with rectal tube in our hospital.

- ✓ **No hx of rectal bleeding, tenesmus**
- ✓ **No hx of tinnitus, vertigo or blurring of vision**
- ✓ **No hx anorexia, easily fatigability or significant wt loss**
- ✓ **No family hx of similar illness**
- ✓ **No hx of abdominal previous surgery**
- ✓ **No hx of chronic cough, contact with known TB pt or previous TB Rx**
- ✓ **No self/family hx of DM, HTN or asthma**
- ✓ **Screened for RVI 2yrs back & found to sero-negative**

- **Finally he was admitted to our hospital supported by his families**

Investigation

- ***Imaging***
  - ✓ ***Radiograph***
    - ***Flat***
    - ***upright***
  - ✓ ***Contrast studies with enema***
  - ✓ ***CT-scan → GS/gold standard***
- ***Lab***

Principle: dehydration → electrolyte imbalance
:strangulation → CBC

Principle of mgt

- ***conservative***
- ***surgery***
  - ***<u>indication</u>***
    - ***closed loop obstruction***
    - ***bowel ischemia***
    - ***volvulus → strangulated***

SAMPLE HISTORY ON COLORECTAL CANCER

Etiologies + RFs

Genetics

- FAP
- HNPCC

- Hx colorectal ca.
- Hx of breast ca.
  - BRCA 2
- Hx prostate or lung ca. in man
- Family hx of colorectal ca.

Environmental

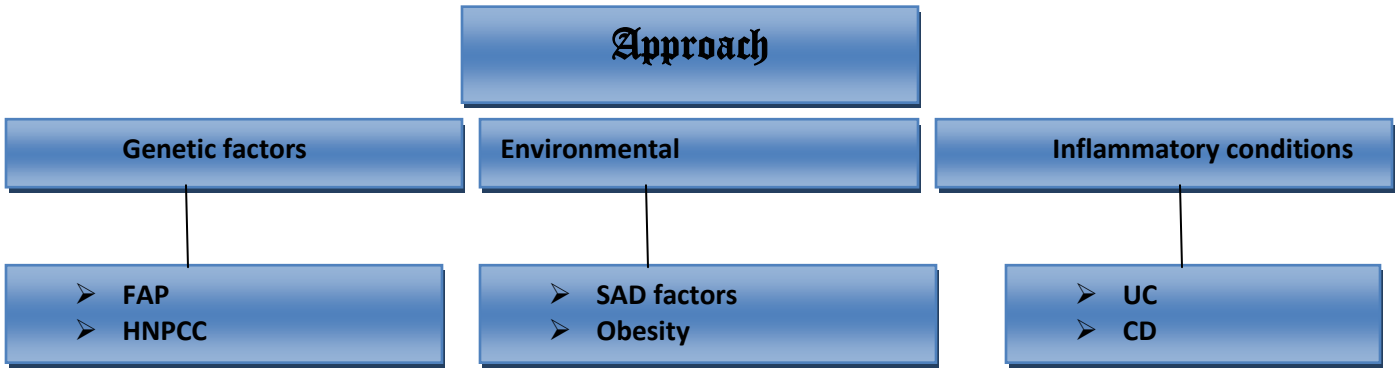
- "SAD" factors
  - Smoking
  - Alcohol abuse
  - Dietary factors
    - High in Red meat & animal fat
    - Low in fiber diet

Inflammatory

- IBD
  - Particularly chronic UC

others

- pelvic irradiation
- Cholecystectomy
- DM



CP

1. Hx

- Rectal bleeding
  - gross
  - Microscopic-FOBT (investigation)
- Change in bowel habits
  - Constipation or diarrhea that persists for longer than several days
- Abdominal pain
- tenesmus
- symptoms of Intestinal obstruction or perforation
- Feeling of incomplete voiding

- Anemia symptoms
  - Iron deficiency without identifiable cause

- Unexplained wt loss
- Weakness/ fatigue
- anorexia

- Abdominal distension
- N & V

2.PE

- GA
- HEENT
- In advanced cases
  - Palpable abdominal mass
  - Hepatomegally
  - Ascites……..may be present

NB#cmn sites of distal metastasis

- Liver
- Lung
- Carcinomatosis

  =Diffuse peritoneal metastasis

NB*tumors that arise from distal rectum may metastasis initially to the lung

DDx

- **CD**
  - **Rectal bleeding**
  - **Fever**
  - **Anorexia, wt loss, fatigability**
  - **N & V**
  - **Malnutrition, Vit. Deficiencies**
  - **Bone loss**
- **Small intestinal diverticulosis**
  - **Diverticular pain**
  - **Bleeding**
  - **Diverticulitis**
    - **Fever**
    - **Localized tenderness**
  - **Symptoms of intestinal obstruction**
  - **Diarrhea**
  - **Anemia symptoms may be present**
- **UC**
  - **Diarrhea mixed with blood & mucus**
  - **tenesmus**

Sample hx

CC

Bleeding per rectum of 04 months duration

HPI

This pt was LRH 04 months back @ which time she started to notice intermittent frank blood on the surface of her stool. Associated with this she has also dull aching left lower abdominal pain, feeling of incomplete evacuation & pencil sized caliber of stool.

For the above compliant……

- **she has hx tinnitus, blurring of vision & light headedness**
- **no hx of abdominal distension or total failure to pass feces**
- **her father died @ unknown age by similar illness**
- **No hx of breast cancer**
- **She has no hx alcohol abuse or cigarette smoking**
- **Her regular dietary habit is injera & shirowot**
- **She has no hx of radiation therapy**
- **She has no hx previous abdominal surgery**
- **She has hx of anorexia, easily fatigability & unquantified significant wt loss for the past 5 months**
- **No hx of yellowish discoloration of the eye, cough or hemoptysis**
- **No hx of chronic cough, contact with known TB pt or Previous TB Rx**
- **She has no self or family hx of DM, HTN or asthma**
- **She has been screened for RVI 4 months back & found to be non-reactive**

Finally she was admitted to our hospital walking by herself.

Investigation

1. FOBT
2. Blood studies
   - CBC
   - Serum chemistries
   - LFT
   - RFT
   - Serum CEA level
3. Imaging
   - Abdomino-pelvic CT
   - Contrast u/s of the abdomen/ liver
   - Abdominal/ pelvic MRI
   - Double contrast barium enema
4. Sigmoidoscopy
5. Colonoscopy

Surgical mgt

- principle
  - ➔Complete removal of
    1. the tumor
    2. the major vascular pedicles &
    3. the lymphatic drainage

- types
  1. right hemicolectomy
  2. extended rt hemicolectomy
  3. Left hemicolectomy
  4. Extended left hemicolectomy
  5. Sigmoid colectomy
  6. Total colectomy with ileorectal anastomosis
     - Indicated
       - HNPCC
       - FAP
       - Metachronous cancer in separate colon segments

SAMPLE HISTORY ON BOO

BOO

- **Urinary flow rate decreases**
- **Voiding pressure increases**

BOO 2^0 ??? *DDX*

1. ***BPH***
2. ***Prostatic ca***
3. ***Bladder ca***
4. ***Urethral stricture***
   - *Inflammatory/infectious*
     - *E.g. Gonoccocal infection (penile discharge, dysuria…)*
       Bulbar urethra—cmn site
       - ✓ *TB (prostate—cmn site—multiple stricture site)*
   - *traumatic*
     --instrumentation (therauptic or diagnostic)
     E.g. prolonged catheterization…
     --pelvic injury
5. *Bladder neck contracture*
   - *E.g. following aggressive resection of a small prostate*
6. *Bladder stone*
7. *Bladder trauma*
8. *Neurogenic bladder—functional obstruction*

I.BPH

Clinical presentation

#Common in the elderly > 70yrs

#LUTS--the voiding dysfunction that results from prostatic enlargement & BOO

#Not all men with BPH➔LUTS & the vice versa

#hyperplasia— periurethral & transition zone

Androgens=responsible for the growth of the gland
Estrogen=responsible for increased receptors for androgens

Hx

- **How to approach symptoms of BPH--LUTS**

❖ **voiding problems**
- **– Hesitancy**
- **– Poor flow**
  Improved/ not ➔by straining
- **– Intermittent stream**
  Stops and starts
- **– dribbling**
  Including after micturition
- **– Sensation of poor bladder emptying**
  - **episodes of near retention**

❖ **Storage problems**
- **– Frequency**
  - **D:N ratio**
- **– Urgency**
- **– Nocturia**

When compared to prostatic ca. BPH causes LUTS earlier. WHY?

- **Special attention to**
  - Onset & duration of symptoms
  - General health issues including sexual hx
    - LUTS→ED & ejaculatory dysfunction
  - Severity of symptoms & how they are affecting the pts quality of life
  - Medication
  - Previous attempted Rx

Explore if the pt has got complications→BOO

- **BOO 2^0 to BPH**
  - Urinary retention
    - AUR
      - Postponement of micturation→precipitating factor
      - Alcohol consumption
      - Medications
      - Perianal pain
      - UTI
    - Chronic urinary retention
      - Bladder
        - Hypertrophy
        - Trabeculated
      - Vesiculoureteral junction incompetence
        - bilateral hydronephrosis…
  - Renal insufficiency
  - Recurrent UTI
  - Gross hematuria
  - Bladder caliculi
  - RF/uremia/—rare

PE

- *Focus on*
  - Suprapubic area
    - For bladder distension
  - PR/DRE
    - Prostate
      - Size
      - Contour
      - Nodules/surface
      - Consistency
      - fixity
      - Measure (finger)—approximate

BPH
Enlarged
Smooth
Firm

No fixity to rectal mucosa

Medial sulcus palpable

Prostatic ca
Enlarged
May be nodular hard

fixity to rectal mucosa

Medial sulcus obliterated

Urethral stricture
- U cnt advance the catheter
- Normal prostate on PR
- Beadings on urethral examination

- Anal sphincter tone & bulbocavernous mm reflex
  - ? neurological disorder
- Also assess…
  - Pelvic floor tone
  - Absence or presence of fluctulance
    - Prostatic abscess
  - Tenderness
    - prostitis

- Neurological examination
  - Sensory & motor deficit

II. Prostatic ca.

Etiology + RFs

- Genetics
- Diet
  - Fat intake & obesity
- Hormonal…

CP

- Urinary complaints or retention
- Back pain
- Hematuria

- Advanced

  - Wt loss & anorexia
  - Anemia
  - Bone pain with /without pathologic fracture
  - Neurologic deficit from spinal cord compression
  - Lower extremity pain & edema due to obstruction of venous & lymphatic tributaries by nodal metastasis

III. Bladder ca

Etiology + RFs

- Envo' factors (80%)
  - Tobacco use & Cigarette smoking
  - Occupational exposures
- Radiation therapy to the pelvis
- Chemotherapy with cyclophospamide
- Spinal cord injuries ←prolonged indwelling catheters→SCC
- S.hematobium →SCC

NB**transitional/urothelial/ cell carcinoma is the most cmn-90%
**cmn in males & elderly

CP

- Painless gross hematuria (80-90% of cases)→terminal
- Irritative bladder symptoms(20-30%)→early
  - Dysuria
  - Urgency
  - Frequency…
- In advanced cases
  - Pelvic/ bony pain
  - Lower extremity edema
    - Due to compression of iliac vessels
  - Flank pain
    - Due to ureteral obstruction

Staging

- CIS=CIS,high grade dysplasia confined to the epithelium
- Ta=papillary tumor confined to the epithelium
- T1= invasion to the lamina propria
- T2= invasion to the muscularis propria
- T3=involvement of peri-vesical fat
- T4=adjacent organ involvement…prostate, rectum…
- N+
- M+

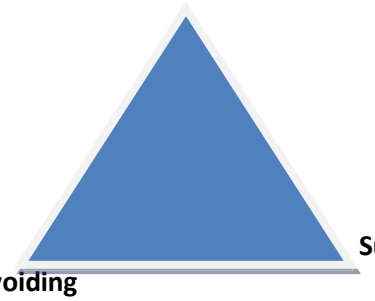
++ Bladder+prostatic+urethral stone

- ✓ Cmn in male children
- ✓ Is it position dependent or not (the difficulty of passing urine)? →bladder stone
- ✓ Pain on the tip of the penis + hx of stone passage→urethral

++ Bladder trauma

- ✓ triads of symptoms

Gross hematuria



Suprapubic pain/tenderness

Difficulty of voiding

NB**source of hematuria←→timing during micturation

- ✓ @ the beginning→urethra
- ✓ @ the end→bladder neck + prostate
- ✓ Throughout→high up in the kidneys & ureter

++Neurogenic bladder

,

- ✓ Diabetes, strokes, Alzheimer's disease or Parkinson's disease…

Sample hx

CC

Difficulty of passing urine of 08 months duration

HPI

This pt was LRH 08 months back @ which time he started to experience progressive difficulty in passing urine which made him to strain to initiate & maintain urine flow. Associated with this he has increased frequency of urination with D:N ratio of 7 to 6 which make his bed time difficult. In addition he has also a sensation of incomplete voiding & post micturation dribbling.

