Short cases of SURGERY

Paper-I

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M-48

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EXAMINATION OF ULCER Prepared by:
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A. Greetings, permission, exposure, attendant (If patient is of opposite sex):
আসসালামুয়ালাইকুম। আমি এমবিবিএস পরিক্ষার্থী/৫ম বর্ষের একজন ছাত্র/ছাত্রী। আমি আপনার কিছু পরিক্ষা করবো, আপনার কোন সমস্যা হবে না।

B. History: Patient কে **expose** করতে করতে কিছু প্রশ্ন করার মধ্যমে History নিতে থাকবো–

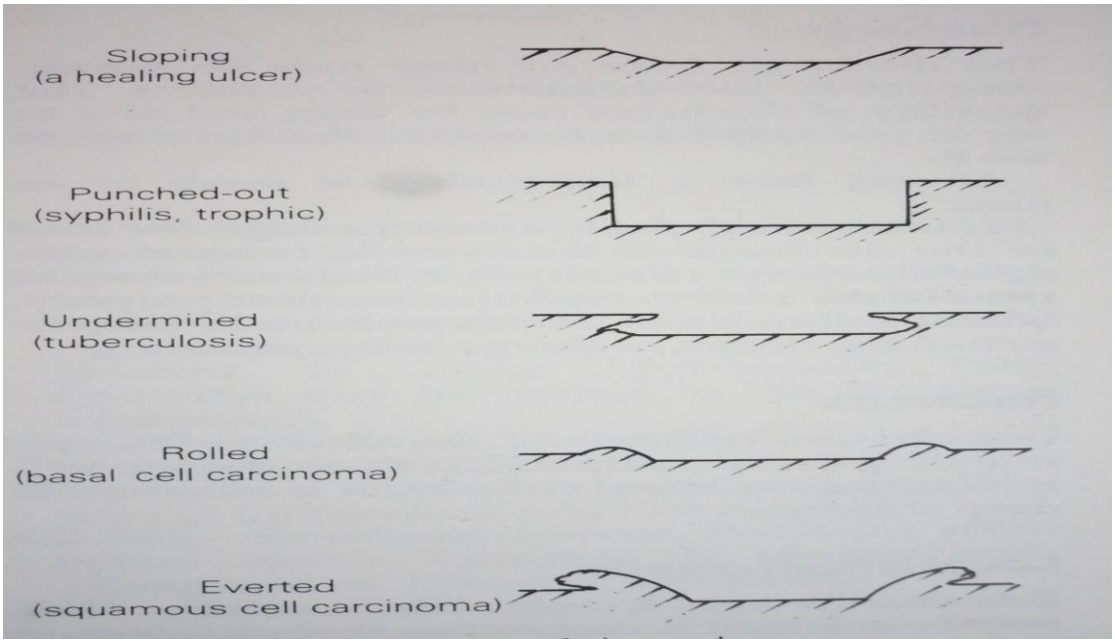
1. আপনি কি সমস্যা নিয়ে হাসপাতালে ভর্তি হয়েছেন?
2. এটা কিভাবে শুরু হয়েছে?
   –Spontaneous
   -Traumatic
3. কতোদিন ধরে এই সমস্যায় ভুগছেন?
   –Acute
   -Chronic
4. এখানে কোন ব্যাথা আছে?
5. কোন কিছু (Discharge) বের হয় কি না?
6. শরীরের অন্য কোথাও আছে কি না?
7. আপনার আর কোন রোগ আছে কি না যেমন– DM(Diabetic foot), HTN, TB, any disease affecting nervous system (স্নায়ুতন্ত্রের কোন রোগ আছে কি না?)
8. আপনি ধূমপান করেন কি না? [Risk factor for Buerger's disease]

C. Inspection: Ulcer এবং তার চারপাশে ভালোভাবে দেখে নেব। যা যা লক্ষ্য করবো–

Site, Size & Shape, Number, Edge, Margin, Floor, Discharge, surrounding skin

1. **Site:**
   Traumatic: Any where
   Venous: Leg; just above the medial malleolus
   Arterial: Tip of the toes and fingers, around the ankle, dorsum of the foot
   Neurogenic/ perforating: Over sole, at pressure point
   Diabetic: Foot; any where
   Epithelioma: Lip, tongue, cheek, penis, anus, palm etc
   Rodent ulcer: Upper half of face
   Malignant melanoma: Any where, in female – lower leg, in male – front or back of the trunk, sole, palm, beneath nail.
   Tuberculous: Neck, axilla, groin
   Syphilitic: Genitalia, mouth, vulva, anal region.
2. **Size & Shape:** Size important to know to determine time required for ulcer to heal.
   Tuberculous ulcer: Oval (coalescence : irregular crescentic border)
   Syphilitic ulcer: Circular / semilunar, unite to form a serpiginous ulcer
   Varicose ulcer: Vertically oval
   Carcinomatous ulcer: Irregular in shape and size

3. **Number:** Tubercular, varicose, syphilitic ulcer may be more than one in number.
4. **Edge:**
    a. **Undermined:** Ulcer spreads in & destroys subcutaneous tissue faster than destroying the skin. Overhanging skin is thin, friable, reddish blue, & unhealthy. E.g. Tuberculosis
    b. Punched out: Edge drops down at right angle to the skin surface as if was cut out with a punch. Do not tend to spread to the surrounding tissue. E.g. Gummatous ulcer/ deep trophic ulcer
    c. **Sloping**: In healing traumatic / venous ulcer. Healing ulcer →sloping edge→reddish purple in color & consist of new healthy epithelium
    d. **Raised:** Develops in invasive cellular disease and becomes necrotic atthe centre.**e.g.** Rodent ulcer
    e. Rolled out (Everted):
        ✓ Feature of SC/ ulcerated adenocarcinoma
        ✓ Caused by fast growing cellular disease →growing portion heaps up & spills over the normal skin→ produce everted edge



5. **Floor:**

    Red granulation tissue: Healthy & healing
    Pale & smooth granulation tissue: Slow healing ulcer
    Wash-leather slough – pale, yellowish, greyish : Gummatous ulcer (TB)
    Penetrate down to bone: Trophic ulcer
    Black mass at floor: Malignant melanomas

6. **Discharge:** Quality, color, smell
7. **Surrounding skin***:* Color, texture, scar, visible vein, hair distribution

D. Palpation:

a. **Temperature of the surrounding skin:** Dorsum of the hand দিয়ে surrounding skin of ulcer -Normal- surrounding skin of ulcer; এই sequence এ temperature দেখবো। Normal-abnormal-normal sequence is also ok.

b. **Tenderness:** Gloves দুই হাতে পড়ে নিবো এবং রোগির মুখের দিকে তাকিয়ে ulcer এর margin এ press করবো।

c. **Edge and margin** আঙ্গুল দিয়ে palpate করবো।

d. **Base:** look for induration. Floor এ index finger দিয়ে চাপ দিয়ে induration feel করবো।

Benign chronic ulcer: Slight induration
Malignant ulcer: Marked induration

e. **Bleeds on touch:** Index finger এ দেখবো কোন রক্ত লেগে আছে কি না।
Bleeds on touch present in: Malignant ulcer

f. **Mobility or fixity:** Index and thumb দিয়ে দুই পাশের margin ধরে দুই direction এ নাড়ানোর চেষ্টা করবো।

Mobile: Benign ulcer
Fixed ulcer: Malignant ulcer

g. Examination of lymph nodes: Only in diseased side.

a) **Acute inflamed ulcers:** Regional lymph nodes enlarged, tender (acute lymphadenitis) → Nodes soften to form abscess
b) **Tuberculous ulcer:** Lymph nodes enlarged, matted, & slightly tender.
c) **Hunterian chancre**: Regional lymph node are discrete, firm, shotty.
d) **Malignant ulcer:** Nodes are stony hard & fixed to neighboring structure in late stages

h. Examination for vascular insufficiency: Bilaterally peripheral pulse palpate **করে দেখবো।**

a) **When ulcer is on the lower part of the leg:** Search for varicose veins in upper part of leg /thigh
b) **If no varicose vein/ cause undetermined:** Must examine condition of arteries proximal to ulcer.
c) **Atherosclerosis, Buerger's disease & Raynaud's Disease**: May be cause of ulcer due to poor circulation

i. Examination for nerve lesion: একটা তুলা নিয়ে(Fine touch) and **একটা পিন নিয়ে** dermatome **অনুযায়ী** distal to proximally bilaterally sensation **দেখবো।**

Trophic ulcers: Repeated trauma to an insensitive part of the patients body →indicates some neurological disturbance in the form of tabes dorsalis/ transverse myelitis/peripheral neuritis.
Seen in the sole (weight bearing zone).

j. **Movement of joint:** Ulcer কোন জয়েন্ট এর উপর থাকে তাহলে ওই জয়েন্টের একটিভ এবং প্যাসিভ মুভমেন্ট দেখতে হবে।

k. **Thanks giving:** "সহযোগিতা করার জন্য আপনাকে ধন্যবাদ" বলে কাপড় ঠিক করে দিবো।

Description: For example:

There is an ulcer in dorsum of left leg measuring about 4cmX5cm which is circular in shape with slopping edge, floor is covered with red granulate tissue, discharge is serous. Surrounding skin is soft and free from congestion.

Temperature of affected part and surrounding skin is raised/normal. Ulcer is tender, margin is well defined and swollen. Base is not indurated and does not bleed on touch. The ulcer is mobile and not fixed with underlying structure. Surrounding skin sensation is normal, no motor deficit and pulsation present. Regional lymph nodes are not palpable.

So, this may be a non0specific healing ulcer.

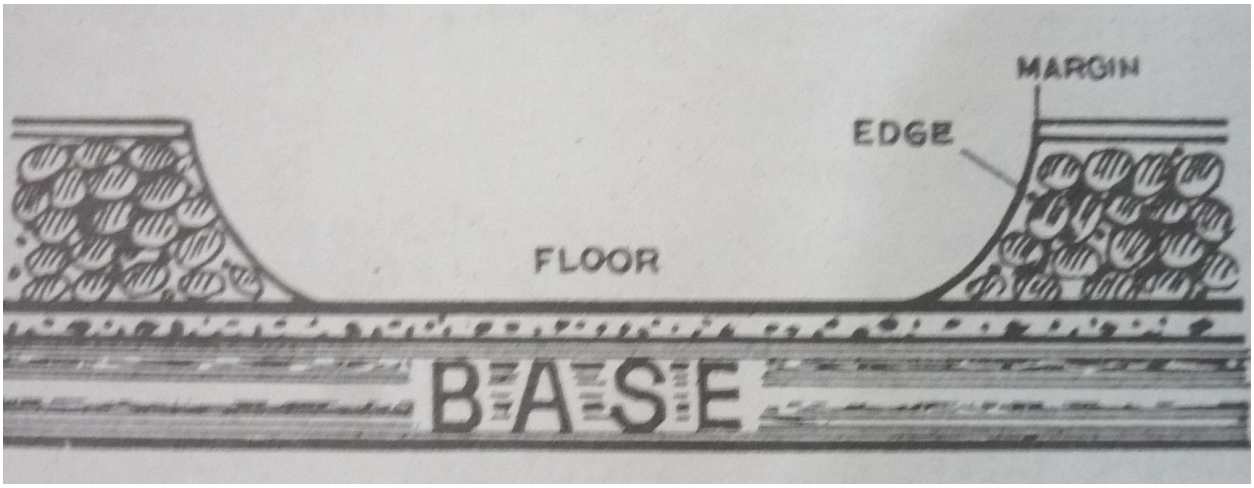
Cross questions

Definition:

Breech in continuity of surface epithelium due to sloughing out of inflammatory necrotic tissue.

[Lecture of MMC]

Parts of an ulcer:



Margin: The junction between normal epithelium and the ulcer.
Edge: The area between the margin and the floor. Five common types found in surgical practice
Floor: Exposed surface of the ulcer.
Base: On which the ulcer rests. It is better felt than seen.