2 months back he was totally unable to pass urine after drinking about 1 & ½ Liters of local tella on a social gathering. On the next day he visited our hospital & he was catheterized which enable him to urinate.

1month & 2wks back he returned on the appointed date for catheter replacement.

But after 10 days of the second catheterization the pt removes the catheter b/ce he feels discomfort. Since then he totally fails to urinate.

- ❖ No hx of anorexia, easily fatigability or significant wt loss
- ❖ No hx of tinnitus, vertigo, blurring of vision
- ❖ No hx reddish discoloration of urine
- ❖ No hx of cigarette smoking
- ❖ Has hx of river water contact but can't recall post RWC itching
- ❖ No hx of radiation therapy
- ❖ No hx of bone pain, hemoptysis
- ❖ No family hx of similar illness

- ❖ No hx of position dependent sudden cessation of urine
- ❖ No hx of flank pain
- ❖ No hx pelvic trauma

- ❖ No hx of fever, chills or rigor
- ❖ No hx MSP, prev. genital ulcer , penile discharge

- ❖ No hx of drug intake
- ❖ No hx cough, contact with a chronic cougher or previous TB Rx
- ❖ No self /family hx of DM , HTN or asthma
- ❖ Not screened for RVI

Finally he was admitted to our hospital supported by his families.

Investigation

- CBC
- Urinanalysis
  - Presence of
    - Blood, leukocytes, bacteria, protein or glc.
- Urine culture
  - To r/o infectious causes of irritative voiding
  - If the Urinanalysis shows abnormality
- Electrolytes, BUN, & creatinine
  - Chronic renal insufficiency screening In pts with high PVR(post void residual)
- Ultrasound (abd. ,renal ,transrectal) & IVU
  - Bladder & prostate size
  - Degree of hydronephrosis
- Endoscopy of LUT
- Urine cytology
  - Bladder ca
- PSA
  - Screening for prostate ca.
  - 4ng/ml
- Prostate biopsy
  - In pts with elevated PSA
- Urodynamic flow studies

IPSS /35

0-7=Mild
8-19=Moderate
20-35=Severe

SAMPLE HISTORY ON UROLITHIASIS

Etiology + RFs

- **Infection**
  - ***Chronic foley catheter use …***
- **Dietary + envo' factors**
  - ***Low fluid intake →low urine output***
  - ***Living in hot climate area***
  - ***Diet rich in red meat, fish,*** **eggs (proteins)**
  - ***Vit.A deficiency*****→ desquamation of renal epithelium**
  - **Immobilization with increased risk of bone resorption**
- **Medical conditions**
  - ***Hyperparathyroidism***
  - **Hyperuricemia—the pt may also have gout**
    - **acute inflammatory arthritis ,big toe – cmn site**
    - **alcohol**
    - **diet**
    - **medications-diuretics**
  - **Surgical hx**
    - **Gastric bypass procedures, bariatric surgery, short bowel syndrome**
  - **crohn's disease→hyperoxaluria & malabsorption of magnesium**
  - **obesity ,HTN**
  - **Medication hx**
    E.g. acyclovir,sulfadiazine
    - **loop diuretics→increase calcium renal excretion**
    - **glucocorticosteroids →increase bone resorption**
- **Anatomical**
  - **Inadequate urinary drainage**
    - **Horse shoe kidney**
    - **Undescended kidney**
- **Others**
  - **Self/Family hx of nephrolithiasis**

Clinical Presentation

1. **CP depends on the level of obstruction…**
2. **Symptomatic stones are commonly associated with pain in the flank area that is colicky.**
   - **The pain can radiate to the ipsilateral groin & it may worsen during walking up stairs**
3. **Patients are usually quite agitated and have difficulty getting in a comfortable position.(writhe)**
4. **Most often (85%) there is microscopic or gross hematuria.**
5. **Nausea and vomiting commonly accompany ureteral colic as a result of pressure on the renal capsule.**
6. **Due to recurrent UTI**
   - **Fever with chills & rigor**
   - **Burning micturation &**
   - **pyuria may be present along with increased frequency of micturation**
7. **urinary urgency or frequency may also be present if the obstruction is lower**

Complication

- **calculus hydronephrosis**
- **calculus pyonephrosis**
- **renal failure**
- **scc**

DDX

1. **Renal, ureteral or bladder stone**
2. **Pyelonephritis**
   - ***CP***
     - ***fever,chills***
     - ***CVAT***
     - ***N &V***
3. **RCC**
   - ***CP***
     - ***Flank pain***
     - ***Hematuria***
     - ***Palpable abdominal/flank mass***
       - ***Firm, homogenous, non-tender & moves with respiration***
4. **Metastatic ca.**
   - ***Common sites***
     - ***Lung***
     - ***LNs***
     - ***Bone***
     - ***Liver***
     - ***Brain***
5. **Bladder ca**
6. **Renal trauma**
7. **Polycystic kidney disease**
   - **Hematuria**
   - **Hypertension**
   - **Bilateral renal mass**
     - **Nodular, firm to hard sometimes cystic**
8. ***Renal TB***
   - ***Frequency→earliest***
   - ***Sterile pyuria***
   - ***Hematuria…***

Sample hx

CC

Right flank pain of 2days duration

HPI

This pt was LRH 2 days back @ which time he started to experience sudden onset severe colicky Rt flank pain which radiates down to rt groin area while he was trying to intiate urination after drinking about 2 liters of beer from local beer house. The pain is aggravated by going up stairs but with no known relieving factor.
Associated with this the pt has also nausea & non-bilous, non-blood tingled, non-foul smelling vomiting of ingested matter abt 3-4X/day. One day be4 admission to our hospital he started to experience urgency, frequency & dysuria.
This pt had hx of mild deep dull aching rt flank pain 2 months back which occured after standing for 4hrs in market but it was relieved by resting on his bed.

- ✓ **Has hx of poor water intake habit**
- ✓ **Has hx of decreased urine output from the prv time but no reddish discoloration of urine**
- ✓ **No hx of position dependent cessation urine outflow**
- ✓ **Has hx of low grade intermittent fever without chills & rigor**
- ✓ **No hx of catheterization**
- ✓ **No hx of MSP, previous genital ulcer, penile discharge**
- ✓ **No hx of tinnitus, vertigo or blurring of vision**
- ✓ **His regular dietary habit is "shiro & enjera"**
- ✓ **No self/family hx of the same illness in the past**
- ✓ **No trauma or surgical hx to the abdomino-pelvic area**
- ✓ **No hx of cough, contact with chronic cougher or previous TB Rx**
- ✓ **has hx river water contact but can't recall post river water contact itching**
- ✓ **No hx of prolonged bed rest/immobilization**
- ✓ **No hx of significant anorexia, easily fatigability or signifigant wt loss**
- ✓ **No hx of bone pain, hemoptysis or anterior neck swelling**
- ✓ **No self/family hx of DM, HTN & gout**
- ✓ **He has been screened for RVI 1yr back & found to be sero-negative**

Finally he was admitted to our hospital supported by his families.

Investigation

1. BUN & creatinine
    - To r/o RF
2. Plain x-ray KUB
3. IVP/intra-venous pyelogrphy
4. Non contrast enhanced helical CT scan
    - Gold standard
5. u/s scanning
6. excretion urography
7. urine for culture & sensitivity

Management

1. conservative
    a. pain mgt
    b. hydration
    c. alpha-adrenergic blockers
2. non-invasive procedures
    a. ECSWL
    b. PLS
3. Open surgery
    a. Pyelolithotomy
    b. Nephrolithotomy

GALL STONE DISEASE (CHOLELITHIASIS)

Cholelithiasis=Stone in the gall bladder

Risk factors

- Female sex
- Increasing age
- Obesity
  - type 2 diabetes mellitus,
  - hypertension,
  - hyperlipidima….
- Gallbladder stasis
  - Multiple pregnancy
    - progesterone exposure→reduce gallbladder contractility➔bile stasis
  - prolonged fasting with parenteral nutrition/PTN
  - Previous abdominal surgery
    - e.g.
      - gastrectomy→CCK
      - vagotomy→denervation of gallbladder
- post surgical complication
    - biliary tract stricture
    - terminal ilium resection
        - affects enterohepatic circulation
- Drugs
  - ✓ Estrogen ➔increase biliary cholesterol secretion
    - OCP
    - Rx for Prostatic ca.
  - ✓ Colfibrate (hypolipidemic drug)➔increase hepatic elimination of cholesterol via biliary secretion
  - ✓ Somatostatine analogues→CCK inhibition…decrease gallbladder emptying
- Hereditary 25%

- Disorders of hemolysis
    - Sickle cell anemia
    - Heriditery spherocytosis
    - Beta-talasimia

Clinical Presentation

1. **Lithogenic stage**
2. **Asymptomatic stage**
3. **Symptomatic stage**
4. **complicated**

History

- **Pain**
  - **localized to the RUQ/epigastrium**
  - **character**
    - **biliary colic**
      - ✓ Sporadic and unpredictable episodes
      - ✓ May radiate to the right scapular tip
      - ✓ Usually begins postprandially after fatty meal
      - ✓ typically lasts 1-5 hours, increases steadily over 10-20 minutes, and then gradually wanes →intermittent, colicky
      - ✓ not relieved by
        - emesis, antacids,
        - defecation, flatus, or
        - positional change
  - **may be Associated with**
    - ✓ nausea
    - ✓ vomiting
    - ✓ fever➔…think of infection/inflammation

Physical examination

- vital signs
- HEENT
- Abdominal examination…

Complications

1. Cholecystitis
   - Well localized **steady** pain with rebound tenderness & guarding unlike uncomplicated biliary colic
   - Murphy sign +ve
   - No peritoneal signs present unless perforated
   - Differentiate calculus vs acalculus cholecystitis
2. Ascending cholangitis
   - Charcot triad➔ Reynolds' pentad
3. Acute pancreatitis
   - Epigastric tenderness
   - May produce flank/periumblical ecchymoses
4. Mirizzi syndrome
5. Gall stone ileus

Have high suspicion index for complication when there is

- **Fever**
- **Tachycardia**
- **Hypotension**
- **Jaundice**

Differentials

- Cholelithiasis
- Cholecystitis
  - Calculus
    - Hx of biliary pain
  - Acalculus
    - Persistent steady pain for > 6-8hrs
    - No previous hx of biliary pain
    - In severely ill pts...elderly with DM
- Bile duct strictures
- Bile duct tumors
- Pancreatic ca.
- Gall bladder cancer
- Acute pyelonephritis
- Perforated peptic ulcer
- Appendicitis
- Acute pancreatitis
- Pneumonia

Sample hx

CC

Right upper abdominal pain of 20 days duration

HPI

This patient was LRH 20 days back at which time she started to experience intermittent severe colicky RU abdominal pain with radiation to the right scapular tip. The pain is aggravated by taking fatty meal but no relieving factor noticed by the pt.

Associated with this she has also nausea & bilious, non-projectile, non blood tingled vomiting of ingested matter, ?2-3X/day immediately after a meal. She has also low grade intermittent fever followed by profuse sweating which worsen at night but no chills or rigor.

For the above compliant she was admitted to Harar Hospital.....

- **She has foul smelling voluminous mucoid diarrhea up to 8X/day**
  - ✓ **She has history of oral contraceptive for the last 3 years.**
  - ✓ **She has given birth to 5 alive children**
  - ✓ **She has no history of yellowish discoloration of eye, itching sensation or color change in the urine & stool**
  - ✓ **No hx of MSP, contact with jaundice person or blood transfusion**
  - ✓ **She has no history of NSAID use or chronic alcohol consumption but has burning epigastric pain.**
  - ✓ **She has loss of appetite but no significant wt loss & easily fatigability**
  - ✓ **She has no history flank pain or pain on passing urine**
  - ✓ **She has no history of abdominal surgery**
  - ✓ **She has no family history of similar illness**
  - ✓ **She has no history of chronic cough or previous TB Rx but she has history of contact with known TB patient which was on medication.**
  - ✓ **She has no personal or family history of DM, HTN or asthma.**
  - ✓ **She was screened for RVI 9 month back and found to be sero-negative.**

Finally she was admitted to our hospital walking by herself.

Investigation

➢ laboratory studies

- **CBC with differential**
- **Blood and urine sugar (DM)**
- **Liver function tests**
- **Amylase /Lipase**
- **Urinalysis**
  - **To r/o pyelonephritis & renal caliculi**

➢ Imaging modalities

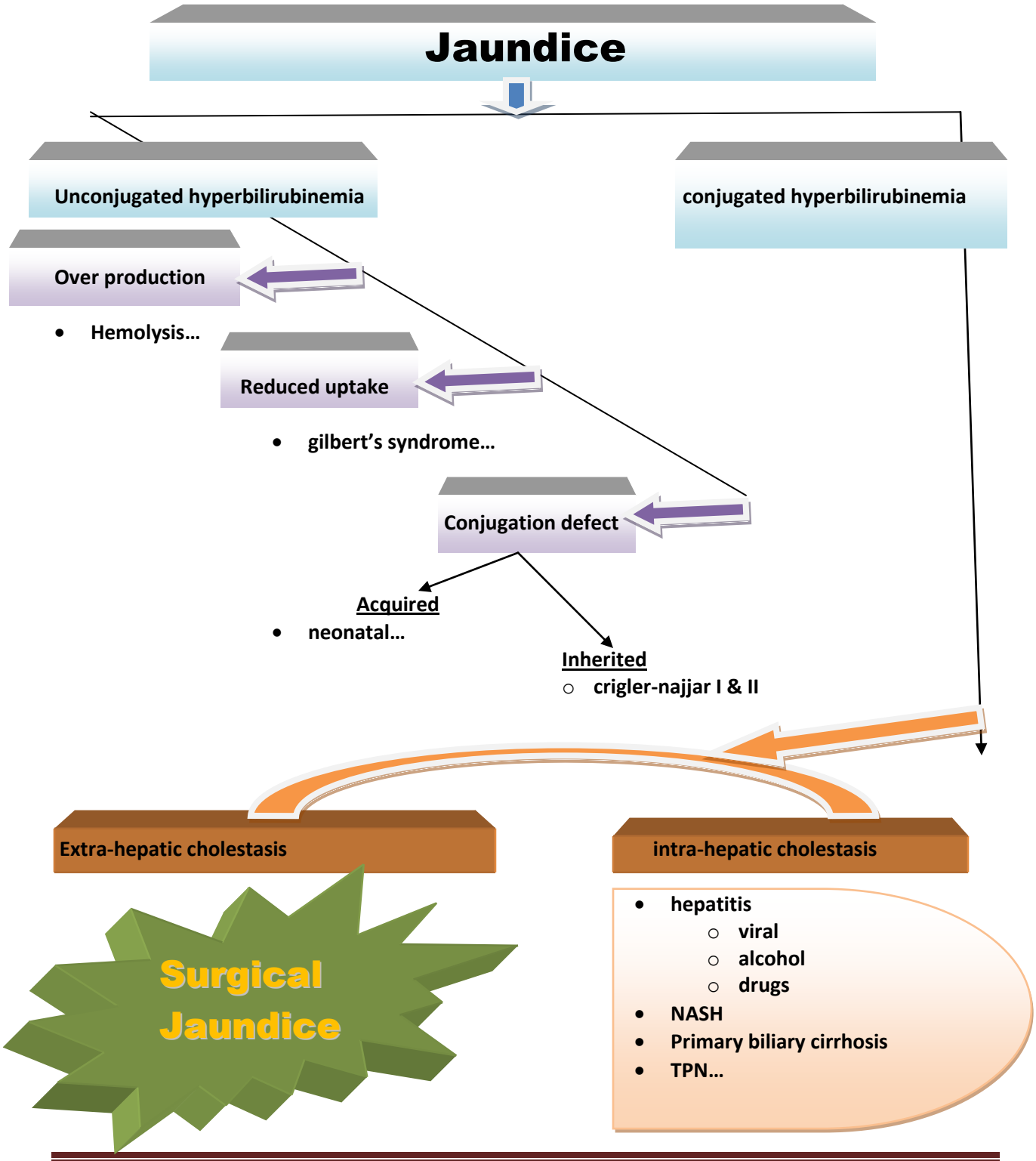
- ☞ **Ultrasonography**
  - **Pericholecystic fluid**
  - **Wall thickening**
  - **Acoustic shadow**
- **Computed tomography (CT)**
- **Plan abdominal x-ray**

Principle for surgical mgt

➢ Indication

- **Symptomatic/complicated cholecystitis**
  - **Cholecystectomy**
  - **Percutaneous drainage**

Before we proceed … Let's Recall



Obstructive (surgical) Jaundice

Causes

Approach

Intra-ductal

- **Stone disease**
- Neoplasms
  - Cholangiocarcinoma
  - Gall bladder ca.
- Biliary stricture
  - Surgical trauma
  - Erosion by gallstone
- Parasitic infection
  - A.lumbricoides
- Primary scleorising cholangitis/PSC/
  - Underlying→UC
- AIDS cholangitis
- Choledocal cyst
- Biliary TB--rare

Extra-ductal

- Pancreatitis
- 2^0 to neoplasms
  - Periampullary ca.
- Portal adenopathy
  - Metastasis
    - GIT
    - breast
  - TB
- Cystic duct stones
  - Mirizzi syndrome

NB*Periampullary ca

1. Pancreatic head ca.
2. Cholangiocarcinoma
3. Duodenal ca.

CP→obstructive jaundice

1)Hx

- **Pale stool**
- **Dark urine**
- **Pruritus**
  - **May be related to circulating bile acids, or**
  - **Our body response**
- **Jaundice**

NB*Urine darkening, stool changes & pruritus are often noticed by the pt b4 clinical jaundice. Usually clinical jaundice is noticed by the pt & the family when it reaches 6-8mg. Still a physician can usually detect it @ 2.5-3mg.

Also consider

- **Pt's age & associated conditions**
- **Presence/absence of pain**
  - **Location & character**
    - **Stone in CBD→severe colicky pain**
    - **Periampullary ca. →mild discomfort**
- **Acuteness of symptoms**
  - **Stone in CBD→long duration**
  - **Periampullary ca→short duration (1-3months)**
- **Presence of systemic symptoms**
  - **Fever**
  - **Wt loss**
    - **Significant in periampullary ca.**
- **Symptoms of gastric stasis→/GOO/**
  - **Early satiety**
  - **Vomiting**
  - **Belching**
- **Hx of anemia**
  - **Usually present in periampullary ca.**
- **Prv malignancy**
- **GI bleeding**
- **Hepatitis**
- **Known gallstone disease**
- **Previous biliary surgery**
- **Diabetes or diarrhea of recent onset**
- **Explore use of alcohol, drugs & medications**

2)PE

- GA
- VS
- Signs of jaundice
  - sclera
  - skin
- Gall bladder may be palpable
    - Courvoisier sign
    - Underlying pancreatic malignancy???
- Neoplastic→suggestive
  - Look sign's of wt loss, adenopathies & occult blood in the stool
  - *Malignancy is more cmnly associated with the absence of pain & tenderness*
- Notice Signs of cirrhosis
    - Ascites
    - Collateral circulation
- Xanthomas
  - PBC=primary biliary cirrhosis
- Excoriations
  - Prolonged cholestasis /high grade biliary obstruction

DDx

- Differentiate obstructive jaundice from medical one

✓ Obstructive jaundice 2^0 to???

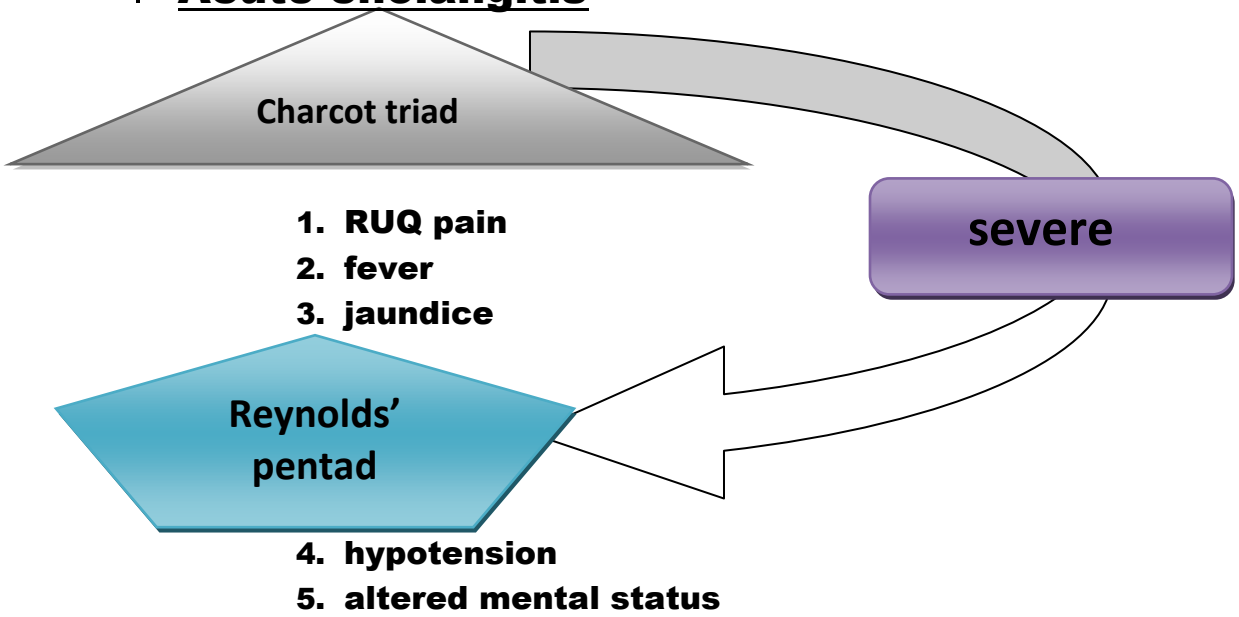
❖ Choledocholithiasis (stone disease)

- ✓ Gall stone in CBD
- ✓ cmn→2^0 to passage of stone from gall bladder to CBD
- ✓ 1^0→less cmn

CP

- ✓ Asymptomatic
- ✓ Symptomatic →complications

Acute cholangitis



acute pancreatitis

- pain→severe steady sharp epigastric/mid-abdominal
- Radiation to the back
- Relieving factor→leaning 4wrd
- N & V
- Anorexia, diarrhea may be present

❖ Periampullary carcinoma

1. **Pancreatic ca.**
   - **95% -exocrine portion**
   - **75%-@ the pancreatic head & neck**

Etiology+RFs

- ✓ **Sporadic→40%**
- ✓ **Smoking→30%**
- ✓ **Dietary factors→5-10%**
  - **Esp. red meat –processed kind**
- ✓ **Hereditary→5-10%**
- ✓ **DM→2X increased risk**
- ✓ **Underlying chronic pancreatitis→<5%**
- ✓ **Alcohol→not independent RFs**
- ✓ **Industrial carcinogen exposure**

Cp

Hx

- ✓ **Significant wt loss**
  - **Carcinoma associated, or**
  - **Malabsorption from exocrine pancreas insufficiency**
- ✓ **Mid epigastric pain**
  - **Radiation to mid/lower back may be present**
  - **Unrelenting in nature—night time**
- ✓ **Onset of DM within the previous yrs**
- ✓ ***Painless obstructive jaundice***
  - ***+ Pruritus***
- ✓ **Migratory thrombophlebitis (Trousseau sign) + venous thrombosis**

PE

- ✓ **Palpable, non tender gall bladder**
- ✓ **Skin excoriations**
- ✓ **Developing, advanced intra-abdominal disease**
  - **Ascites**
  - **Palpable abd.mass**
    - **Hepatomegally**
      - **metastasis**
    - **splenommegally**
      - **portal venous obstruction**
- ✓ **…advanced**
  - **sister mary joseph nodule**
  - **virchow's node**
  - **blumer's shelf also possible→palpable rectal mass in rectal pouch**

2. cholangiocarcinoma

ℂ𝔓

Hx

- **jaundice**
- **clay-colored stools**
- **dark urine→bilirubinemia**
- **pruritus**
- **wt loss…(variable)**
- **abdominal pain…dull ache in RUQ**

PE

- ✓ **palpable gall bladder may be present**
  - **Courvoisier sign**

Sample Hx 1 OJ 2^0 to periampullary ca.