Classification:
Clinically: 3 types

1. Spreading ulcer

2. Healing ulcer
3. Chronic/callous ulcer

Spreading ulcer:

- ✓ Surrounding skin is inflamed
- ✓ Floor is covered with profuse and offensive slough without any granulation tissue
- ✓ Draining lymph nodes are enlarged, tender
- ✓ This is painful ulcer

Healing ulcer:

- ✓ Floor is covered by healthy granulation tissue
- ✓ Edge is reddish with granulation
- ✓ Margin is bluish with growing epithelium
- ✓ Discharge is slight and serous

Chronic ulcer:

- ✓ Floor is covered with pale granulation tissue
- ✓ Base, edge, surrounding skin is indurated
- ✓ No tendency of healing e.g. gummatous ulcer

Pathological classification: 3 types

1. Non specific ulcer
2. Specific ulcer
3. Malignant ulcer

Non-specific ulcer: This can be further classified as

- ✓ Traumatic e.g. dental ulcer
- ✓ Arterial e.g. Buerger's disease
- ✓ Venous e.g. varicose ulcer
- ✓ Neurogenic / Trophic e.g. bed sore
- ✓ Ulcer associated with malnutrition
- ✓ Ulcer associated with gout, rheumatoid arthritis, Diabetes

Specific ulcer:

- ✓ Tuberculous
- ✓ Syphilitic
- ✓ Actinomycosis

Malignant ulcer:

- ✓ Epithelioma
- ✓ Marjolin's ulcer

Stage of an ulcer:

1. **Stage of extension/spreading/sloughing:**
   Edge: Sharply defined, thickened and inflamed
   Floor: Covered with exudate and slough
   Discharge: Often purulent and blood stained
   Base: Indurated and fixed
2. **Stage of transition/preparation for healing:**
   Floor: Becomes clear. Small, reddish areas of granulation tissue appear which link up ultimately to cover the whole surface.
   Discharge: Becomes serous

Base: Induration diminishing

3. **Stage of repair:** May show signs of healing or characteristics of callous ulcer.

Signs of healing:

Edge: Shelving
Discharge: Merely serous if surface is kept at rest
Floor: Smooth and even red granulation tissue covered by single layer of epithelium. Granulation tissue transforms into fibrous tissue which gradually contracts to form scar.
Base: Free from fixity.
Surrounding skin: Soft, flexible and free from congestion.

Signs of indolent or callous ulcer:

Edge: Thickened, oedematous, indurated and often discoloured.
Floor: Covered with pale unhealthy granulation tissue.
Base: Indurated
Surrounding skin: Oedematous and indurated

Investigations:

1. Discharge for c/s
2. Incision and biopsy or excision & biopsy
3. Local x-ray
4. FNAC from the lymph node (if any)
5. Blood – CBC, sugar
6. Chest x-ray, USG of abdomen (for staging)

Principle of management of an ulcer:

1. Determine the etiology
2. Treat the underlying cause
3. Identify and correct co-morbid factor
4. Accurate assessment of ulcer
5. **Treat the ulcer:** Adequate drainage & desloughing
6. **Proper broad spectrum antibiotic**: According to c/s
7. Proper dressing (ideal dressing)
   - ✓ Soft
   - ✓ Absorbent
   - ✓ Non-adherent
   - ✓ Non-allergic
   - ✓ Maintain high humidity
   - ✓ Permit gaseous exchange but not micro organism
   - ✓ Avoid antiseptic in dressing as –impair capillary circulation and toxic to granulation tissue.

Slough: Necrotic tissue often after the ulcer center is called slough.
Scab: Slough and small amount of discharge may dry and form scab.
Eschar: A layer of dead tissue may become dehydrated and form a dark brown or black eschar. E.g. after burn or ischemic necrosis.
Necrosis: Spectrum of morphologic change that follow cell death in living tissue, largely resulting from progressive degradative action on lethally injured cell.

Signs of chronic ischemia:

1. Thinning of skin
2. Loss of hair distribution
3. Loss of subcutaneous fat
4. Shininess of skin
5. Tropic changes – brittle nail
6. Minor ulceration – heel, medial malleolus, ball of foot, toes.

Signs of pregangrene:

1. Rest pain
2. Color changes
3. Hyperesthesia
4. Ulceration (may or may not)

Signs of gangrene:

1. Color change (pale → bluish purple →black)
2. Loss of temperature
3. Loss of sensation
4. Loss of pulsation
5. Loss of function

Squamous cell carcinoma:

Characteristics:

Age: elderly >40 years
Sex: Male
Site: Anywhere, more frequently in exposed parts of the body in sunlight such as- rim of ear, lower lip, face, trunk, hands, arms, leg etc.
Size: Variable
Shape: Oval/circular
Edge: Raised and everted
Floor: Graying white slough, necrotic tissue, serum or blood.
Surrounding skin: Healthy
Base: Indurated
Temperature: Not raised
Tenderness: Non-tender
Mobility: Fixed with underlying structure
Regional lymph node: Hard, gradually matted and fixed (Due to metastasis).
Sensation: No loss of sensation
Peripheral pulse: Normal

Treatment:

1. **Surgery:** Excision with margin 1cm or more.
2. **Lymph node:** FNAC
   FNAC negative: Antibiotic for 3 weeks
   FNAC shows malignancy and hard and mobile: Radical block dissection
   Hard and fixed: Radiotherapy

Basal cell carcinoma:

Characteristics:

Age: 40-79 years/middle age or elderly

Site: Face above the line joining the angle of the mouth to ear lobule-

-nose

-inner and outer cantus of eye

-Cheek near nasolabial fold

-Forehead more common in female

Colour: Firm papule or flat or slightly raised plaque covered by fine blood vessels which give pink hue.

Edge: Raised

Floor: Graying white slough, necrotic tissue, serum or blood.

Surrounding skin: Healthy

Base: Indurated

Temperature: Not raised

Tenderness: Non-tender

Mobility: Fixed with underlying structure

Regional lymph node: Not palpable

Sensation: No loss of sensation

Peripheral pulse: Normal

Treatment:

1. **Surgery:** Excision with margin 0.5cm free margin.
2. Radiotherapy

Tuberculous ulcer:

Characteristics:

Site: Neck, axilla, groin.

Size and shape: Oval (coalescence : irregular crescentic border)

Number: May be more than one in number

Edge: Undermined

Discharge: Serosanguineous

Floor: Covered by pale granulation tissue.

Base: Slightly Indurated

Regional lymph node: Lymph nodes enlarged, matted, & slightly tender.

Treatment:

1. **Anti-tubercular drug:**

Intesive phase: Combination of four drugs (4FDC) for 2 months

-Isoniazid (INH)

-Rifampicin

-Pyrazinamide

-Ethambutol

Continuation phase: Combination of two drugs (2FDC) for 4 months

-Isoniazid (INH)

-Rifampicin

2. Regular dressing

Leg ulceration:
Causes of leg ulcers:

2. Venous disease: superficial incompetence; deep venous damage (post-thrombotic)
3. Arterial ischaemic ulcers
4. Rheumatoid ulcers
5. Traumatic ulcers
6. Neuropathic ulcers (diabetes)
7. Neoplastic ulcers (squamous cell carcinoma and basal cellbcarcinoma)
8. Infections, especially in Third World countries.

Venous ulcer:
Clinical features:
Duration: Long
Pain: Painless
Site:

- ✓ Characteristically develops in the skin of the gaiter region, the area between the muscles of the calf and the ankle.
- ✓ This is the region where many of the Cockett perforators join the posterior tibial vein to the surface vein, known as the posterior arch vein.
- ✓ The majority of ulcers develop on the medial side of the calf but ulcers associated with lesser saphenous incompetence may develop on the lateral side of the leg.

Shape: Oval
Margin: Thin and blue due to growing epithelium
Edge: Sloping edge
Floor: Granulation tissue covered by a variable amount of slough and exudate.
Base: Fixed to deeper structure
Surrounding skin: Thickening, pigmentation, inflammation and induration of the calf skin.
Sensation: Normal
Pulsation: Normal
Lymph node: Not enlarged

Investigation:

1. **Duplex scan:** To assess the state of the deep and superficial veins.
2. **Full blood count Hb% with ESR, C-reactive protein (CRP):** Anaemia can both cause ulcers (e.g. sickle cell disease and pernicious anaemia) and be a result of ulceration (e.g. iron deficiency anaemia and the anaemia of chronic disease).
3. **Blood glucose:** To exclude DM

Treatment:

1. Compression bandaging
2. Dressings
3. Excision and grafting

Prevention of recurrence: Use of elastic stockings.

HERNIA/HYDROCELE **Prepared by: Md. Mehedi Hasan Lemon**

Examination: **M-48**

A. Greetings, permission, exposure, attendant (If patient is of opposite sex):

আসসালামুয়ালাইকুম। আমি এমবিবিএস পরিক্ষার্থী/৫ম বর্ষের একজন ছাত্র/ছাত্রী। আমি আপনার কিছু পরিক্ষা করবো, আপনার কোন সমস্যা হবে না।

Exposure:

- ✓ Shirt will be lifted up
- ✓ Patient will hold the lungi below in 'U' shape

B. History: Patient কে **expose** করতে করতে কিছু প্রশ্ন করার মধ্যমে History নিতে থাকবো।

1. আপনি কি সমস্যা নিয়ে হাসপাতালে ভর্তি হয়েছেন? কতোদিন ধরে এই সমস্যায় ভুগছেন?
2. **Site of start:** আপনার ফোলা অংশটা নিচ থেকে শুরু হয়ে উপরের দিকে বাড়ে নাকি উপর থেকে নিচের দিকে নামে?

   Interpretation:
   From groin to scrotum: Hernia
   From scrotum to groin: Hydrocele and varicocele
3. **Occupation:** আপনি কি কাজ করেন?
   Hernia is most common in strenous labor.
4. **History of Precipitating Factors:** *আপনার আগে থেকে কোন দীর্ঘদিনের কোন কাশি বা প্রসাব আটকে যাওয়া বা দুই নলে হওয়া বা দীর্ঘদিন ধরে শক্ত পায়খানা হওয়ার সমস্যা ছিল?*
5. **History of previous surgery(appendicectomy):** *আগে আপনার কোন অপারেশন হয়েছিলো কি না?*
   - ✓ Ilioinguinal or iliohypogastric nerve if damaged by grid iron incision or during keeping the drain; Direct Hernia Occurs.
   - ✓ If ilioinguinal nerve is cut in the inguinal canal, direct hernia never occurs Because the nerve supplies the abdominal muscles before entering the canal.
6. **Pain:** কোন ব্যাথা আছে কিনা?
   - ✓ Usually painless
   - ✓ Pain in inguinal hernia is usually in the region of the umbilicus due to drag in the root of mesentery as bowel enters the sac
   - ✓ Pain may be also present as aresult of complication

C. Inspection: আমি হাটু গেড়ে বসে Inspection **করা শুরু করবো, রোগী দাঁড়িয়ে থাকবে।**

We will see the followings-

1. **Site:**
   Femoral: Below and lateral to pubic tubercle
   Inguinal: Above and medial to pubic tubercle
2. **Size**
3. **Extend**
4. **Shape**
   Pyriform: Indirect