CC

Yellowish discoloration of the eye of 2 wks duration & LOC of 1hr duration

HPI

This is a known DM pt for the past 10yrs on insulin injection.

This pt was LRH 2wks back @ which time his families began to notice persistent light lemon to deep yellow discoloration of his eyes. Associated with this he has steady mid epigastric pain without radiation or known aggravating & relieving factor. In addition he has also low grade intermittent fever but no chills or rigor.

This pt has hx of dark colored urine & pale stool starting from 4 wks back without significant change in amount & frequency. 3 wks back he started to experience itching sensation which began from his hands & progresses to include all the body which especially worsens @ night.

For the above compliants he visited a traditional healer where he was cauterized on his both arms & @ the back of his neck. But he didn't get any relief from his symptoms.

- **He has hx of nausea & non blood tingled, non bilious vomiting of ingested matter, ? 6X/day.**
  - ✓ **Has hx of anorexia, easily fatigability & wt loss of 2 kg for the past 1 month**
  - ✓ **Has hx of tinnitus, blurring of vision & light headedness**
  - ✓ **No hx of cigarette smoking or chronic alcohol consumption**
  - ✓ **His regular dietary habit is "shiro & siga wot by injera"**
  - ✓ **No hx of similar illness in the family**
  - ✓ **No hx of previous abdominal surgery**
  - ✓ **No hx of MSP, contact with jaundiced pt or blood transfusion**
  - ✓ **No hx of worm in the stool**
  - ✓ **No hx of river water contact itching**
  - ✓ **No hx of malarial attack for the past 1yr**
  - ✓ **No hx of medication except the injection explained above**
  - ✓ **No hx of chronic cough, contact with chronic cougher or previous TB Rx**
  - ✓ **No self/family hx of HTN or asthma. No family hx of DM**
  - ✓ **He has been screened for RVI 1yrs back & found to be sero-negative**

One hr b4 admission he experienced LOC with ?GCS of 7/15. Finally, he was admitted to our hospital by ambulance.

Sample hx 2 OJ 20 to cholidocholithiasis

CC

Right upper abdominal pain of 2yrs duration

HPI

This pt was LRH 2yrs back @ which time he began to experience severe intermittent colicky right upper abdominal pain with radiation to the right shoulder. The pain was aggravated while taking fatty meal but no relieving factor noticed by the pt. Associated with this he has also low grade intermittent fever but no chills & rigor. In addition he has intermittent deep yellowish discoloration of the eye & mild itching sensation all over the body but no change in urine or stool color.

For the above compliant he visited a traditional healer repeatedly, where he was given herbal medication & got cauterized. But he didn't get any relief from his symptoms for which he came to our hospital.

- ✓ **He has hx of nausea but no vomiting**
- ✓ **No hx of LOC**
- ✓ **No hx of anorexia, easily fatigability or significant wt loss**
- ✓ **No hx of smoking or alcohol abuse**
- ✓ **No hx of MSP, contact with jaundice person or blood transfusion**
- ✓ **No hx of abdominal surgery**
- ✓ **No family hx of similar illness**

- ✓ **No hx of chronic cough or previous TB Rx but he has hx of contact with known TB patient which was on medication.**
- ✓ **No personal /family history of DM, HTN or asthma.**
- ✓ **He was screened for RVI 9 month back and found to be sero-negative**

Finally he was admitted to our hospital.....

Investigation

- **Lab**
  - Serum bilirubin
  - ALP
  - Serum
    - AST
    - ALT
  - GGT
  - PT
    - Vit. K administration
      - Hepatic failure/cholestasis?
  - Hepatitis serology
  - Anti-microbial Ab
  - Urine bilirubin
- **Imaging**
  - Plain radiograph
  - **U/S**
  - CT
    - Anatomic structures
  - MRCP
- **Procedures**
  - ERCP
  - PTC
  - EUS

Principle of mgt of obstructive jaundice in surgery

- **Cholecystectomy**
  - **Symptomatic cholelithiasis➔increased risk of complications**
- **Resection of neoplastic causes of the obstruction**
  - **Depends on location & extent of the disease**
- **Liver transplantation**

Sample history on Liver Abscess

Etiology + RFs

- **Biliary tract disease**
  - Cmn nowadays
  - Cmn source of pyogenic liver abscess→polymicrobial
- **Amebic liver abscess**→E.histolytica
- Fungal liver abscess→candida albicans
  - Prolonged exposure to Antimicrobials
  - Hematological malignancy
- Hematogenous dissemination←systemic bacteremia
  - Endocarditis
  - Pyelonephritis
- Local spread of infection
  - Diverticulitis
  - CD
- Hydatid cyst cavities
- **Metastatic & primary hepatic tumors**
- hepatic trauma
  - penetrating→Direct inoculation of mo's
  - Blunt→by causing localized hepatic necrosis + hemorrhage+bile leakage…
- May be b/ce of Complication of
  - liver transplantation
  - hepatic artery embolization

Clinical presentation

Hx

- *Fever, chills*
- *RUQ pain*
  - *Referred pain to the right shoulder may be present*
- *Anorexia, malaise*
- *Anemia of chronic disease*
- *Cough may be present due to diaphragmatic irritation*
- *When abscesses are seen in children &adolescents, underlying immune deficiency, severe malnutrition or trauma frequently exists*
- *Ask travel hx to endemic area (ameba)*

PE

- *Tender hepatomegally –cmn*
  - *Intercostal tenderness → differentiate it from acute cholecystitis*
  - *Palpable mass need not be present*
- *Decreased breath sounds in the rt basilal lung zone may be present*
- *Pleural or hepatic friction rub may be present*
  - *Diaphragmatic irritation*
  - *Inflammation of glisson capsule*
- *Jaundice may be present(25 % of pts) usually when <u>associated with biliary tract disease</u>*

- ***DDX***

➢ ***Biliary disease***

  - ***Refer the topic on obstructive jaundice @ page66***

➢ ***Amebic liver abscess***

<u>RFs</u>

- *Contaminated food & water*
- *living or visiting an endemic area*
- *Presence of immunosuppresion*
  E.g. HIV
  Alcohol abuse…
- *Homosexuals*

➢ ***HCC***

- *Constitutional symptoms of malignancy*
- *Signs of decompensated liver disease*
- *The presentation may be due to mass effect*

➢ *Hydatid cyst*

- *Parasitic infestation-Echinococcus spp+ →E.granulosus-cmn*
- *Hx of living or visiting an endemic area*
- *Ingestion of food or water contaminated by the definitive host*
- *Parasitic load, site & size →clinical picture*

- *Liver(63%) & lung (25%)*

CP

- *Initially → non-specific pain, cough, low-grade fever & sensation of abd. fullness*
- *Mass/pressure effect → long time*
  - *liver*
    - *Symptoms of obstructive jaundice & abd. pain*
    - *Biliary rupture*
      - *Biliary colic, jaundice & uticaria*
  - *Lung involvement*
    - *Chronic cough, dyspnea, pleuritic chest pain & hemoptysis*
  - *Cerebral involvement*
    - *Headache, dizziness & decreased level of consciousness*

➢ *Pneumonia, bacterial*

➢ *Empyema/ pleuropulmonary*

Sample history

ID

He is Ato Alemrew Yigzaw Melese, a 60yrs old male married orthodox xtn farmer from chilga woreda, lazamba kebele admitted to GUH department of surgery orthopedics ward bed no.#19 on Nehase 11/2007 e.c.

PA

See HPI

CC

Right upper abdominal pain of 04 months duration

HPI

This pt was LRH 04 months back @ which time he started to experience gradual onset constant dull & aching type right upper abdominal pain with radiation to the lower back & inter scapular region without known aggravating & relieving factor noticed by the pt. Associated with this he has low grade intermittent fever ,loss of appetite & nausea but no vomiting, diarrhea or constipation.

For the above compliant he visited a nearby health center where he was given 4 drugs red & yellow circular, white oval & omeprazole, each to be taken 2X/dy by 12hrs duration for 10days. He kept visiting the health center repeatedly but he didn't get relief from his pain.

1 month back he was admitted to our hospital for the same compliant where aspiration was taken from his right upper abdomen. Then he was discharged with appointment to return back by giving him metronidazole to be taken 3X/dy, 3@ once by 8 hrs duration for 10 days. But 4 days later the pt discontinues the medication complaining of no improvement @ all & he was cautherized by a traditional healer on both arms & @ the back of his neck.

- ✓ ***This pt has hx of burning epigastric pain for the last 10yrs.***

- ✓ ***He is from ameba endemic area***
- ✓ ***He has hx of river water drinking throughout his life***
- ✓ ***He has no hx of yellowish discoloration of the eyes, itching sensation, urine or stool color change***
- ✓ ***He has no hx of MSP , IV drug abuse, contact with jaundiced person or blood transfusion***
- ✓ ***He used to drink tella up to 1L on daily basis for > 20 yrs***
- ✓ ***He has hx of anorexia, easily fatigability & significant wt loss abt 8kg for the past 6months***
- ✓ ***He has hx of tinnitus but no blurring of vision, vertigo***
- ✓ ***He has no hx of cough, hemoptysis or bone pain***
- ✓ ***He has hx of palpitation but no dyspnea , orthopnea, PND or lower leg swelling***
- ✓ ***He has no hx of abdominal trauma or surgery***

- ✓ ***He has no hx of contact with chronic cougher or previous TB Rx***
- ✓ ***No self or family hx of DM, HTN, asthma***
- ✓ ***He has been Screened for RVI 3yrs back & found to be non reactive***

Finally he was admitted to our hospital supported by his families.

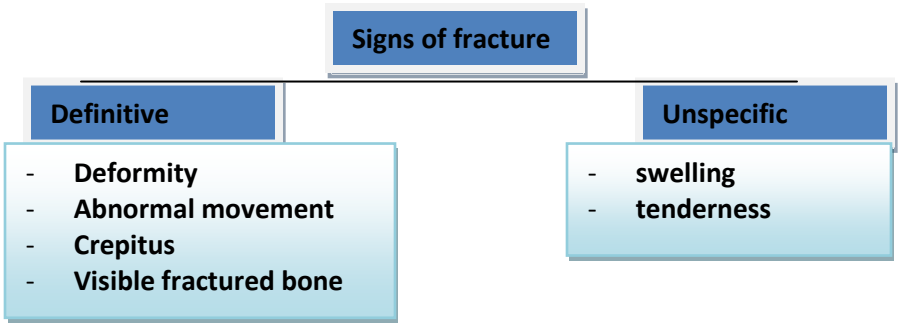
Sample hx on fracture

On hx

- MOI
  - Site
  - entry & exit point←bullet
- Degree of violence
  - MVA
    - Speed
    - Crush/not
    - Pedestrian/passenger
  - Gun shot
    - Distance of shooting
    - Type of gun
  - Fall down
    - Height/depth
- Concomitant injury
  - Head injury
    - Abnormal body mov't
    - Hx of LOC
  - Spinal cord injury
    - Urine or fecal incontinence or unable to void
  - Bladder injury
    - hematuria
- Self/family hx of DM

On PE

See page 124…MSS examination



Sample hx

CC

Bullet injury of 1wk duration

HPI

This pt was LRH 1wk back @ which time she sustained a bullet injury to her left leg from about 2m distance while she was around a quarreling in the market. The bullet entered around her left knee anteriorly & exited on lateral side of her left thigh .She had a significant bleeding, swelling & persistent severe pain from the site which was exacerbated by movement but no hx of LOC @ the time of injury.

After about 3hrs her parents took her to a private clinic in belesa where she was given a daily wound care & unspecified injections to be taken 2X /day for a wk. But she discontinues her medication after 5days & she was referred to our hospital.

- ✓ **She completely failed to use her left leg**
- ✓ **She has no injury to any other site**
- ✓ **No hx of tinnitus, vertigo or blurring of vision**
- ✓ **No hx of breathlessness or confusion**
- ✓ ***No hx of abnormal body movements***
- ✓ ***No hx of urine or fecal incontinence or retention***
- ✓ ***No hx of reddish discoloration of urine***
- ✓ **No hx of fever, chills or rigor**
- ✓ **No self/family hx of DM ,HTN or asthma**
- ✓ **Not screened for RVI**

Finally she was admitted to our hospital carried by her families

Investigation

1. Imaging
    a. X- ray
        i. Antero-posterior
        ii. lateral
    b. CT-scan
    c. Angiography
    d. Arthroscopy
2. Lab.
    a. CBC…

Management

See mgt of fracture on page…111

Complications

1. Delayed union(>4month)
2. Non-union (>6month)
3. Mal-union
    - Overlaped
    - Angulated
4. Avascular necrosis
5. Infection
6. Neuro-vascular injuries
7. Compartment syndrome
8. Pulmonary complications…

SAMPLE HISTORY ON HEAD INJURY

Clinical presentation

Hx

- MOI
  - MVA
    - Collisions b/n vehicles
    - Pedestrians stuck by MVs
    - Bicycle accidents
  - Falls
  - Assaults
  - Sport related injuries &
  - Penetrating trauma
- Hx of LOC
- Hx of prior head injuries
- Remote or active drug or alcohol use
- carefully consider past psychatric disease & a premorbid hx of headaches

PE

- GA
- VS
- GCS
- Examination on external trauma signs
  - Bruising/ bleeding on the head & scalp
  - Blood in the ear canal or behind the tympanic membrane
  - Consider cervical spine & other systemic injuries
- Anosmia
  - Associated with rhinorrhea
  - Risk of ascending meningitis
- Papillary reactivity
- Isolated internuclear opthalmoplegia
  - Brainstem injuries
- CN VI palsy
  - Raised ICP
- CN VII palsy
  - Decreased hearing
  - Temporal bone fracture
- Dysphagia
  - Risk of both aspiration & inadequate nutrition
- Focal motor findings
  - Localized contusion
  - Early herniation syndrome
- Cognitive testing
  - MMSE

Sample hx

CC

Axe injury of 23hrs duration

HPI

This Patient was last relatively healthy 5 days back at that time she was attacked 3 times with an axe by her psychiatric brother in law. The injuries were on right and left side of the head and the third one on the right distal part of her forearm.

After the injury she immediately lost consciousness. she was found by her family and they took her to local health center where wound dressing was done and she was referred to our hospital.20hrs after the injury she gained consciousness while she was on the way to our hospital.

The lasting thing she remembers about accident was running trying to escape from her brother-in –law.

- **She has no difficulty of using the extremities except the injured hand**
- **She has insidious onset of frontal throbbing headache.**
- **She has tinnitus, blurring of vision & light headiness**
- **She has nausea but no vomiting.**
- **No hx of ear or nose discharge**
- **She has no hx of abnormal body movement**
- **She has no hx of urine or fecal incontinency.**
- **She has no history of fever, chills or rigor.**
- **She has no shortness of breath or chest pain**
- **She has no previous hx of head trauma**
- **She has no hx drug use.**
- **She has no hx of alcohol intake.**
- **No self and famil hx of DM, HTN or asthma**

Finally she was admitted to this hospital carried by her family.

Investigations

1. Imaging studies
    a. CT
    b. MRI
2. Lab studies
    a. Na, Mg level
    b. PT, PTT, platelete count
    c. Blood alcohol level & drug screen
    d. RFT & CK levels

3. Other tests
    a. EEG

Rx

1. Medical care
2. Surgical care
3. Consultation
4. Diet
5. activity


SHORT CASES

Chest tube (thoracostomy) insertion

Indications

1. Pnemothorax
   - May be
     i. Spontaneous
     ii. Traumatic
     iii. Iatrogenic
     iv. Tension
     v. Bronchopleural fistula
     vi. Post-op…
2. Hemothorax
     i. Chest trauma
     ii. Post-op…
3. Chylothorax
4. pleurodesis…

Relative Contraindications

1. Bleeding diathesis
2. coagulopathy
3. Transudative pleural effusion…
   - 2^0 to liver failure or CHF

Site of insertion

- Generally
  - @ 5^{th} ICS in MAL
  - @2^{nd} ICS in MCL for small pneumothorax
- Safe triangle

Indication for removal

- To minimize the risk of infectious complications, the tube should be removed as soon as it is safe to do so.
  - Removal Criteria: Pneumothorax
    - When the lung is fully expanded
    - No visible air leak is present and air does not accumulate when suction is removed.
  - Removal Criteria: Effusion
    - When the lung is fully expanded
    - Fluid output is less than ~ 200 mL/day.

Complications

1. Infection
2. Bleeding
3. Organ injury
4. Pulmonary edema
   - due to rapid pulmonary expansion (RPE): rapid drainage of large volumes of pleural fluid can result in pulmonary edema. To minimize the risk it's better to limit initial drainage to 1-1.5 liters

Tracheostomy

Indication

- **Emergency**
  - **Stridor due to**
    - ✓ **Carcinoma of the larynx**
    - ✓ **Bilateral RLN paralysis after thyroidectomy**
    - ✓ **Diphtheria**
  - **Choking of the larynx due to**
    - ✓ **Dentures**
    - ✓ **Foreign body**
    - ✓ **Fish bones…**

- **Elective**
  - ➢ **Coma**
  - ➢ **Tetanus**
  - ➢ **Head injuries**
  - ➢ **Any surgery above the cricoid cartillage**
  - ➢ **Requiring for prolonged ventilation**
  - ➢ **Tracheobronchial (pulmonary) toilet**
    - ✓ **In pts who can't cough & clear the chest**

NB* 2nd & 3rd tracheal rings are used for tracheostomy

contraindication

- **Anaplastic ca. of thyroid**

complication

- **early**
  - ✓ **hemmorage**
  - ✓ **tube blockage**
  - ✓ **pneumo-mediastinum**
  - ✓ **pnemothorax**
- **late**
  - ✓ **local infection**
  - ✓ **tracheal stenosis**
  - ✓ **difficulty in decannulation**
  - ✓ **persistent tracheo-cutaneous fistula**
  - ✓ **effect on speak & language**

Endotracheal Intubation

Indication

- ***Inadequate oxygenation or ventilation***
- ***Inability to maintain & protect airway***
- ***GCS <8***

Contraindication

- ***Unstable cervical spine injury/ needs care to insert/***

Complication

- ***Malposition → esophagus***
- ***Vomiting***
- ***Bronchospasm***
- ***Exacerbation of spinal cord injury***

NSG TUBE

Therapeutic

Indication

1. **Gastric decompression**
2. **Relief of symptoms & bowel rest in the setting of SBO**
3. **Bowel irrigation**
4. **feeding**
5. **Admin. Of medications…**

Contraindication

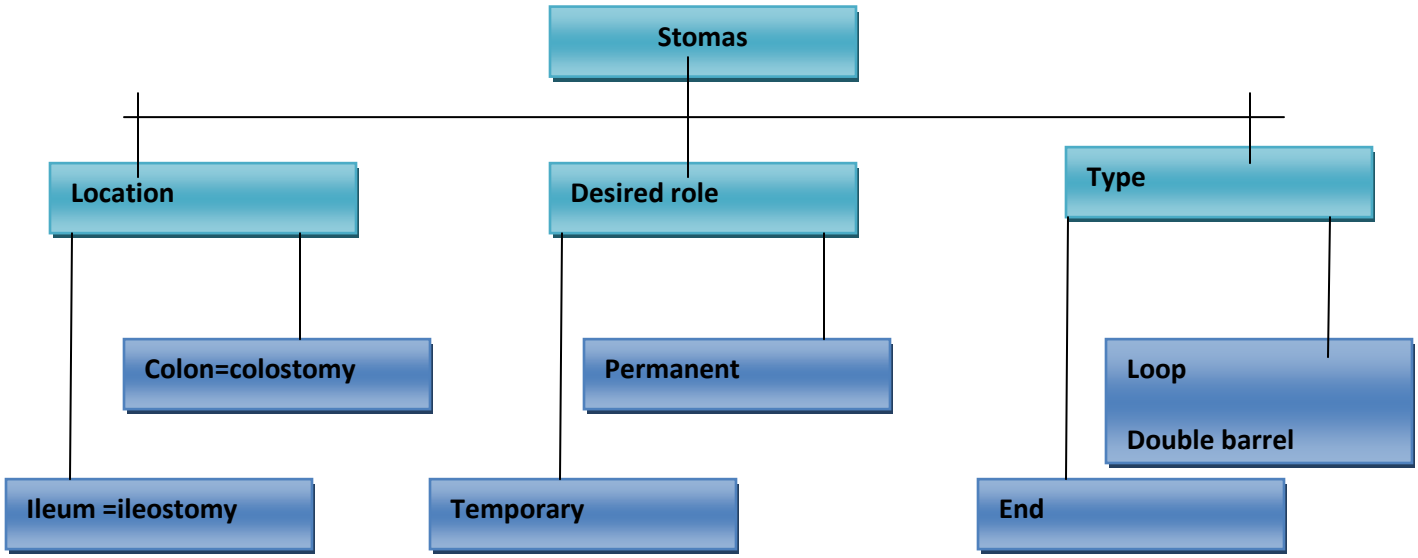
- **absolute**
  1. **severe mid face trauma**
  2. **recent nasal surgery**
- **relative**
  3. **coagulation abnormality**
  4. **Esophageal stricture➔perforation**
  5. **Esophageal varices➔bleeding**

Complication

- **Some degree of pt discomfort**
- **GERD**
- **Esophageal perforation**
- **epistaxis**
- **respiratory tree intubation /malposition**

"Stomas"

- ***General indication***
  - When restoration of intestinal continuity is contraindicated or not feasible



Indication for temporal "ostomy"

1. LBO
2. Penetrating injuries
   - Penetrating colon injuries
3. High risk of anastomosis leak
   - Pts
     - ✓ Immunocompromised
     - ✓ Severely malnourished
4. Hemodynamic instability
   - Pts
     - ✓ Trauma
     - ✓ Sepsis
5. Complex perianal fistulas

Indication for permanent "ostomy"

1. After excision of the rectum for carcinoma

2. Total abdominal proctocolectomy for severe
   - CD
   - UC

"Stomal" complications

- Early (<3months)
  - Leakage
  - Skin irritation
    - Cmn in ileostomy
  - Stomal necrosis
  - Stomal retraction
- Late
  - Parastomal hernia
  - Stomal prolapse
  - Stomal stenosis

Colostomy

- An artificial opening made in large bowel to by pass
  - Distal colon
  - Rectum or
  - Anus
- May be
  - Temporary
    - To decompress an obstructed or perforated distal colon
    - To permit healing of fistulous tract or acute inflammatory process distally
    - For protection of distal anastomosis when delayed healing is anticipated
  - Permanent
    - In case if distal rectum & anorectal sphincter mechanisms are removed

NB* colostomy diarrhea may be present

Ileostomy

- An artificial opening made in small bowel to by pass
  - The entire colon & rectum

NB* Ileostomy patients are more likely to develop fluid and electrolyte problems ++ skin irritation

How to differentiate stomas

1. The content that comes out
   - Formed stool
     - ✓ Cmn if it is colon
   - Fluid content
2. Skin around the stoma
3. If u insert ur hand in stomas
   - U ll be able to differentiate
     - ✓ Loop Vs end
4. ?Site

Hernia

- Abnormal protrusion of viscus through its containing wall.