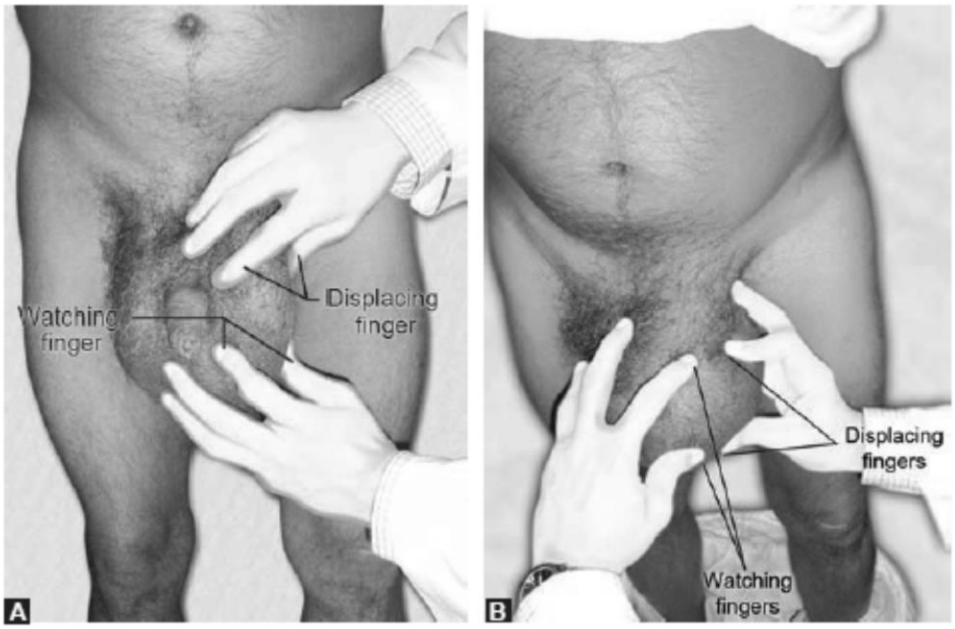
Hemispherical: Direct
Retort: Femoral

5. **Skin over the swelling:** Normal or any abnormality
   Normal: Uncomplicated hernia
   Reddened and shiny: Strangulated hernia
   Scar mark: Recurrent hernia
6. **Visible peristalsis:** Present or not
7. **Cough impulse:** রোগিকে উপরের দিকে তাকিয়ে কাশি দিতে বলবো। (রোগি স্যারের দিকে তাকিয়ে কাশি দিলে ফেল)। Present or not
   Positive: Uncomplicated inguinal hernia
   Negative: Hydrocele and Complicated inguinal hernia
8. **Penis:**
   Position of the penis: Large hernia pushes the penis to opposite site.
   Meatus, glans, undersurface: Penis হাত দিয়ে ধরে দেখবো।
9. **Undersurface of scrotum:** হাত দিয়ে স্ক্রোটাম উচু করে ধরে দেখবো।

D. Palpation:

Patient দাঁড়ানো অবস্থায়।

1. **Temperature:** Dorsum of the finger: Swelling(abnormal)- Thigh(Normal)- Swelling(abnormal)এই sequence এ দেখবো। Normal-abnormal-normal sequence is also ok.
2. **Tenderness:** রোগির মুখের দিকে তাকিয়ে palmar surface দিয়ে **tenderness and consistency** দেখে নিবো।
   Temperature and tenderness: Raised in strangulated hernia
3. **Consistency:**
   Interpretation:
   Soft elastic: Intestine
   Doughy granular: Omentum
4. **Fluctuation and transillumination test:** Consistency যদি cystic হয়।
   Interpretation: Positive in hydrocele



Figures 15.3A and B: Demonstration of fluctuation

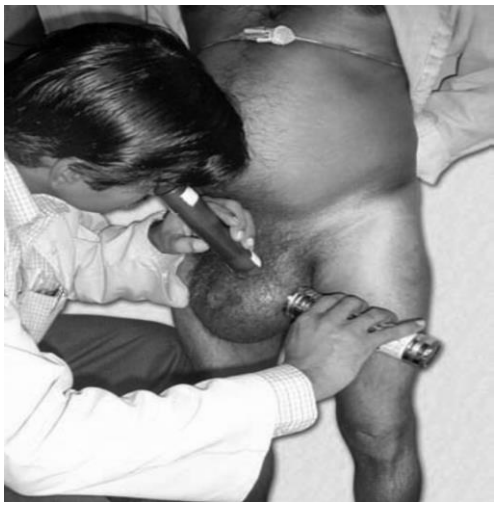
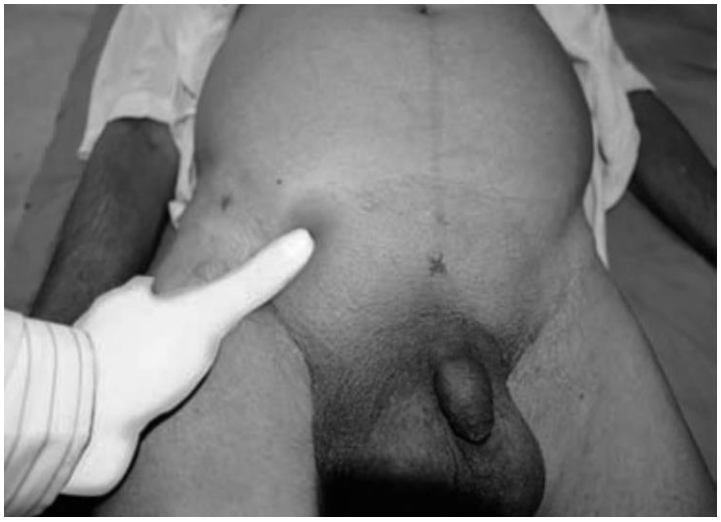


Figure: Transillumination test

5. **Palpable cough impulse:** Swelling উপর হাত রেখে রোগিকে উপরের দিকে তাকিয়ে কাশি দিতে বলবো।
6. **Get above the swelling:** Thumb and index finger এর মাঝখানে Root of the scrotum ধরার চেষ্টা করবো।
   Interpretation:
   Possible: Scrotal swelling. Get above the swelling is a classical feature of hydrocele
   Not possible: Inguinoscrotal swelling
7. **Palpate the testes:** Asses if the testes palpable or not
8. **Penis:** Penis ধরে কোন stricture, meatul stenosis আছে কি না দেখে নিবো।

তারপর patient কে শোয়াবো: Sir, I want the patient to lie down for reducibility and deep ring occlusion test.

9. **Reducibility:** Patient কে বলবো 'এই ফোলা অংশটি ভিতরে ঢোকান'।
10. **Deep ring occlusion test:** 0.5 inch/1.25cm above mid inguinal point (Between anterior superior iliac spine and pubic symphysis) এ thumb দিয়ে press করে কাশি দিতে বলবো।



Interpretation:
Nothing will come out: Indirect inguinal hernia
Something coming down medially: Direct inguinal hernia

E. Percussion: May be done in standing position. (not done usually)

Interpretation:
Enterocele: Resonant
Omentum: Dull

F. Auscultation: Peristaltic sounds occasionally heard. (not done usually)

G. Thanks giving: 'আমাকে সহযোগিতা করার জন্য আপনাকে ধন্যবাদ' বলে কাপড় ঠিক করে দিবো।

Diagnosis: Should include the points below:

Side: right/left

Type: indirect/direct

Inguinal/femoral

Complete/Incomplete

Reducible/Non-reducible

Co**nten**t: enterocele/omentocele

Findings:

Indirect inguinal hernia:

There is a right sided inguinoscrotal swelling extending from groin to scrotum, pyriform in shape, skin over the swelling is normal, visible cough impulse present. Penis and scrotum are normal.

The swelling is non-tender, temperature is normal, elastic in consistency, palpable cough impulse present and cannot get above the swelling. It is reducible and deep ring occlusion test is positive.

So, my diagnosis is right sided reducible complete indirect inguinal hernia with enterocele.

Direct inguinal hernia:

There is a left sided inguinoscrotal swelling extending from groin to scrotum upto above the testes, spherical in shape, skin over the swelling is normal, visible cough impulse present. Penis and scrotum are normal.

The swelling is non-tender, temperature is normal, elastic in consistency, palpable cough impulse present and cannot get above the swelling and testes is separately palpable. It is reducible and deep ring occlusion test is negative.

So, my diagnosis is left sided reducible incomplete direct inguinal hernia with enterocele.

Hydrocele (Vaginal):

On inspection there is swelling on Left/right side of the scrotum, loss of normal rugosity of skin, (there may be dilated vein). The swelling does not show expansile impulse on cough. Penis is pushed to opposite side (Mention the side).

On palpation, temperature is normal, non-tender. It is possible to get above the swelling. The swelling is soft cystic in feel. Fluctuation is positive, transillumination is also positive, no palpable expansile impulse on cough is present, dull on percussion. The testis cannot be felt separately from the swelling. On lying, the swelling is not reduced.

So, my diagnosis is vaginal hydrocele.

CROSS QUESTIONS

What is hernia?

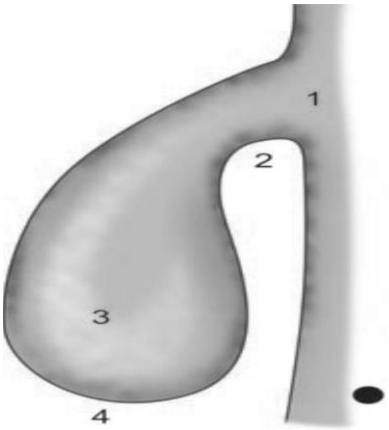
Hernia:

Hernia is abnormal protrusion of a part or whole of a viscus through the wall of the cavity which contains it.

Parts of a hernia: A hernia consists of:

A. **Hernial sac:** The hernial sac is the prolongation of the parietal peritoneum. Parts of sac are-

Mouth of the sac: The opening into the peritoneal cavity (1)
Neck of the sac: The constricted part of the sac beyond the mouth (2)
Body of the sac (3)
Fundus of the sac: The most distal closed part of the sac (4).



B. **Contents in the sac:** The hernia may contain different intra-abdominal structures which includes:
   - ✓ **Omentum:** Omentocoele.
   - ✓ **Intestine:** Enterocoele.
   - ✓ **A portion of the circumference of the bowel:** Richter's hernia.
   - ✓ A portion of the urinary bladder.
   - ✓ Appendix.
   - ✓ **Meckel's diverticulum:** Littre's hernia.
   - ✓ Fallopian tubes.
   - ✓ **Fluid:** secondary to ascites.

C. **Coverings of the sac:** Apart from skin, subcutaneous tissue and Dartos, the coverings of hernia are:
   - ✓ External spermatic fascia derived from external oblique aponeurosis
   - ✓ Cremesteric muscle and fascia derived from internal oblique
   - ✓ Internal spermatic fascia derived from the fascia transversalis
   - ✓ Deep to this is hernial sac derived from the parietal peritoneum.

[Bedside clinics in surgery-2nd-57-58]

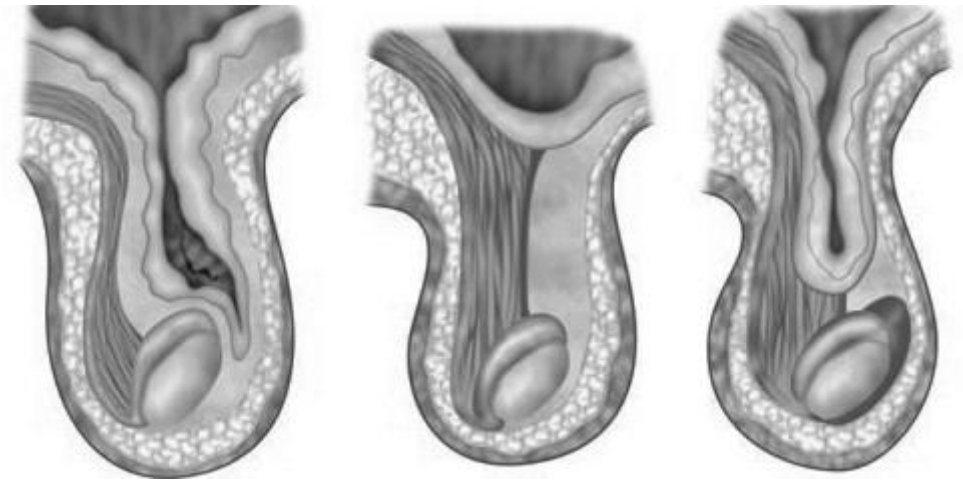
Causes of hernia:

1. **Basic design weakness:** Despite the complex design of the abdominal wall, the only natural weaknesses caused by inadequate muscular strength are the lumbar triangles and the posterior wall of the inguinal canal.
2. **Weakness due to structures entering and leaving the abdomen:** Many structures pass into and out of the abdominal cavity creating weakness which can lead to hernia formation. The most common example is the inguinal canal in the male along which the testis descends from abdomen to scrotum at the time of birth.
3. **Developmental failures:** e.g. An inguinal hernia (indirect) also occurs through the developmental failure of the processus vaginalis to close. As the testis descends, it pulls a tube of peritoneum along with it.
4. Genetic weakness of collagen
5. Sharp and blunt trauma
6. Weakness due to ageing and pregnancy
7. Primary neurological and muscle diseases
8. Excessive intra-abdominal pressure

[Baily and Love-26th -949]

Anatomical classification:

1. **External hernia:** e.g. Inguinal hernia, femoral hernia, epigastric hernia, umbilical hernia, paraumbilical hernia, incisional hernia etc.
2. **Internal hernia:** e.g.
   Hiatus hernia: through foramen morgagni (Between xiphoid and costal origin), foramen Bockdalek (Defect in pleura and peritoneum).
   Hernia cerebri: Through foramen magnum. E.g. tentorial herniation.



Complete **Bubonocele** **Funicular**

Types of inguinal hernia depending on the distal extent of the hernia:

1. **Complete:** When the hernial sac reaches upto the bottom of scrotum and the testis cannot be felt separately.
2. **Incomplete hernia:** When the hernial sac does not descend upto the bottom of the scrotum. This can be:
   - ✓ **Bubonocoele:** When the hernial sac is confined to the inguinal canal and does not reach beyond the superficial inguinal ring.
   - ✓ **Funicular:** When hernial sac goes beyond the superficial inguinal ring and reaches upto the upper pole of the testis.

[Bedside clinics in surgery-2nd-59]

Clinical classification:

1. **Reducible hernia:** Contents of hernia sac can be returned to the abdominal cavity completely either spontaneously or by manually.
2. **Irreducible hernia:** Contents of hernia sac can be returned to the abdominal cavity completely in absence of obstruction or strangulation.
   Causes of irreducibility:
   - ✓ Crowding of the contents
   - ✓ Adhesion between sac and contents
   - ✓ Adhesion between contents
   - ✓ Adhesion between sac

3. **Obstruction:** Irreducibility+ intestinal obstruction without any arrest of blood supply

Four cardinal features:

- ✓ Colicky abdominal pain
- ✓ Vomiting
- ✓ Abdominal distension
- ✓ Obstipation (Absolute constipation)—not passing flatus and feces.

4. **Strangulated hernia:** Obstruction + irreducibility + Arrest of blood supply

- ✓ Colicky abdominal pain if continues and becomes gangrenous pain disappears
- ✓ Sudden increase in size of hernia; becomes tense and tender.
- ✓ Rebound tenderness= positive

Investigations:

A. Routine:

1. CBC with ESR with Hb%
2. RBS
3. Serum Creatinine
4. CXR: Chronic TB, Asthma—precipitate hernia
5. ECG
6. Urine RME
7. (Blood grouping/typing—for irreducible hernia/huge hernia)
8. USG of whole abdomen: In old age group—to find BEP.
9. HBsAg: For surgeons safety

B. Special:

Herniogram:

- ✓ Radiographic contrast material is injected into peritoneal cavity and patient is turned to different position.
- ✓ X-ray of local area will demonstrate contrast in the hernial sac, if hernia is present.

Treatment:

A. Treat the precipitating cause of hernia first. For example:
   a. BEP
   b. TB
   c. Stop smoking
   d. Constipation
   e. Stricture urethra

B. Specific management:

Indirect inguinal hernia:

Uncomplicated:

Children, adolescent and young adult(Upto age of 17 years): Herniotomy
Elderly: Herniotomy with herniorrhaphy

Complicated:

1. **Resuscitation:**
   - ✓ NPO
   - ✓ NG suction
   - ✓ IV fluid
   - ✓ Antibiotic
   - ✓ Analgesic
   - ✓ Catheterization
2. **Surgery:** Relief of obstruction then, Herniotomy or Herniotomy with herniorrhaphy.

Direct inguinal hernia: Hernioplasty

Surgeries for hernia:

Herniotomy: Consists of-

1. Separation of sac from cord structures
2. Reducing the content
3. Transfixation and ligation of sac
4. Excise the redundant sac.

Indication: Indirect inguinal hernia.

Herniorrhaphy:

1. Herniotomy
2. Narrowing of the deep ring (with 2'0 prolene)
3. Approximation of conjoint tendon with inguinal ligament (using 1' polypropylene material)

Indication:

1. In all cases of IIH except in children.
2. Recurrent hernia

Methods:

1. Bassini
2. Shouldice
3. Darning

Hernioplasty:

Repair of hernia is done by reinforcing the gap by placement of some prosthetic materials like prolene mesh (or natural tissues like fascia lata).

Indication:

1. DIH
2. Recurrent hernia
3. IIH in patients with poor muscle tone

[Ward classes of MMC]

Complications of hernia surgery:

A. **Early:**
   - ✓ Pain
   - ✓ Bleeding: Due to accidental damage to inferior epigastric or iliac vessel.

- ✓ Urinary retention
- ✓ Anaesthetic related: Patient may be unable to move the leg due to over enthusiastic infusion of local anaesthetics.

B. **Medium:**
- ✓ Seroma: Due to excessive inflammatory response to suture or mesh.
- ✓ Wound infection: Uncommon

C. **Late:**
- ✓ Chronic pain: Due to nerve injury at the time of operation or chronic irritation of nerved by suture material.
- ✓ Testicular atrophy: Rare, due to damage of the testicular artery.

[Baily and Love-26th -959]

What are the complications of hernia?

1. Irreducibility
2. Obstruction
3. Strangulation

[Rajamahendran]

Why do you say this is an inguinal hernia?

- ✓ Swelling is in the groin which subsequently descended to the scrotum and lies above and medial to the pubic tubercle. So this is an inguinal hernia.
- ✓ In case of femoral hernia the hernial swelling lies below and lateral to the pubic tubercle.

Why do you say this is an indirect and not a direct hernia?

- ✓ Indirect hernia is usually unilateral, more commonly complete and more commonly found in young adults.
- ✓ On inspection the swelling extends downward and forward from the inguinal canal upto the bottom of the scrotum.
- ✓ During reduction the hernial contents go upward and backward. The deep ring occlusion test is positive. So this is an indirect inguinal hernia.

Why do you say this is a reducible hernia?

The content of the hernia can be reduced into the abdominal cavity, so this is a reducible hernia.

Why do you say this is an incomplete hernia?

The hernia has extended upto upper pole of the right testis. The testis and epididymis can be palpated separately from the hernial swelling, so this is an incomplete hernia.

What other swellings show expansile impulse on cough?

Apart from hernia the following swellings may show expansile impulse on Cough:

- ✓ Meningocele
- ✓ Encephalocele
- ✓ Laryngocele

What is the significance of age?

Young Age: Indirect
Old Age: Direct

Inguinal Canal (House of Bassini):

Length: 3.75 cm

Extension: From deep ring to superficial ring

Boundaries of Inguinal Canal:

Anterior Wall: External oblique aponeurosis, arched fibers of internal oblique laterally
Posterior Wall: Fascia transversalis, conjoint muscles (tendon) in medial half.
Floor: Grooved part of external oblique aponeurosis; Medial end there is lacunar ligament.
Roof: Conjoint muscles (Internal oblique and transversus abdominis)

[R Rajamahendran]

Contents of Inguinal Canal:

- ✓ Ilioinguinal nerve
- ✓ Spermatic cord in male, round ligament in female

Contents of spermatic cord:

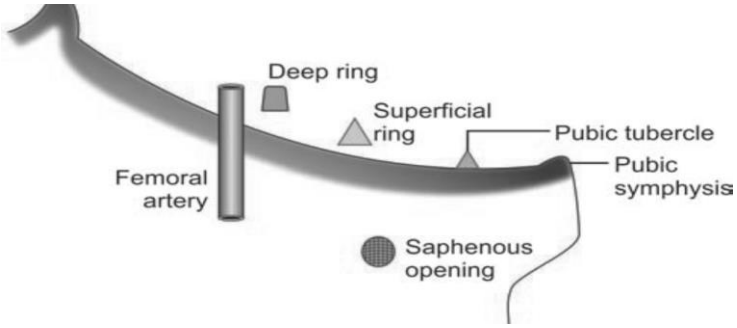
1. **Arteries :**
   - ✓ Testicular Artery
   - ✓ Artery of Vas
   - ✓ Artery to Cremaster
2. **Veins :**
   - ✓ Pampiniform plexus of veins
   - ✓ Veins corresponding to Arteries
3. Lymphatics of testis
4. Testicular plexus of sympathetic nerves
5. Genital branch of genitofemoral nerve
6. Vas deferens

Deep ring:

A semioval opening in the fascia transversalis.
Location: 0.5 inch above mid inguinal point (Between anterior superior iliac spine and pubic symphysis)
Remember here: Femoral artery is palpated at Midpoint of inguinal ligament- between ASIS and Pubic tubercle.

Superficial ring:

A triangular opening in the external oblique aponeurosis, guarded by two crura of muscle fibers.
Location: Just above pubic tubercle Saphenous opening: 4 cm below and lateral to pubic tubercle.



Hesselbach Triangle:

Weak spot in anterior abdominal wall through which direct hernia appears.

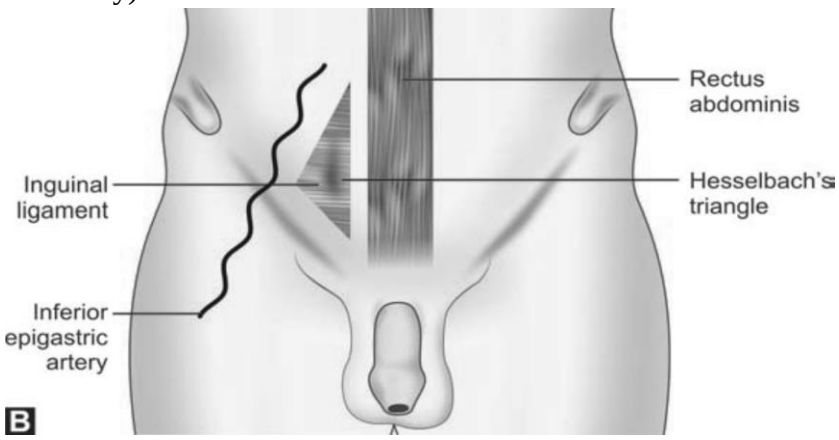
Boundaries:

Medial: Outer border of rectus abdominis

Lateral: Inferior epigastric vessels

Below: Medial part of inguinal ligament

Floor: Fascia transversalis —Traversed by medial umbilical fold; (Obliterated Umbilical Artery)



[R Rajamahendran-12]

If the patient has significant prostatic enlargement how will you treat this patient?

As the patient has significant prostatic enlargement, the patient should be treated by Prostatectomy(TURP) first then and hernia repair.

What is direct inguinal hernia?

Direct: When the hernia occurs through Hessalbach's traingle.

Indirect: When the hernia occurs through SIR.

Per-operative Dx: Relation of sac with cord:

Direct sac: Posteromedial to the cord

Indirect sac: Anterolateral to the cord

Difference between reducibility and compressibility:

Reducibility	**Compressibility**
After reducing the swelling opposite force is required to make the swelling reappear	Opposite force is not required for reappear-ing. It appears slowly to its original size
Swelling can be completely reduced	Swelling cannot be completed reduced
For example: Hernia	For example: Hemangioma

[**R Rajamahendran]**

Differences between direct and indirect inguinal hernia:

Factors	Direct	Indirect
Age	Older	Young
Sex	Never occur in female	M:F = 20:1
History	Reduced on lying down Mostly bilateral	Reduced by manipulation Usually unilateral to start
Inspection	Hemispherical shape Malgaigne's bulge (+) Incomplete variety	Pyriform shape No Malgaigne's bulge Complete/Incomplete
Palpation	Deep ring occlusion-swelling appears Finger invagination - impulse felt at pulp of little finger Zieman's technique - impulse at superficial ring	Swelling not appears Impulse at tip of finger Impulse at deep ring
Complication	Strangulation very rare	Common

[R Rajamahendran]

Color of suture materials:

- ✓ Prolene (polypropylene) : Dark blue
- ✓ Vicryl (polyglycolic acid): Violet
- ✓ Silk - Black Catgut: Brown
- ✓ Prolene mesh: White

Increasing order of size of materials: 3-0 < 2-0 < 1-0 < 1 < 2 < 3

HYDROCELE

Definition:

A hydrocele is an abnormal collection of serous fluid in a part of the processus vaginalis, usually the tunica vaginalis.