Etiology

- Any condition which rise intra-abdominal pressure
  - ☞ Straining on micturation and defecation
  - ☞ Powerful muscle contraction
  - ☞ Chronic cough
  - ☞ ascites
- Congenital=persistent processes vaginalis sac→indirect hernia
- Collagen fiber disorder
- Abdominal surgery
- Anatomical weakness
  - ☞ Where structures pass through the abdominal wall
  - ☞ When muscles fail to overlap
  - ☞ There are no muscle→only scar tissue

Composition of hernia

Consist of 3 parts

1. The sac

   Mouth,neck,body and fundus
2. Covering of the sac
3. Content of hernia
   - A. Omentum→omentocele
   - B. Intestine→enterocele
   - C. Portion of intestine→richter's hernia
   - D. Bladder
   - E. Ovaries
   - F. fluid
   - G. Meckel's diverticulum→littre's hernia

Classification

Irrespective of the site

- **Reducible**
  - content can be returned to the abdomen
- **Irreducible**
  - content cannot be reduced but no complication
- **Obstructed**
  - irreducible hernia, bowel with good blood supply
- **Incarcerated**
  - when the bowel in the hernia obstructed by faces
- **Strangulated**
  - irreducible + impaired blood supply

Characteristics of asymptomatic/reducible hernias are

- Swelling or fullness at the hernia site
- Aching sensation
- No true pain or tenderness upon examination
- Enlarges with increasing intra-abdominal pressure and/or standing

Characteristics of incarcerated hernias are

- Painful enlargement of a previous hernia or defect
- Irreducible either spontaneously or manually
- Nausea, vomiting, and symptoms of bowel obstruction (possible)

Characteristics of strangulated hernias are

- Patients have symptoms of an incarcerated hernia
- pain and tenderness
- Systemic toxicity secondary to ischemic bowel is possible

Depending on the site, In order of decreasing frequency

- Inguinal
- Incisional
- Umbilical and epigastric
- Femoral

Inguinal hernia

Anatomy of inguinal area

Boundary of inguinal canal

- Anteriorly→external oblique aponeurosis
- Posteriorly→fascia transversalis
- Superiorly→conjoined muscle of internal oblique and transversalis
- Inferiorly→inguinal ligament

N.B. →inferior epigastric vessels lies posteriorly and medially to deep inguinal ring

Content of inguinal canal

- Spermatic cord
- Ilioinguinal nerve and
- Genital branch of genitofemoral nerve
  - Round ligament replace the spermatic cord

Hesselbach's triangle

- Lateral boarder of rectus sheath
- Inguinal ligament
- inferior epigastric vessels

Indirect/oblique inguinal hernia

- most common form hernia
- mostly due to Congenital=persistent processes vaginalis sac
- young male

Direct/acquied inguinal hernia

- older male
- due to poor lower abdominal musculature(hesselbach's triangle)

DDx

- vaginal hydrocele
  - communicating or non-communicating
- encycted hydrocele of cord
- spermatocele
- undescendeded or ectopic testis
  - empty scortum on affected side
- lipoma of cord
- hydrocele of the canal of nuck
- femoral hernia

Femoral hernia

- common in multiparous women

DDx

- inguinal hernia→medial & above to inguinal ligament
  - femoral hernia→lateral & below to inguinal ligament
- saphenavarix
  - fluid thrill may present
- an enlarged femoral lymph node
- lipoma
- femoral aneurysm
- poses abscess
- distended poses bursa
- rupture of the adductor longus with hematoma formation

Incisionalhernia

Risk factor

- Obesity
- DM
- Ascites
- Steroid
- Smoking
- Wound infection

Physical examination of hernia

Inspection→on standing position

- Shape of the swelling
- location of the swelling
- unilateral or bilateral
- overlying skin
- see for expansile cough implus
  - ***Hernia with no expansile***
    - omentocele with adhesion
    - obstructed hernia
    - strangulated hernia
- see position of penis

Palpation

- Temperature
- Tenderness
- Consistency
  - Soft and elastic→enterocele
  - Firm and doughy→omentocele
  - Tense and tender→strangulation
  - Bag of warm→varicocele
- Reducibility
  - Direct inguinal hernia reduce by itself on lie down
  - Indirect inguinal hernia manually reduce
  - Enterocele →the first part difficult to reduce but the last reduce easily
  - Omentocele→ the first part reduce easily but the last reduce with difficulty due to adhesion
  - Not reduce→strangulated

- **Invagination of scrotal skin by index finger to examine**
  - **Size of superficial inguinal ring**
  - **Direction of the hernia sac**
  - **Direction of expansile impulse**
  - **Not performed in children**
- **Do Internal ring occlusion test**
- **Examine normal side**
- **Examine abdomen→for any surgical scar**

Hemorrhoids, anal fissure & fistula in ano

Hemorrhoids

Hemorrhoids are swollen BVs in the lower rectum (pathologically)

Classification

I. Internal hemorrhoids — Dentate line
II. External hemorrhoids

Etiology + RFs

- Straining & constipation
- Pregnancy
- Portal HTN
- Low fiber diet
- Age (elderly)
- Familial tendency
- Chronic diarrhea
- prolonged toilet sitting
- Colon malignancy
- Anal intercourse
- IBD
- Heavy weight lifting

CP

Hx

- Rectal
  - Bleeding
    - Usually bright red
    - If it's darker or blood mixed with stool, it's better to suspect a more proximal cause of bleeding
  - Pain
    - External Vs internal
  - Prutitis
  - Prolapse
- Change in bowel habit
- Pt's coagulation hx & immune status

- **PE**
  - **Inspection of the rectum**
    - **Redundant tissue**
    - **Skin tags from old thrombosed external hemorrhoids**
    - **Fissure**
    - **Fistula**
    - **Signs of infection or abscess formation**
    - **Rectal /hemorrhoidal prolapse**
  - **DRE/PR/**
    - **Indurated/ulcerated area**
    - **Masses, tenderness, mucoid discharge or blood**
    - **Rectal tone**
    - **Palpate the prostate in all men**
- **Grading of internal hemorrhoids**

I. **Projection into the anal canal + often bleed – no prolapse**
II. **Protrusion beyond anal verge with defecation + spontaneous reduction**
III. **Protrusion + manual reduction**
IV. **Chronic protrusion + not reducible**

- **DDx**

- **Condyloma acuminata**
- **Anal fissure**
- **Anal fistula**
- **Anal abscess**
- **Proctitis**
- **Rectal prolapse**
- **Colorectal ca**

- **HPI**

  - **This pt was LRH 02 weeks back @ which time he started to notice bright red streaks on toilet papers after defecation. Associated with this he has manually reducible per rectal swelling with itching sensation…**

- **Investigation**

  - **Lab**
    - **CBC**
      - **Infection, anemia**
  - **Anoscopy & flexible sigmoidoscopy**

Rx

1. **Conservative**
    a. **High diet fiber**
    b. **Stool softner**
    c. **Increased fluid intake**
    d. **Avoidance of straining**
    e. **Good hygiene**
2. **Non-surgical**
    a. **Rubber band ligation**
    b. **Infrared photo-coagulation**
    c. **Sclerotherapy**
3. **Surgical**
    a. **Excision of thromboses**
    b. **Operative hemorrhoidectomy**

Complication

- **Post-op pain**
- **bleeding**
- **Urinary retention**
- **Infection**
- **Transient incontinence**
- **Anal stenosis**

Anal fissure

Anal fissure is a tear in the anoderm distal to the dentate line

- **Acute if <6wks**

RFs

- **Trauma**
  - **From passage of hard stool**
  - **Chronic diarrhea**
- **Low fiber diets**
- **Prior anal surgery**

CP

- **Tend to occur in younger & middle aged persons**
- **Severe pain during bowel mov't**
  - **Afraid of bowel mov'ts→constipation/hard stool→more anal pain**
  - **Burning, tearing or cutting type**
- **Bright red blood on the toilet or stool (few drops)**
- **Spasm of the anus**
- **Cmn site→posterior mid line**
  - **Off the midline …raise the possibility of**
    - **CD/IBDs, AIDs/STDs, prv anal surgery or anal cancer**

Fistula in ano

Fistula in ano is an abnormal tract or cavity with an external opening in the perianal area by identifiable internal opening.

Etiology+RFs

- ✓ Previous anorectal abscess
- ✓ Cryptoglandular infection
  - Infection→abscess→fistula
- ✓ Trauma
- ✓ CD
- ✓ Anal fissures
- ✓ Anal carcinoma
- ✓ Radiation therapy for prostatic ca.
- ✓ Actinomycosis
- ✓ TB
- ✓ LGV

Parks classification

I. Inter-sphincteric
   - ✓ 70%

II. Trans-
III. Sub-
IV. Extra-

} sphincteric

CP

Hx

- ✓ Perianal discharge
- ✓ Pain
- ✓ Swelling
- ✓ Bleeding
- ✓ Diarrhea
- ✓ Skin excoriation

PE

Look for

- ✓ an external opening
- ✓ Spontaneous discharge

DRE

- ✓ Fibrous/chord like tract beneath the skin
- ✓ Abscess not yet drained
- ✓ Induration

Surgery

- ✓ Drainage

Urethral catheterization

Indication

- ***<u>therapeutic</u>***
  - **AUR**
    - **BPH**
    - **Blood clots**
  - **Initiation of continuous bladder irrigation**
  - **Hygienic care for bedridden pts with incontinence**
  - **To Instill medication**
- ***<u>Diagnostic</u>***
  - **Collection of uncontaminated urine specimen**
  - **Monitoring urine output**
  - **Imaging of the urinary tract**

Contraindication

- **In presence of traumatic injury to lower urinary tract**
  - **Urethral tear**
- **Relative contraindication**
  - **Urethral stricture**
  - **Recent urethral or bladder surgery**

Complication

- **UTI**
- **Urethral stricture**
- **Urethral perforation**
- **Paraphimosis**
- **Creation of false passage**
- **Non deflation of the retention balloon**
- **bleeding**

Suprapubic cystostomy

Indication

1. **AUR**
   - **When urethral catheter cannot be passed 2^0 to**
     - ✓**Urethral stricture**
     - ✓**Bladder neck contractures…**
2. **Urethral trauma**
   - **Have high IOS(index of Suspicion) in**
     - ❖ **Pelvic fracture**
     - ❖ **Saddle-type injuries**
     - ✓**Triads**
       1. **Blood @ urethral meatus**
       2. **Inability to urinate &**
       3. **Palpably distended bladder**
3. **Mgt of LUT infection**
   - **E.g. acute bacterial prostatitis**
4. **Requirement for long term urinary diversion**
   - **E.g. neurogenic bladder-unable to void**

Contraindication

1. **Absolute**
   a. **If the bladder is not distended**
   b. **Hx of bladder ca.**
2. **Relative**
   a. **Coagulopathy**
   b. **Previous lower abdominal or pelvic surgery**
   c. **Pelvic cancer**

Hydrocele & testicular tumor

Hydrocele

Fluid collection in the tunica vaginalis of the scrotum or along the spermatic cord

=Vaginal vs infantile hydrocele (communicating vs uncomunicating)

Testicular tumor

- ✓ **Seminoma=carcinoma of the seminiferous tubules**
- ✓ **Non seminoma=malignant germ cell tumor**

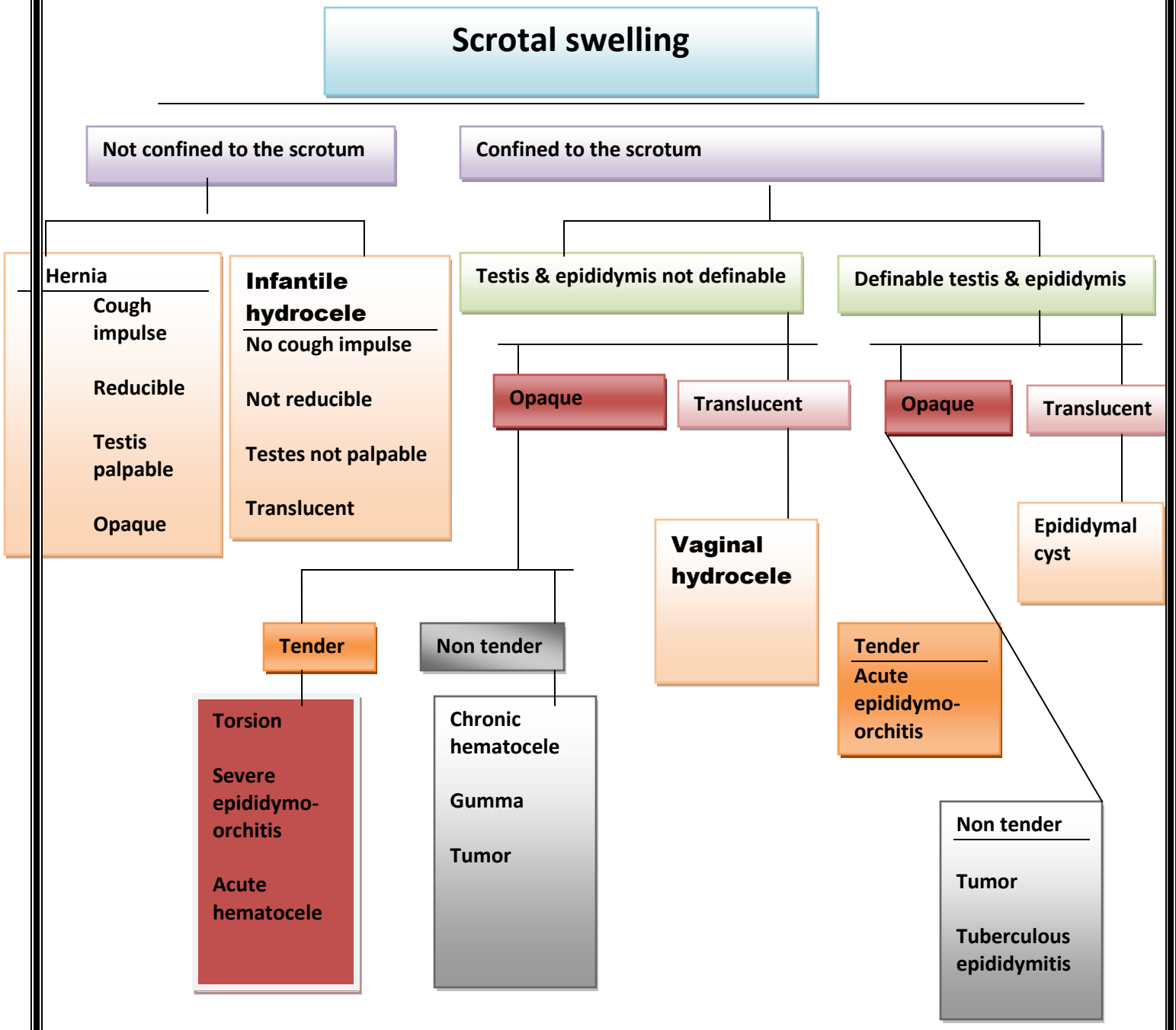
DDX for scrotal swelling

1. **Hernia (see hernia @ page94)**
2. **Hydrocele**
3. **Hematoma**
4. **Epididymal cyst**
5. **Testicular torsion**
6. **Epidimo-orchitis**
7. **Testicular tumor**
8. **Varicocele**
9. **Syphilitic gumma**