[Baily and Love-26th -1382]

Aetiology:

A hydrocele can be produced in four different ways-

1. By excessive production of fluid within the sac, e.g. a secondary hydrocele.
   Common causes:
   - ✓ Epididymo-orchitis
   - ✓ Testicular tumour
   - ✓ Trauma
2. By defective absorption of fluid; this appears to be the explanation for most primary hydroceles, although the reason why the fluid is not absorbed is obscure
3. By interference with lymphatic drainage of scrotal structures
4. By connection with the peritoneal cavity via a patent processus vaginalis (congenital).

[Baily and Love-26th -1382]

Classification:

A. Congenital:

1. **Vaginal (Most common, about 98%):** When there is accumulation of fluid in the tunica vaginalis sac then it is called vaginal hydrocele.
   - ✓ Swelling is scrotal
   - ✓ Soft cystic
   - ✓ Fluctuant and transilluminant
2. **Infantile:** There is collection of fluid in the processus vaginalis sac, which extends from the tunica vaginalis of the testis up into the inguinal canal and extends up to but not beyond the deep inguinal ring.
3. **Congenital:** When the whole of processus vaginalis is patent and there is accumulation of fluid within the processus vaginalis sac.
   - ✓ The hydrocele sac communicates with the peritoneal cavity through the deep ring. So this is also known as communicating hydrocele.
   - ✓ The swelling is inguinoscrotal, soft, cystic, fluctuant and also transilluminant.
4. **Encysted hydrocele of the cord:** When there is accumulation of fluid in the intermediate segment of the processus vaginalis, then it is called encysted hydrocele of the cord.

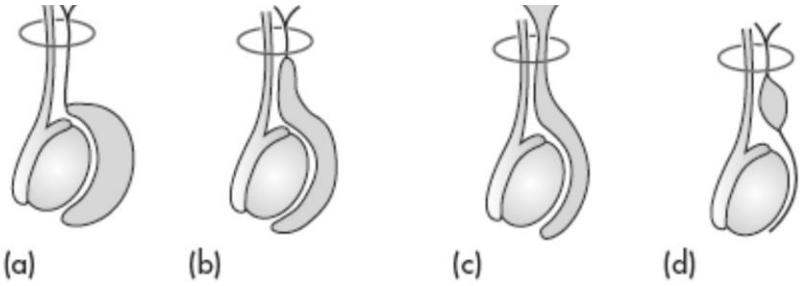


Figure 79.9 (a) Vaginal hydrocele (very common); (b) 'infantile' hydrocele; (c) congenital hydrocele; (d) hydrocele of the cord.

B. Acquired:

1. **Primary:** Idiopathic
2. **Secondary:** Secondary to diseases of testes and epididymis. E.g.
   - ✓ Epididymo-orchitis
   - ✓ Testicular tumour
   - ✓ Trauma

[Lecture of MMC]

Characteristics of fluid:

1. Amber colour and sterile.
2. Hydrocele fluid contains albumin and fibrinogen.
3. If the contents of a hydrocele are allowed to drain into a collecting vessel, the liquid does not clot; however, the fluid coagulates if mixed with even a trace of blood that has been in contact with damaged tissue.

[Baily and Love-26th -1382]

Treatment:

A. **Congenital:** Herniotomy if they do not resolve spontaneously

B. Acquired:

1. Small acquired hydroceles do not need treatment.
2. If they aresizeable and bothersome for the patient, then surgical treatment is indicated.

   Lord's operation: Suitable when the sac is reasonably thin-walled.

   Jaboulay's procedure: Eversion of the sac with placement of the testis in a pouch prepared by dissection in the fascial planes of the scrotum is an alternative.

[Baily and Love-26th -1382]

Complications of hydrocele:

The hydrocele if untreated, may treated:

- ✓ Infection—pyocele
- ✓ Trauma—hematocele
- ✓ Atrophy of testis
- ✓ Rupture
- ✓ Calcification of the sac
- ✓ Hernia of the sac.

[Bedside clinics in surgery-2nd-59]

SWELLING

Prepared by: **Md. Mehedi Hasan Lemon**

M-48

A. Greetings, permission, exposure, attendant (If patient is of opposite sex):
আসসালামুয়ালাইকুম। আমি এমবিবিএস পরিক্ষার্থী/৫ম বর্ষের একজন ছাত্র/ছাত্রী। আমি আপনার কিছু পরিক্ষা করবো, আপনার কোন সমস্যা হবে না।

B. History: Patient কে **expose** করতে করতে কিছু প্রশ্ন করার মধ্যমে History নিতে থাকবো- **(1-5 Must)**

1. আপনি কি সমস্যা নিয়ে হাসপাতালে ভর্তি হয়েছেন? এটা কিভাবে শুরু হয়েছে?
   -Spontaneous
   -Traumatic
2. শরীরের অন্য কোথাও আছে কি না? e.g. neurofibroma.
3. আস্তে আস্তে বড় হচ্ছে নাকি একই রকম আছে নাকি দ্রুত বড় হচ্ছে?
   - ✓ **Static or slowly increasing in size since beginning**: Usually benign swelling
   - ✓ **Rapidly increasing in size since beginning**: Usually malignant
   - ✓ **Suddenly increases in size after remaining stationery for ling period:** Malignant transformation of benign growth
   - ✓ **Initially increasing size, later the swelling regressed with time or treatment**: Inflammatory
4. এখানে কোন ব্যাথা আছে?
   - ✓ Painful: Due to trauma or inflammation.
     If painful, then details of pain.
     - ➢ Site
     - ➢ Nature: e.g. throbbing in supparative swelling, or burning or stabbing, or distending or aching.
     - ➢ Time of onset: Pain before swelling in inflammatory and swelling before pain in tumour.
   - ✓ Painless: Benign growth or early Ca
5. কতোদিন ধরে এই সমস্যায় ভুগছেন?
   -Congenital: present since birth. E.g. cystic hygroma, meningocele, dermoid, teratoma etc.
   -Acute or chronic
6. আপনার জ্বর আসা (Feature of inflammation), ক্ষুধা না লাগা বা আপনার শরীরের ওজন কমে যাচ্ছে কি না (feature of malignancy)?
7. কেটে ফেলা সত্বেও বারবার হচ্ছে কি না?
   - ✓ Recurrence after removal: Malignant change in benign growth or primary malignant tumour
   - ✓ Cystic swelling may reccur after if cyst wall is not completely removed
8. আপনার আর কোন সমস্যা আছে কি না?

C. Inspection: Inspection এ আমরা যা যা খেয়াল করবো–

Site:

Dermoid cyst: Midline of the body or line of fusion of embryonic processes.e.g. outer canthus of eye or behind the ear.

Sebaceous cyst: Face, scalp, scrotum.

Lipoma: anywhere but most commonly in back of the neck, shoulder and back.

Size: Vertical and horizontal dimension

Shape: Spherical, ovoid, pear-shaped kidney-shaped or irregular

Extend

Number

Single: Lipoms, dermoid cyst

Multiple: Neurofibromatosis, warts, secondary carcinomatous nodules etc.

Colour:

Black: Melanoma, benign nevus

Red or purple: Haemangeoma, inflammation

Bluish: Ranula

Surface:

Cauliflower surface: Squamous cell Ca

Irregular numerous branched surface: Papilloma

Skin over the swelling:

Red and oedematous: Inflammatory

Tense, glossy with venous prominence: Sarcoma

Black punctum: Sebaceous cyst

Pigmentation: moles, naevi etc.

Scar: Previous operation

Peau d'orange (in breast): Ca breast

Visible pulsation:

- ✓ Pulsation arising from swelling lying just superficial to artery: Transmitted pulsation
- ✓ Pulsation arising from arterial wall: Expansile pulsation

Visible peristalsis: e.g. in congenital hypertrophic pyloric stenosis.

Movement with respiration: Certain swellings arising from viscera of upper abdomen move with respiration e.g. those arising from liver, spleen, stomach, gall bladder, hepatic and splenic flexures of transverse colon.

Impulse on cough: For swelling on thorax and abdomen. In case of children, crying will work as coughing. Swellings having continuity with abdominal, spinal and pleural cavity will show impulse on coughing.

Deglutition: For swelling on neck. Swellings fixed with larynx or trachea moves with deglutition. e.g. thyroid, thyrglossal cysts. Etc.

Muscle wasting: Swelling of limbs

D. Palpation:

Temperature: Back of fingers দিয়ে Swelling -Normal- Swelling; এই sequence এ temperature দেখবো। Normal-abnormal-normal sequence is also ok.

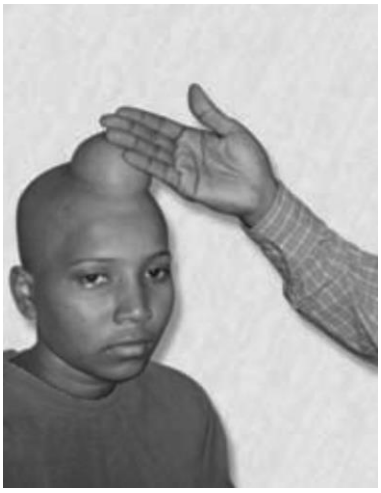


Fig: Temperature of swelling

Tenderness: রোগির মুখের দিকে তাকিয়ে Swelling এর উপরে আঙ্গুল দিয়ে press করবো।

If patient winces, swelling is tender. If doesn's wince, swelling is non-tender.

- ✓ Inflammatory swellings are mostly tender
- ✓ Neoplastic swellings are never tender

Surface: Palpate with the palmar surface of the finger over entire swelling.

Smooth: Cyst
Lobular: Lipoma
Nodular: A mass of matted lymph nodes
Irregular and rough: Carcinoma

Margin (Edge): Tips of the fingers দিয়ে দেখতে হবে। **Slip sign** and **bony indentation** ও খেয়াল করতে হবে।

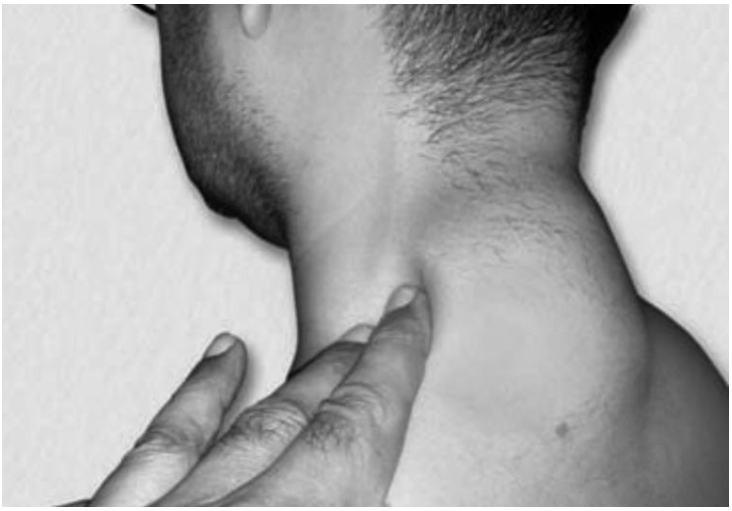


Fig: Ascertaining the margin of the swelling

Interpretation:

Well defined= Swelling slips away from fingers e.g.

Benign growth: Smooth margin
Malignant growth: Irregular margin

Ill defined= Swelling does not slip away from fingers.

Margin of solid swelling slip away: Slip sign positive

Consistency: Press the swelling with the pulp of the finger and assess the feel.

Uniform consistency:

Soft e.g. Lipoma
Cystic e.g. Cysts and chronic abscess
Firm e.g. fibroma
Hard but yielding e.g. chondroma
Bony hard e.g. osteoma
Stony hard e.g. carcinoma

Variable consistency: Often indicates malignancy

Fluctuation test: ***Perform only if consistency is cystic.*** Fluctuation means transmitted impulse in two planes at right angles to each other. A swelling fluctuates when it contains liquid or gas.

Method: Depending on the size of the swelling one finger or two fingers of each hand is used to demonstrate fluctuation. The finger which presses the swelling is called the displacing finger while the static fingers, which appreciate the displacement is called the watching finger.

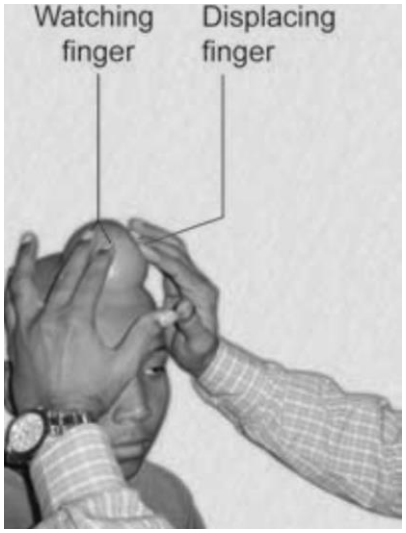


Fig: Fluctuation in case of large swelling: The displacing fingers are pressed inward, if the watching fingers are displaced by this pressure in both axes of the swelling then fluctuation is said to be positive

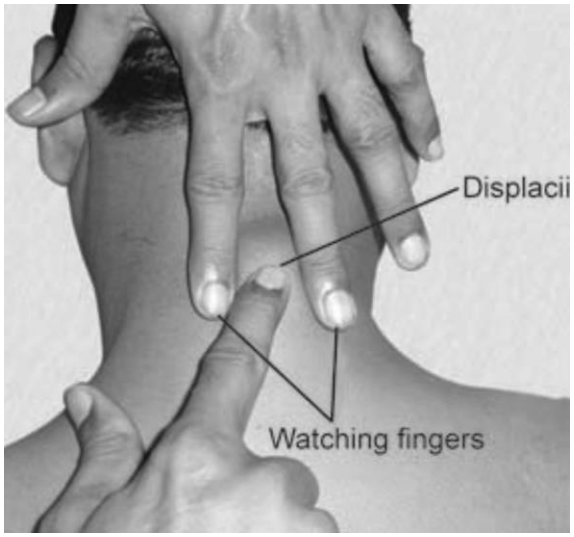


Fig: Fluctuation in case of small swelling (Paget's test): The swelling is fixed at the periphery with two fingers and feel the swelling from centre to the periphery. The swelling feels softer at the center than at the periphery.

Transillumination test: ***Perform only if consistency is cystic.*** This means the swelling can transmit light through it. For this, it must contain clear fluid e.g. water, serum, lymph, plasma or highly refractile fat. A swelling may be fluctuant but may not be translucent when it contains opaque fluid e.g. blood or pultaceous material (dermoid or sebaceous cyst).

Method: Swelling এর একপাশে টর্চ লাইট জ্বালিয়ে ধরবপ এবং অন্যপাশে X-ray film দিইয়ে বানানো চোঙ ধরবো। চোঙ্গের ভেতর দিইয়ে তাকালে যদি মনে হয় swelling থেকে আলো আসছে তাহলে transillumination test positive, অন্যথায় negative.

Positive: Hydrocele, meningocele, cystic hygroma, ranula, bursa etc.

Negative: dermoid or sebaceous cyst etc.

Reducibility and compressibility:

চাপ দিলে যদি সাইজে ছোট হয়ে যায় বা disappear করে কিন্তু pressure release করলে আবার re-appear করে তাহলে সেটা compressible e.g. arterial or capillary haemangioma.

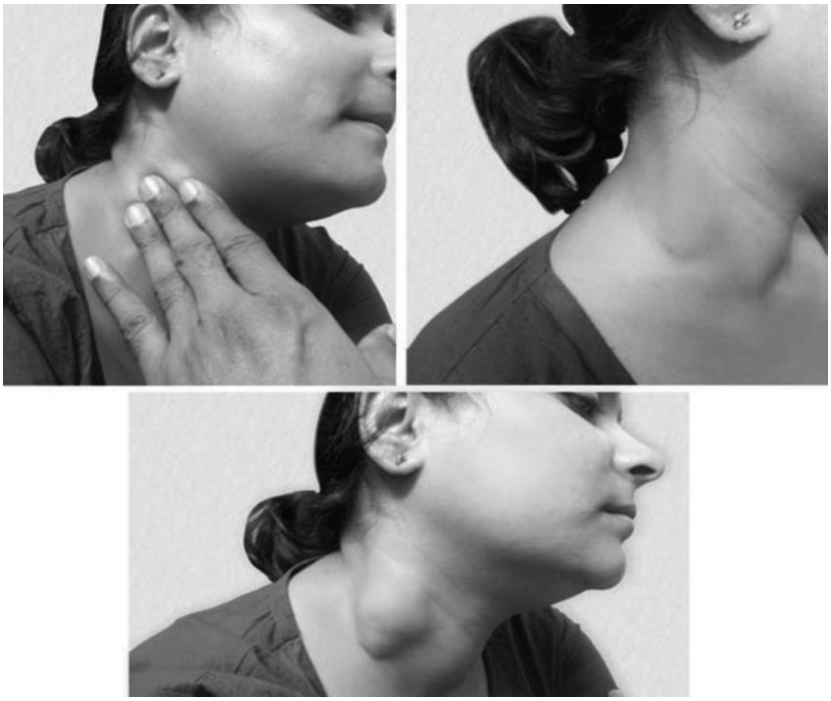


Fig: Compressibility

চাপ দিলে যদি সাইজে ছোট হয়ে যায় বা disappear করে কিন্তু pressure release করলে re-appear না করে but additional force such as coughing or straining or the effect of gravity এ re-appear করে তাহলে সেটা compressible e.g. feature of hernia.

Indentation test:

- ✓ Press the swelling for 15–30 seconds. if a dimple appears over the swelling then the swelling is said to have shown the sign of indentation.
- ✓ Cysts containing pultaceous materials as in dermoid cyst or sebaceous cyst are said to be indentable.

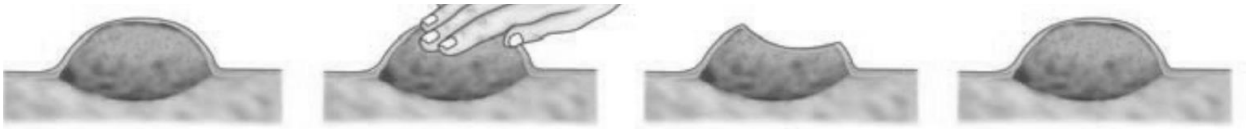


Fig: Indentation test

Pulsatility:

Method: Place the index and middle finger over the swelling. if the pulsation is transmitted, the fingers move up parallel to each other with each pulsation. if the pulsation is expansile, the fingers are lifted up and also move apart with each pulsation.

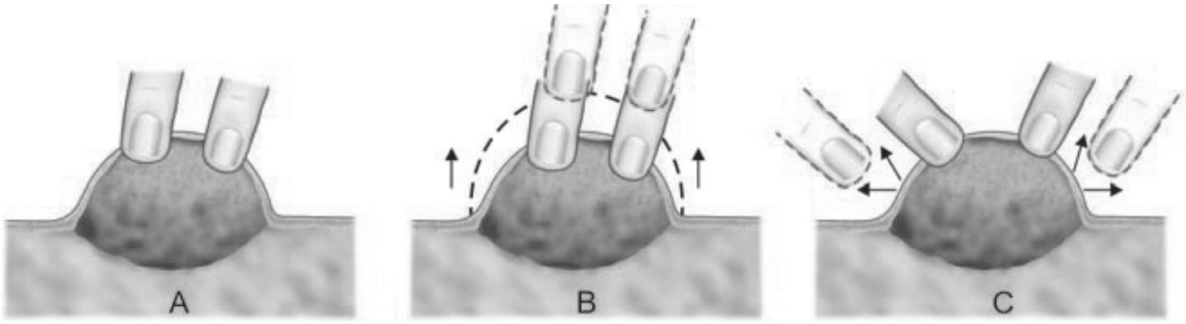


Figure: B= transmitted C= Expansile pulsation

Transmitted pulsation: When there is a swelling in front of an artery e.g. pancreatic mass over abdominal aorta.

Expansile pulsation: e.g. aneurysm.

Fixity with skin and underlying structure:

Method: Fixity to skin: Skin pinch করে উপরের দিকে টেনে ধরতে হবে। যদি pinch up করা যায় তাহলে not fixed with skin, pinch up করা না যায় তাহলে fixed to skin e.g. sebaceous cyst, papilloma, epithelioma (originates from skin).

Method: Fixity to muscle and bone: Hold the swelling and try to move it with the underlying muscle relaxed both along and across the axis of the muscle.

- ✓ **Swelling is immobile with the muscle being relaxed**: Swelling is fixed to the underlying bone.
- ✓ **Swelling is mobile with the muscle relaxed:** This indicates the swelling is not fixed to the underlying bone.

Then, ask the patient to contract the muscle and try to move the swelling over the contracting muscle in both axes.

Freely mobile: Not fixed to the underlying muscle.

Restriction of mobility: Fixed to underlying muscle.

E. Examine the regional lymph node

F. Thanks giving: সহযোগিতা করার জন্য আপনাকে ধন্যবান বলে , যদি আগে কাপড় সরিয়ে expose করা থাকে তাহলে কাপড় ঠিক করে দেবো।

Description: According to diagnosis. Please see below.

CROSS QUESTIONS

Lump: A lump is a vague mass of body tissue.

[S.Das-9th-21]

Swelling: A swelling is a vague term which denotes any enlargement or protuberance in the body due to any cause.

[S.Das-9th-21]

Tumour/neoplasm:

A growth of new cells which proliferate independent of the need of the body.

[S.Das-9th-21]

Or, **[Preferred]**

Abnormal mass of tissue growth of which exceeds and is uncoordinated with normal tissue and persists in same excessive manner after cessation of stimuli which evoked the change.

[Lecture of MMC]

Difference between benign and malignant growth:

Traits	**Benign**	**Malignant**
	Occurs at younger age	Seen usually above 40 years but may occur at younger age
Symptoms		
1. Duration	Slow growth	Rapid growth
2. Pain	Usually absent	May be painful at late stage.
3. Loss weight	Never seen	Feature of malignant growth
4. Loss of function	Usually not seen	Seen quiet early
Signs		
1. Cachexia, anaemia, loss of weight	Usually absent	Usually present
2. Mobility	Freely mobile	Fixed early due to infiltration
3. Surface	Usually smooth	Usually irregular
4. Margin	Definite and smooth	Not definite and irregular
5. Consistency	Usually firm	Either hard or variable consistency
6. Pressure effect	Usually absent	Often present
7. Regional lymph node	Not enlarged	Early involved and enlarged
8. Distant metastasis	Almost never seen	A late feature
9. Secondary change	Not seen	Often come across
10. Recurrence	Never recurs after excision	Often recurs after excision

[S.Das-9th-42-43]

Boil/Furuncle: Acute Staphylococcal infection of hair follicle with perifolliculitis.
Common sites: Back and neck
C/F:

1. Painful and indurated swelling
2. Tenderness with surrounding oedema
3. May burst spontaneously discharging greenish slough

Rx:

- ✓ Antiboitics,
- ✓ I_2 touch
- ✓ When pus is visible: Incision and drainage

[S.Das-9th-46+Lecture of MMC]

Curbuncle: Staphylococcal infection which causes infective gangrene.
Common sites: Back, nape of neck where skin is coarse and vitality of tissue is less.
C/F:

1. Generally men above 40 years mostly with DM
2. Painful and stiff swelling which spreads rapidly with marked induration

3. Overlying skin is red, dusky and oedematous
4. Subsequently central part softens, vesicles and later on pustules appear on the surface
5. **Sieve like or cribriform appearance:** Pathognomonic
6. Ulcer with ashy-gray slough

Rx:

- ✓ Antibiotics
- ✓ Sterile dressing
- ✓ Osmotic paste
- ✓ Control of DM

[S.Das-9th-46-47+Lecture of MMC]

Abscess: Collection of pus lined by pyogenic membrane.