How to differentiate

Answer the following during ur PE

1. **Can you get above the swelling?**
2. **Can you identify the testis & epididymis?**
3. **Is the swelling translucent?**
4. **Is the swelling tender?**


Scrotal swelling
Not confined to the scrotum
Confined to the scrotum
Hernia
Cough impulse
Reducible
Testis palpable
Opaque
Infantile hydrocele
No cough impulse
Not reducible
Testes not palpable
Translucent
Testis & epididymis not definable
Definable testis & epididymis
Opaque
Translucent
Opaque
Translucent
Vaginal hydrocele
Epididymal cyst
Tender
Non tender
Tender
Acute epididymo-orchitis
Torsion
Severe epididymo-orchitis
Acute hematocele
Chronic hematocele
Gumma
Tumor
Non tender
Tumor
Tuberculous epididymitis

Possible investigations to exclude the DDx

1. Lab.
    - CBC—leukocytosis
        - In case of incarcerated hernia…
    - Serum a-fp , HCG
        - Testicular tumor
    - Urinalysis & culture
        - Epididymo-orchitis
2. Imaging
    - **Ultrasound**
        - Testicular tumor…
    - **Doppler u/s**
        - Torsion
    - Plain abdominal X-ray
        - Acute hydrocele Vs incarcerated hernia
            - ✓ Gas overlying the groin

Amputation

Indication

1. PVD/peripheral vascular disease/
    - DM accounts=50%
    - Limb removal for PVD is done for
        - ✓ Uncontrollable soft-tissue or bone infection
        - ✓ Nonreconstructable disease with persistent tissue loss
        - ✓ Unrelenting rest pain due to muscle ischemia
2. Trauma
    - High grade open fractures with associated nerve injury, soft tissue loss & ischemia + unreconstructable neurovascular injury
3. Tumor
    - Malignant bone & soft tissue tumors
4. Infection
5. Congenital anomalies

#Dead limb

- ☞ Vitality of the part is destroyed by injuries or disease

#Deadly limb

- ☞ Life of patient is threatened by spread of a local condition
    - E.g. gas gangrene,extensive melanoma

#deformed limb

- ☞ Patient may be better served by an artificial limb because of deformity or paralysis.In such cases better to amputate and fit in an artificial limb

Contraindication

1. Poor health that impairs the patient's ability to tolerate anesthesia & surgery

Complication

1. Phantom pain
2. Hematoma
3. Infection
4. Contracture
5. Neuroma
6. Psychological distress
7. Complications due to immobility & pressure

Principle of surgery

- ✓ Proper mgt of
    1. Skin
    2. Bone
    3. Nerves &
    4. vessels

Fracture mgt

1. Primary survey & resuscitation
2. Secondary survey

1. Primary survey & resuscitation

- **ATLS "ABCDE"**

2. Secondary survey

- **Hx**
- **PE**
- **Investigations**
- **Definitive mgt**
  - **Reduction**
  - **Immobilization**
  - **Rehabilitation**

Definitive management

A. Reduction

1. **Closed manipulation**
   - Using general anesthesia…stms local may be possible
2. **Mechanical traction**
   - With or without manipulation
     - When the contraction of large mms exert a strong displacing force
3. **Operative reduction**

I) Internal fixation

- Plate & screw
- Intramedullary nailing
  - femur, Tibia, Humerus
- Tension band wiring
  - patella , olecranon , Ankle
    - wire tied over 2 kirschner wires or pins

II) External fixation

- for grade III open fractures
- wound accessible for treatment/wound care/
- skin graft or flap rotations after wound healing

- complication→ pin tract infection

III) Special screw

- **hip, condyle of femure**

Operative treatment
Advantages:

- **anatomical reduction**
- **early mobilization & return of function**

Disadvantages:

- **Expensive**
  - **trained man power**
  - **OR & equipment**
  - **Instruments**
  - **OR X-ray / Fluoroscopy**
- **Infection**

B. Immobilization

…Why?

- **To relieve pain**
- **To prevent angulation/displacement**
- **To prevent mov't that might interfere with union**

i. POP

Indication

- **Undisplaced fractures**
- **Tolerable displacement**
- **Closed reduction of displacement possible**
- **Fracture in children (Upper and lower extremities)**

Advantages:

- **Easy**
- **No risk of infection**

Disadvantages

- **Damage to vessels & nerves by compression**
- **Difficulty of treatment of wounds**
- **need of strict control**

Compartment syndrome

1. **Pain**
2. **Pallor**
3. **Pulselessness**
4. **Paresthesia**

5. **Paralysis**
6. **Perishingly (extremely) cold**

ii. Splinting

iii. Traction

1. **Skin**
   - **children**
2. **skeletal**
   - **pin**
     - **condyle of the femur**
     - **proximal tibia**
       - **Pin→lateral to medial**
     - **Calcaneus**
       - **Pin→medial to lateral**

Disadvantage

- **Long immobilization time**
- **bed sore**
- **Infections**
- **Joint and muscle contracture**
- **Deep vein thrombosis, pulmonary embolism**

iv.External & internal fixation

C.Rehabilitation

- **Purpose**
  - **to preserve & restore function to normal so far as possible**
- **Should begin as soon as fracture comes under definitive treatment**
- **Physiotherapist**

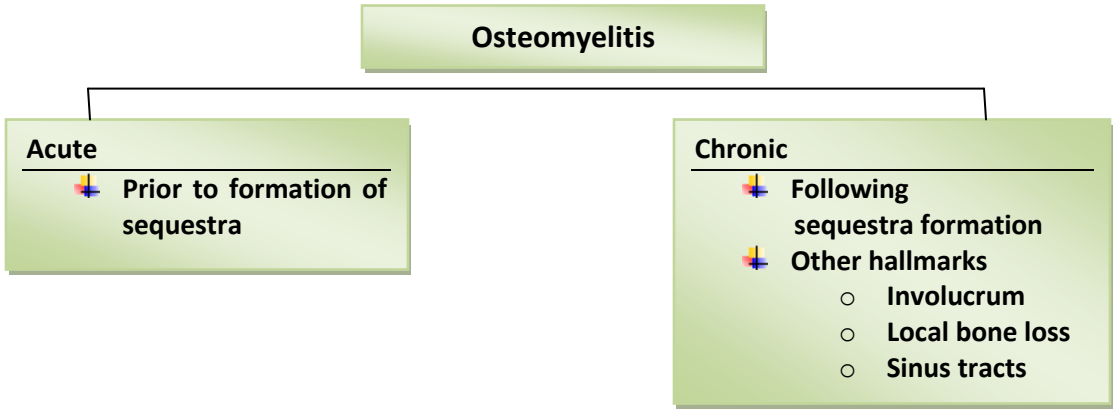
Type	Wound	Level of Contamination	Soft Tissue Injury	Bone Injury
I	<1 cm long	Clean	Minimal	Simple, minimal comminution
II	>1 cm long	Moderate	Moderate, some muscle damage	Moderate comminution
III				
A	Usually >10 cm long	High	Severe with crushing	Usually comminuted; soft tissue coverage of bone possible
B	Usually >10 cm long	High	Very severe loss of coverage; usually requires soft tissue reconstructive surgery	Bone coverage poor; variable, may be moderate to severe comminution
C	Usually >10 cm long	High	Very severe loss of coverage plus vascular injury requiring repair; may require soft tissue reconstructive surgery	Bone coverage poor; variable, may be moderate to severe comminution

Gustilo and Anderson Open Fractures classification

Bone infection & tumor

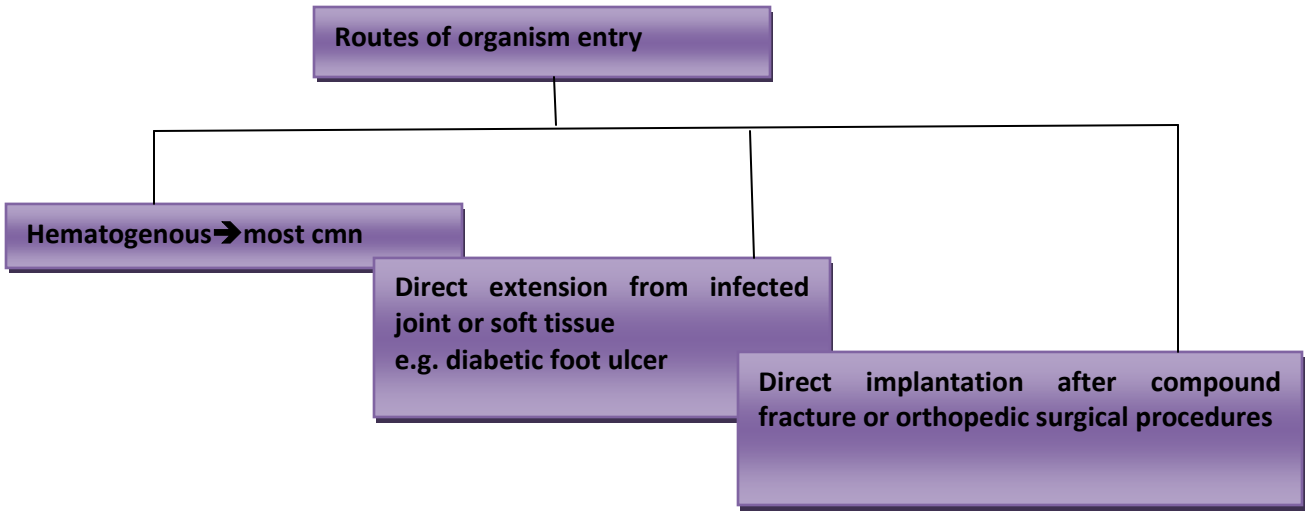
Osteomyelitis

- *Etiology → cmn*
  - ✓ *Pyogenic osteomyelitis*
    - ➢ *Staph.aureus → cmn*
    - ➢ *Sites → cmn*
      - *adults*
        - *Vertebrae*
      - *children*
        - *long bones*
          - *metaphysis → cmn*
  - ✓ *tuberculous osteomyelitis*
    - ➢ *the spine is the most cmn site*
      - *pott's disease*



NB*sequestrum=necrotic bone

***involucrum=new bone formation around the dead bone**



clinical feature

- fever
- classic signs of inflammation
  - ✓ local pain
  - ✓ swelling
  - ✓ redness…
- draining sinus

complication of chronic osteomyelitis

- Pathologic fracture
- Sepsis, endocarditis
- Squamous cell carcinoma (Marjolin's ulcer) of sinus tract
- Osteosarcoma
- Growth plate involvement in children may result in impaired bone growth
- Septic arthritis

Investigation

- Lab
  - ✓ CBC
    - ➢ Leukocytosis
      - Cmn in acute one b4 therapy
    - ➢ Anemia
  - ✓ ESR→raised
  - ✓ CRP→raised
  - ✓ Culture
  - ✓ Bone biopsy
- Imaging
  - ✓ Radiography

- ✓ MRI
- ✓ U/S

Indication & Principles of surgical mgt

- Indication
  - When unresponsive to specific antimicrobial Rx
  - When there is evidence of persistent soft tissue abscess or subperiosteal collection
  - If concomitant joint infection is suspected
- principle
  - Adequate drainage
  - Extensive debridement of necrotic tissue
  - Mgt of dead space
  - Adequate soft tissue coverage
  - Restoration of blood supply