[Lecture of MMC]

Or,

Abscess is collection of pus within the body.

[S.Das-9th-46]

Types: Three types. E.g.

1. Pyogenic (Commonest)
2. Pyemic
3. Cold

[S.Das-9th-46]

C/F:

C/F:

1. **General:** Fever with chills and rigor
2. **Local:**
   - ✓ Pain: Throbbing in nature when pus develops
   - ✓ Red hot and tender
   - ✓ Pitting oedema
   - ✓ Fluctuation test: Positive or may not be positive e.g. parotid abscess.

Rx:

- ✓ Incision and drainage
- ✓ Antibiotic (Flucoxaxillin)
- ✓ Analgesic
- ✓ Regular dressing
- ✓ Control of co-morbid condition e.g. DM

Principles of drainage of abscess:

a) Incision at most fluctuant point
b) Collection sending of pus for C/S
c) Breaking of all loculi
d) Keep a drain/pack

[S.Das-9th-46+Ward classes of MMC]

Papilloma: Simple overgrowth of all layers of skin.

Cellulitis:

It is spreading inflammation of subcutaneous and facial tissue leading to suppuration, sloughing or even gangrene of the affected part.

Commonest organism: *Staphylococcus aureus*

Sites: Scalp, orbit, neck, pelvis

C/F:

3. H/O accidental wound, may be trivial
4. Usually in patient with DM or debilitated with poor nutrition
5. **General:** Fever and toxemia
6. **Affected part:**
   - ✓ Redness, itching, stiffness
   - ✓ Swollen, hot, tender
   - ✓ Looks brawny and pitting oedema
   - ✓ No definite edge
   - ✓ Lymphangitis and enlarged regional lymph node

[S.Das-9th-45]

Rx:

1. Rest
2. Elevation of part
3. Drainage of pus
4. Antibiotics
5. Control of DM

[S.Das-9th-45+Ward classes of MMC]

Erysipelas:

It is spreading cuticular Lymphangitis which may follow even a scratch.

Commonest organism: *Strepcoccus pyogens*

[S.Das-9th-45]

Lipoma:

Lipoma is cluster of fat cells which becomes overactive and so distended with fat that it produces palpable swelling.

- ✓ Commonest swelling of subcutaneous tissue
- ✓ May occur at any site hence called 'Universal tumour'

Common sites: Back of the neck, shoulder and the back

Types: 3 types e.g.

1. Encapsulated (Commonest)
2. Diffuse
3. Multiple

[S.Das-9th-47-48]

Examination findings:

Inspection:

- ✓ Site:
- ✓ Size:
- ✓ Shape: Globular
- ✓ Extend:
- ✓ Number: Single/multiple
- ✓ Colour:
- ✓ Skin over the swelling: Normal
- ✓ Visible pulsation:
- ✓ Visible peristalsis:
- ✓ Movement with respiration:
- ✓ Impulse on cough:
- ✓ Deglutition:
- ✓ Muscle wasting:

Palpation:

- ✓ Temperature: Not raised
- ✓ Tenderness: non-tender
- ✓ Surface: lobulated
- ✓ Margin (Edge): well defined and slipping sign positive
- ✓ Consistency: Soft
- ✓ Reducibility and compressibility: no
- ✓ Indentation test: Negative
- ✓ Fixity with skin and underlying structure: not fixed

Examine the regional lymph node: Not palpable
Description:

This 30 years male patient presented with a gradually increasing swelling in the back of the neck for last 4 years. No pain over the swelling. No other swelling in other parts of the body.

On inspection: A globular swelling, measuring about 5X2 cm is found in the back of the nape of the neck, skin over swelling is normal, no visible pulsation, no colour change, no scar mark.

On palpation: Temperature not raised, non-tender, surface is lobulated and the margins are rounded, well defined and slip sign positive (**Must be mentioned)**, soft in consistency, Indentation test negative. The skin is free and the swelling is freely mobile on the underlying structures. The swelling becomes more prominent on contraction of the underlying trapezius muscle. The swelling is non-pulsatile, non reducible or compressible.

Regional lymph nodes are not palpable (Don't mention if examiner doesn't ask).

So, my Dx is Lipoma in the back of the neck.

Rx: Excision and biopsy under GA/LA.

Complications/ secondary changes:

- ✓ Myxomatous degeneration

- ✓ Saponification
- ✓ calcification
- ✓ Rarely malignant change—liposarcoma
- ✓ Infection
- ✓ Ulceration: Due to repeated trauma
- ✓ May attain huge size and cause cosmetic deformity

[S.Das-9th-49]

Dercum's disease or adiposis dolorosa:

- ✓ This painful, tender, diffuse or nodular deposits of fat in trunk or limb.
- ✓ Commonly found in women particularly affecting trunk, buttocks and thigh.
- ✓ There are no capsules around these fatty deposits so they are also called false lipoma.

Which lipomas commonly undergo malignant change?

- ✓ Retroperitoneal lipomas
- ✓ Lipomas in the thigh
- ✓ LIpomas in the shoulder region

When would you suspect a sarcomatous change in a lipoma?

- ✓ H/O rapid increase in size
- ✓ Swelling may become painful
- ✓ There may be symptoms due to distant metastasis
- ✓ The temperature over the swelling may be raised
- ✓ There may be dilated veins over the swelling
- ✓ May become fixed to the deeper structure or to the skin (Due to infiltration)

[MLS-2nd-334-36]

Dermoid Cyst:

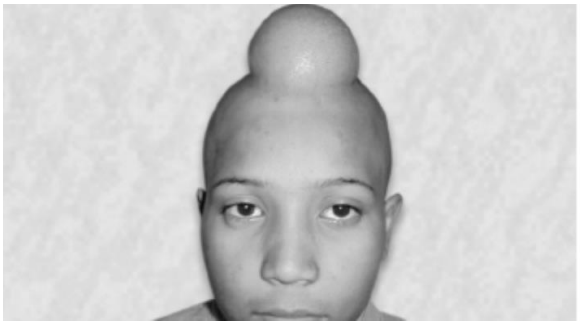
Dermoid is a loose term given to cysts lined by squamous epithelium occurring in various parts of the body.

Clinical types:

1. Sequestration dermoid
2. Implantation dermoid
3. Tubulodermoid
4. Teratodermoid

Common sites: generally develops in line of embryonic fusion. E.g.

1. Midline of the body
2. Places where two embryonic processes meet. E.g. outer angle of the orbit (fronto-nasal and maxillary process meets), behind the pinna (Post-auricular dermoid), below the tongue in midline (Sublingual dermoid) etc.



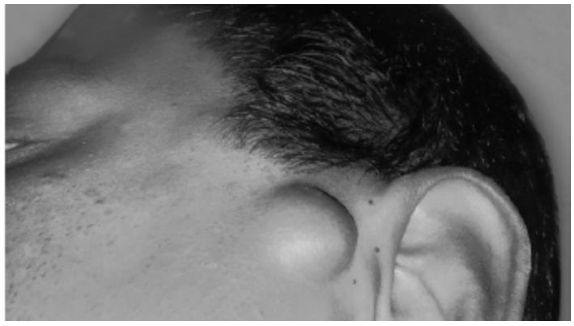


Fig: Dermoid

Content of a dermoid cyst: Toothpaste like material, which is formed by desquamated epithelial cells with or without hair.

[S.Das-9th-42+Ward classes of MMC]

Examination findings:

Inspection:

- ✓ Site:
- ✓ Size:
- ✓ Shape: Globular
- ✓ Extend:
- ✓ Number: Single/multiple
- ✓ Colour:
- ✓ Skin over the swelling: Normal (no punctum)
- ✓ Visible pulsation: absent
- ✓ Movement with respiration: absent
- ✓ Impulse on cough: absent (except in scalp dermoid)
- ✓ Deglutition: absent
- ✓ Muscle wasting: absent

Palpation:

- ✓ Temperature: Not raised
- ✓ Tenderness: non-tender
- ✓ Surface: smooth
- ✓ Margin (Edge): well defined and **bony indentation may be present if situated on bone.**
- ✓ Consistency: Cystic
- ✓ Fluctuation: positive
- ✓ Transillumination: Negative
- ✓ Reducibility and compressibility: not
- ✓ Indentation test: Negative
- ✓ Fixity with skin and underlying structure: not fixed

Examine the regional lymph node: Not palpable

Description:

This 20 years male patient presented with a painless swelling in the lateral angle of left orbit for last 5 years, which is gradually increasing in size. No pain over the swelling. No other swelling in other parts of the body. Skin over the swelling is normal, no visible pulsation.

On inspection, there is a swelling at lateral angle of the left orbit, globular in shape, 3cm × 3cm in size.

On palpation, it is non-tender, temperature is not raised. Margin is well defined and bony indentation present. The swelling is smooth, consistency is cystic, fluctuation test is positive but transillumination test is negative. It is free from skin and underlying structure. The swelling is non-pulsatile, non reducible or compressible.

Regional lymph nodes are not palpable (Don't mention if examiner doesn't ask).

What is your diagnosis?

This is a case of dermoid cyst in lateral angle of left orbit.

Rx: Excision and biopsy under GA/LA.

Will you get a positive transillumination test in dermoid cyst?

- ✓ The dermoid cyst usually contains a turbid fluid containing sebum and desquamated epithelial cells and is usually not transilluminant.
- ✓ Rarely the dermoid cyst may contain a clear fluid and in that case the dermoid cyst may show positive transillumination.

How will you differentiate dermoid cyst and sebaceous cyst?

- ✓ Dermoid cyst occurs at the lines of embryonic fusion, whereas sebaceous cyst may occur at any site.
- ✓ Dermoid cyst lies in subcutaneous tissue and is free from the skin. The sebaceous cyst lies deep to the epidermis and the skin is usually fixed to the cyst and there is usually punctum over the skin.

How will you differentiate dermoid cyst and meningocele?

The meningocele may be differentiated from dermoid cyst by:

- ✓ Presence of cough impulse.
- ✓ Bony gap is palpable.
- ✓ Swelling is transilluminant

Why dermoid cyst is called a true cyst?

This is called a true cyst because it is lined by squamous epithelium with hair follicles, sebaceous glands and sweat glands.

What is false cyst?

False cyst is fluid filled sac not lined by epithelium. This may be lined by granulation tissue or fibrous tissue e.g. pseudopancreatic cyst, cystic degeneration of a tumor.

What will you do if there is suspicion of intracranial extension?

- ✓ X-ray skull
- ✓ CT scan of cranium is required to assess the extent of intracranial extension
- ✓ Excision of the cyst: both extracranial and intracranial part by raising an osteoplastic flap or by craniectomy.

What are the complications of dermoid cyst?

- ✓ Infection
- ✓ Hemorrhage
- ✓ Pressure effect on adjacent structure

- ✓ Calcification
- ✓ Rupture and surface ulceration.

Sebaceous cyst:

This is a cyst of sebaceous gland due to blockage of the duct of this gland of this gland which opens mostly into the hair follicle.

[S.Das-9th-56]

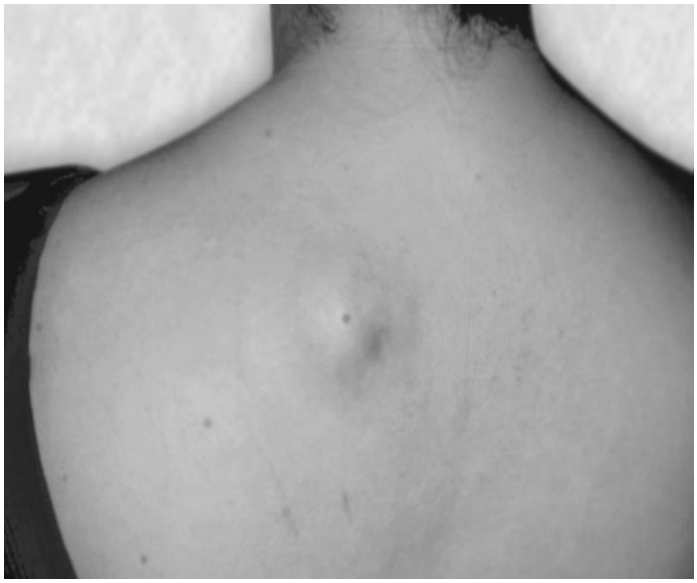
Content: Sebum, which is yellowish cheesy pultaceous material.
Punctum: There is a black spot on the swelling, which is the obstructed opening of the duct.