Bone tumors

RFs

- Paget's disease
- Radiation
- Fibrous dysplasia
- hereditary

Classification of bone tumors

Primary

Bone forming tumors
1. Benign
   a. Osteoid osteoma
   b. osteoblastoma
2. malignant
   a. osteosarcoma

Cartilage tumors
1. Benign
   - Osteochondroma
2. Malignant
   - chondrosarcoma

Marrow derived
- Malignant
  - Myeloma
  - lymphoma

Secondary/metastasis →cmn
1. Breast
2. Prostate
3. Lung
4. Renal
5. Thyroid

Primary

Bone forming tumors

❖ Benign

Osteod otseoma	Osteoblastoma
➢ *< 2cm in diameter*	➢ *Larger*
➢ *< 25yrs of age*	➢ *Relatively older*
➢ *Affect appendicular skeleton esp. femur & tibia*	➢ *Affect mostly the spine*
➢ *Very painful (nocturnal) which responds to asprin*	➢ *Dull achy pain which doesnot respond to asprin*
➢ *Elicits tremondous amount of reactve bone*	➢ *Less reactive bone*

❖ Malignant/ Osteosarcoma

- ➢ Most common primary bone malignancy
- ➢ aggressive lesions that metastasize through the bloodstream early in their course
- ➢ The lungs are common sites of metastases
- ➢ Grossly
  - ✓ osteosarcomas are bulky fleshy tumors that are gritty, gray white, and often contain areas of hemorrhage & cystic degeneration.
  - ✓ The tumors frequently destroy the surrounding cortices and produce soft tissue masses

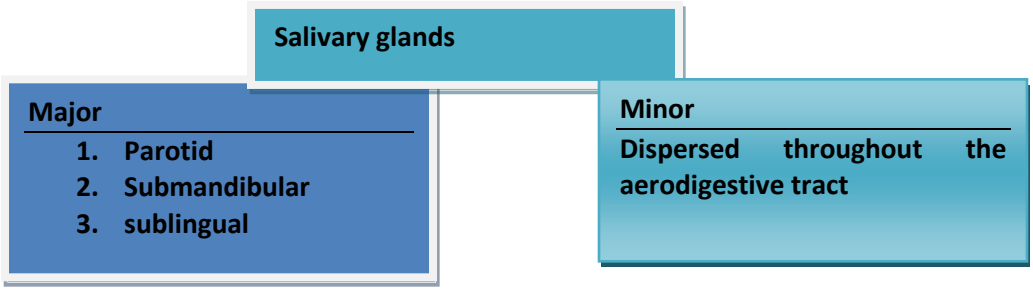
Cartilage tumors

- ○ Osteochondroma
  - ▪ Relatively most cmn bone tumor
  - ▪ benign proliferations composed of mature bone and a cartilaginous cap
- ○ chondrosarcoma
  - ▪ 2 nd most common malignant bone tumor
  - ▪ They arise in central portions of the skeleton
  - ▪ Patients present with painful progressively enlarging masses
  - ▪ Metastases show predilection for lungs and skeleton

Metastatic /2^0/

- **Can be**
  - **Lytic**
    - ✓ **Kidney**
    - ✓ **Lung…**
  - **Sclerotic**
    - ✓ **prostatic**
  - **mixed…**

Salivary glands



Salivary gland tumors (SGTs)

- CP of benign SGTs
  - Painless, slow growing mass
  - Almost always freely mobile
    - Face
      - parotid
        - unaffected facial nerve function
    - Angle of jaw
      - Submandibular
      - Tail of parotid
    - Floor of mouth
      - Sublingual
- **Parotid**
  - **80%** SGTs
    - 80% benign
      - pleomorphic adenomas→mst cmn-60%
      - warthin tumor→5-15%--2nd cmn
- Clinical signs of malignancy
  - Rapid growth
  - Bleeding
  - Airway compromise
  - Nerve dysfunction
    - E.g. paresthesia, facial palsy…
- See how to examine mass on page… 122

Salivary gland infection & calculi

- 80% in Submandibular gland
- Submandibular calculi/ sialolithiasis/
  - factors which encourage stasis in the duct
    1. Anatomy of the duct → gravity
    2. Quality of mucus
  - CP

    →The main symptoms are
    1. swelling
       - ✓ start to worsen just b4 eating
    2. Pain
       - ✓ dull aching
       - ✓ worsen during eating
       - ✓ goes away b4 the swelling

    ***purulent saliva may be present
- submandibular sialadinitis
  - 2^0 to the presence of a stone in its duct or the damage done by a stone which has passed through the duct.
  - Staphylococcus→cmn
  - the pain is
    - severe, throbbing, continuous
    - Exacerbated by eating.
  - Heat & tenderness

Examination of mass, ulcer & MSS

Examination of swelling

Inspection

- Site
- Number
- Size
- Shape
- Surface
- Movement
  - Increase in size synchronous with each heart beat
- Site related
  - Cough impulse
  - Pressure effect

Palpation

- Temperature
- Tenderness
- Conformation of size and shape
- Surface
- Edge
- Fixity to surrounding structure
- Consistency
  - Soft
  - firm
  - hard

For soft swelling

- Fluctuation
  - Indicate fluid within the swelling
- Transillumunation
- Impulse on cough
- Reducibility
- Compressibility
  - Characteristic of vascular hemangioma
- Pulsatility

Percussion Not that much important

Tympanic in

- Enterocele

Auscultation

- Bruit

Examination of ulcer

Inspection

- Location of ulcer

  e.g.
  - Varicose ulcer→lower leg
  - Rodent ulcer→face-nose
  - Tuberculosis ulcer→over the neck
- Size
- Number
  - Single or multiple
  - Is there any similar ulcer in other part of body?
- Margin

  Type of margin
  1. Healing ulcer
     - Have 3 line
       - white-outer
       - blue-center
       - red-inner
  2. Inflamed margin
     - Red, irregular with inflamed surrounding skin
  3. Fibrosed margin
     - Thicken white skin margin without the blue line of growing epithelium
- Floor of the ulcer (surface of ulcer)
  - Granulation
  - slough
  - discharge
- Surrounding skin
  - Redness
  - Pigmentation
    - Dark pigmentation of skin →typical for varicose ulcer
    - Hypopigmentation of surrounding skin→in non-healing ulcer

Palpation

- Surrounding skin for temperature and tenderness
- Ulcer→Edge →confirm size
- Floor
  - see if it bleeds on touch
- check the involvement of underlying structures

Related examination

- Related lymph node
- Related arteries, veins and nerves
- Movement in neighboring joints
  - Restriction to movement indicate muscle involvement or painful inflammation…

Examination of musculoskeletal system

- Includes evaluation of bones , muscle , tendon , ligaments &joints

General approach

- Inspection [look]
- Palpation [feel]
- Range of Motion (ROM) [move]
- Measurement [measure]

Look

- Expose both sides , adequate light

General

- Observe how the patient moves as they go into the room or move from chair to table(gait)
- General appearance
- Body proportions

Specific to the site of interest

- Look for asymmetry between sides
- Swelling – joint , bone , muscle
- Trauma site
- Deformities
- Atrophy
- Lesions – skin ,masses
- Abnormal movement – fasciculations

Feel

- Temperature
- Tenderness

- Never forget to check for pulses
  - If lower extremity
    - Dorsalis pedis artery
    - Posterior tibialis artery
    - Popliteal artery…
  - If upper extremity
    - Radial artery
    - Brachial artery
- Compare muscle bulk
- Capillary refill
  - <2sec→normal
- Swelling
  - site
  - shape
  - size
  - surface
  - border
  - mobility

Move -

Range of motion (Active)

- Ask the patient to move the affected site
- Watch for decreased or increased movement of the joint compared to the other side as well as the normal
- Watch for pain with movement
- Listen for crepitus or "popping"
- Watch for abnormal movements

ROM (passive)

- Next range the joints passively, comparing the end points to the active
- Again note any decreased or increased movement
- Pain with the movement
- Crepitus or "popping"

Measure

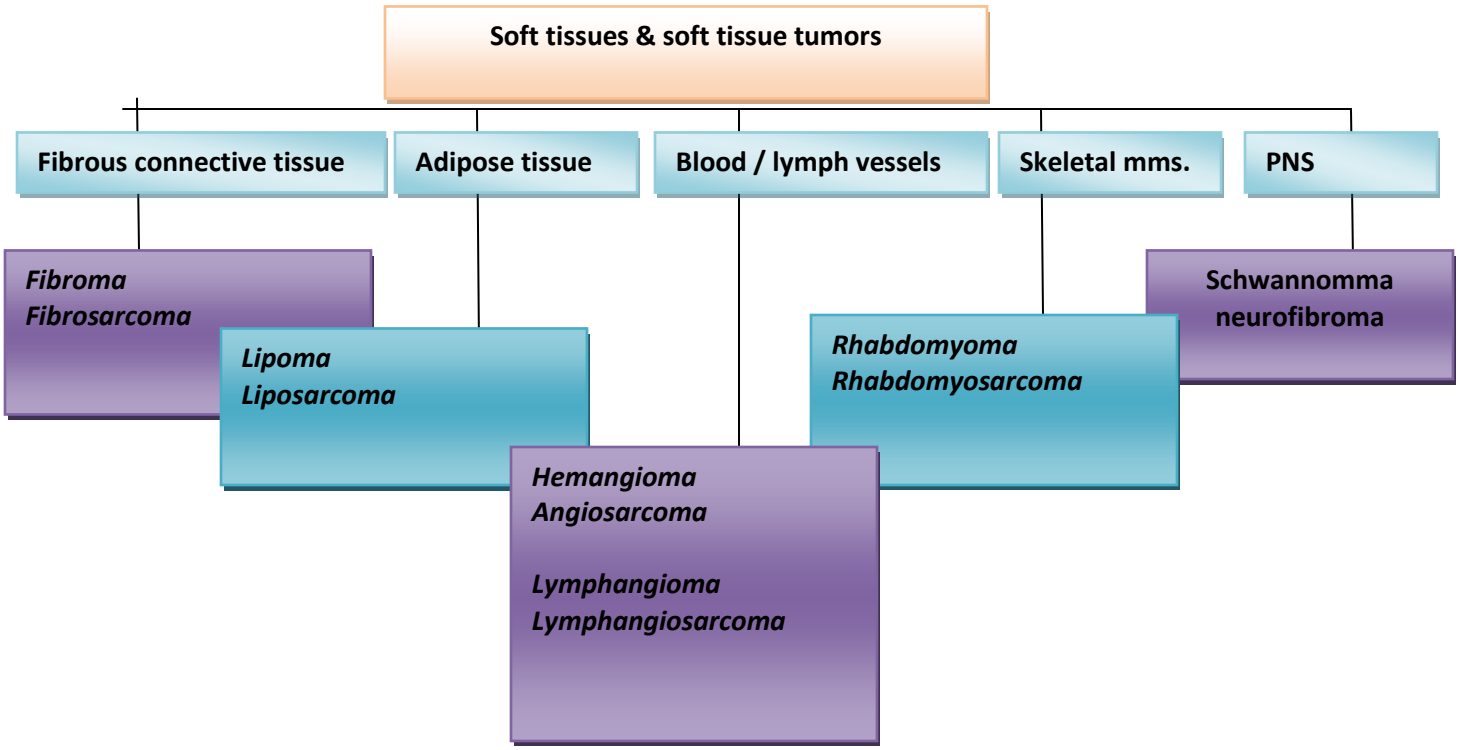
- **Apparent length**
  - **From xiphisternum / umbilicus up to medial malleolus**
- **Real length**
  - **from greater trochanter of the femur up to the medial malleolus**
- **True length**
  - **Between two bony prominences**

N.B. Comment if there is anything visible b4 u start…like

- **External fixation**
- **POP**
- **Traction**
- **Surgical dressing….**

Soft tissue tumors

- Soft tissue = supportive tissue of various organs & the non-epithelial, extra-skeletal structures exclusive of lymphohematopoietic tissues



Etiology

- Genetic factors
- Radiation
- Chronic lymphedema
- Environmental carcinogens
- Infections

CP

- Mass –cmn sign of soft tissue tumor
  - Usually→painless
  - If it has hx of rapid growth…suspect malignancy
- See mass examination (PE)…page 122

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Acronyms used

- ✓ **RFs=risk factors**
- ✓ **CP=clinical presentation**
- ✓ **Hx=history**
- ✓ **PE=physical examination**

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