[S.Das-9th-56]

Common sites:

- ✓ May occur anywhere in the body except in palm and sole.
- ✓ Commonly seen in scalp, face and scrotum.

[S.Das-9th-56-57]



Complications:

1. Infection
2. Ulceration
3. Rupture and sinus formation
4. Calcification
5. Carcinomatous change
6. **Cock's peculiar tumour:** When ruptured and chronic infection spreads to surrounding tissue, may lead to painful, boggy, fungating and discharging mass knwns as 'Cock's peculiar tumour'.
7. **Sebaceous horn:** Slow discharge from a wide punctum may harden and known as 'sebaceous horn'.

[S.Das-9th-57]

Examination findings:

Inspection:

- ✓ Site: Mentioned above
- ✓ Size:
- ✓ Shape: Globular or spherical
- ✓ Extend:
- ✓ Number: Single/multiple
- ✓ Colour:
- ✓ Skin over the swelling: bluish spot called punctum
- ✓ Visible pulsation: absent
- ✓ Movement with respiration: absent
- ✓ Impulse on cough: absent
- ✓ Deglutition: absent
- ✓ Muscle wasting: absent

Palpation:

- ✓ Temperature: Not raised
- ✓ Tenderness: non-tender
- ✓ Surface: smooth
- ✓ Margin (Edge): well defined
- ✓ Consistency: Cystic
- ✓ Fluctuation: positive
- ✓ Transillumination: Negative
- ✓ Reducibility and compressibility: not
- ✓ Indentation test: Negative
- ✓ Fixity with skin: fixed
- ✓ Fixity to underlying structure: not fixed

Examine the regional lymph node: Not palpable

Description:

This 20 years female patient presented with a painless swelling on the back for last 3 years, which is gradually increasing in size. No pain over the swelling. No other swelling in other parts of the body. Skin over the swelling is normal, no visible pulsation.

On inspection, there is a swelling on the back, globular in shape, 2cm × 3cm in size.

On palpation, it is non-tender, temperature is not raised. Margin is well defined and no bony indentation. The swelling is smooth, consistency is cystic, fluctuation test is positive but transillumination test is negative. Skin cannot be lifted up but free underlying structure. Indentation and moulding test positive. The swelling is non-pulsatile, non reducible or compressible.

Regional lymph nodes are not palpable (Don't mention if examiner doesn't ask).

What is your diagnosis?

This is a case of sebaceous cyst on the back.

Rx: Excision and biopsy under GA/LA.

What are the dds?

- ✓ Dermoid cyst
- ✓ Lipoma
- ✓ Fibroma
- ✓ Neurofibroma

Where sebaceous glands are located?

The sebaceous glands are situated in the dermis and their ducts open either into a hair follicle or directly on to the skin surface and it secretes sebum.

Where sebaceous glands are absent?

In palms and soles.

Why sebaceous cyst is also called an epidermoid cyst?

AS sebaceous cyst is located in the dermis and is lined by superficial squamous epithelial cells of the epidermis, so it is called an epidermoid cyst.

What organism may be found in sebaceous cyst?

Demodex folliculorum

What are the features of infected sebaceous cyst?

Symptoms:

- ✓ Pain over the swelling
- ✓ Recent increase in size of the swelling

Signs:

- ✓ Overlying skin is red, inflamed.
- ✓ Tender and on squeezing,
- ✓ Pus may be expressed through the punctum.

Rx:

- ✓ Antibiotics
- ✓ After the infection is controlled: Excision of the cyst
- ✓ If pus is already pointing, in addition to antibiotics, incision and drainage of pus and avulsion of cyst wall may be done.

What are the characteristics of scrotal sebaceous cyst?

- ✓ Usually multiple
- ✓ May feel solid
- ✓ No punctum is usually seen

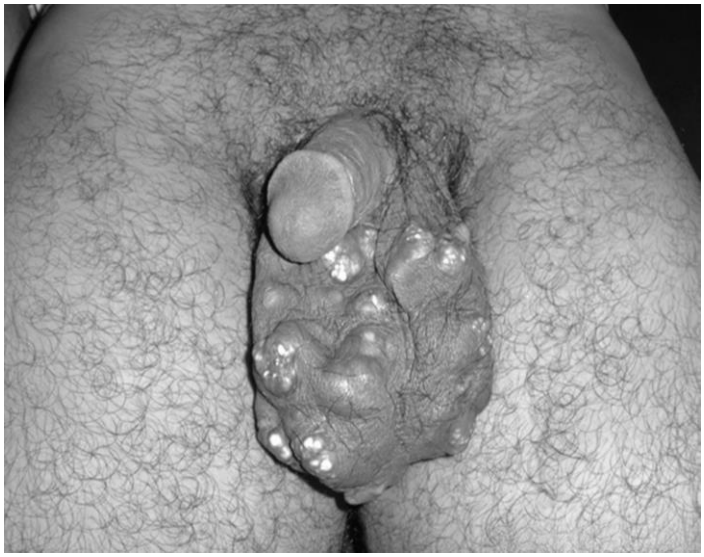


Fig: Multiple sebaceous cyst in scrotum

Rx:

- ✓ **Single cyst:** Excision
- ✓ **Multiple cysts confined to one segment of the scrotum**: Excision of that segment of scrotal skin along with the cyst
- ✓ **Multiple cysts involving whole of scrotum:** Total scrotectomy with all cysts. Testes may be implanted in a subcutaneous tunnel on the medial aspect of the thigh.

[Bedside clinics in surgery-2nd-333]

HYPOSPADIAS

Prepared by: **MD. MEHEDI HASAN LEMON**
M-48

A. Greetings, permission, exposure, attendant (If patient is of opposite sex):
আসসালামুয়ালাইকুম। আমি এমবিবিএস পরিক্ষার্থী/৫ম বর্ষের একজন ছাত্র/ছাত্রী। (বাচ্চার মায়ের কাছ থেকে অনুমতি নিতে হবে)আমি আপনার কিছু পরিক্ষা করবো, আপনার কোন সমস্যা হবে না।

B. History: Patient কে **expose** করতে করতে কিছু প্রশ্ন করার মধ্যমে History নিতে থাকবো-

1. কি সমস্যা? কতদিন ধরে, জন্ম থেকেই?
2. প্রস্রাবের কোন সমস্যা আছে কি না যেমন- প্রস্রাব চিকন নলে হয়,দুই নলে পড়ে, প্রস্রাব করার সময় কাপড় ভিজে যায়,ঘন ঘন প্রস্রাব হয়?[Present in meatal stenosis]
3. বাচ্চা কাঁদার সময় কুচকি ফুলে যায় কি না? [Present in congenital hernia]
4. শরীরের অন্য কোথাও আর কোন জন্মগত ত্রুটি আছে কি না?

C. Inspection/Palpation: আমি বসে **palpate** করা শুরু করবো।

1. **Assess the type of hypospadias** and meatal stenosis: Torch light জ্বালিয়ে urethral meatus এর position and কোন stenosis আছে কি না দেখে নিবো।
2. **Assess the prepuce:** দুই হাতের thumb and index finger দিয়ে prepuce এর skin উঠাবো। Usually there is a dorsal hood of skin and deficient ventral skin.
3. **Any chordee:** Root of the penis এর দুই পাশে thumb দিইয়ে এমনভাবে চাপ দিবো যেন পেনিস লম্বালম্বিভাবে দাড়িয়ে যায়। যদি chordee থাকে তাহলে penis কখনোই সোজা হবে না।
3. **Examine the scrotum:** Scrotum হাত দিইয়ে ধরে ভালোভাবে দেখে নিবো।
   - ✓ In perineal hypospadias the scrotum may be bifid.
4. **Assess the size of the penis:** Penis হাত দিইয়ে ধরে ভালোভাবে দেখে নিবো।
   - ✓ Usually the penis is hypoplastic.
5. **Examine both testes:** Examine with both of your hands to assess whether normally descended or not.
6. **Assess the presence of hernia:** বাচ্চা বড় হলে কাশি দিতে বলবো।,,

D. ,, **Look for any other congenital anomalies:** Just move your hand from head to toe and look for-

- ✓ Meningocele
- ✓ Pre and post auricular sinus
- ✓ Spina bifida
- ✓ Cleft leap and cleft palate
- ✓ Anal anomalies
- ✓ Syndactyle and polydactyle
- ✓ Club foot

E. Sir, I want the patient to lie down for assess the kidneys, bladder and auscultate the murmurs.

- ✓ Palpate the kidney: Balotable or not : To exclude hydronephrosis
- ✓ Bladder: Inspection, palpation anf percussion
- ✓ Auscultate the precordium

F. আমাকে সহযোগিতা করার জন্য আপনি ও আপনার বাবুকে অনেক ধন্যবাদ বলে কাপড় ঠিক করে দিবো।

Description:

This 2 years male child presented with urethral orifice on the undersurface of the penis since birth. Patient has difficulty in passing urine and the stream is narrow and the patient soils his under clothes while passing urine.

On examination: The penis appears hypoplastic. The external urethral orifice is situated on the undersurface of the penis near the distal part of the body. The distal part of the penis is bent downward due to the presence of a chordee. There is a dorsal hood of preputial skin and deficient ventral aspect of preputial skin. There is no other congenital anomalies.

What is your diagnosis?

This is a case of distal penile type of hypospadias with meatal stenosis in a boy of 2 years age.

What will you do next?

I will do some investigation:

- ✓ Urine RME
- ✓ USG of WA

What is your treatment plan?

1. **Avoid circumcision:** As the prepuce may be used in procedures to correct the abnormality.
2. **Surgical treatment: Orthoplasty and urethroplasy,** should be undertaken by a paediatric Urologist typically before the age of one year.

[Baily and Love-26th-1360]

Cross questions

Hypospadias:

Hypospadias is characterised by the combination of a ventrally placed urethral meatus, a hooded foreskin and chordee.

[Baily and Love-26th-1360]

Classification: Hypospadias is classified according to the position of the meatus-

1. **Glanular hypospadias**: The ectopic meatus is placed on the glans penis, but proximal to the normal site of the external meatus which is marked by a blind pit. Occasionally the two are connected by a channel.
2. **Coronal hypospadias**. The meatus is placed at the junction of the underside of the glans and the body of the penis.
3. **Penile and penoscrotal hypospadias**. The meatus is on the underside of the penile shaft.
4. **Perineal hypospadias**. This is the rarest and most severe abnormality. The scrotum is bifid and the urethra opens between its two halves. There may be testicular maldescent, which may make it difficult to determine the sex of the child.

The more severe varieties of hypospadias represent an absence of the urethra and corpus spongiosum distal to the ectopic opening. The absent structures are represented by a fibrous cord, which deforms the penis in a downward direction (chordee).

[Baily and Love-26th-1360]

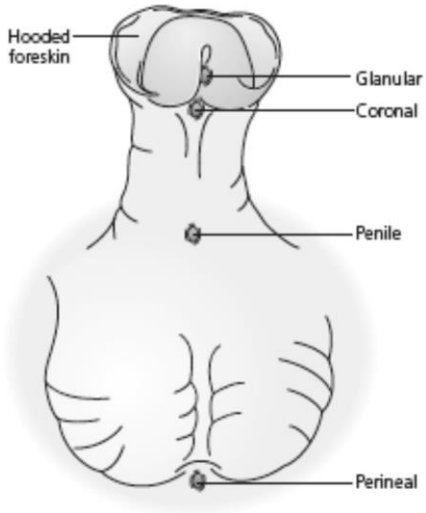


Figure 78.2 Hypospadias classification.

Characteristic features:

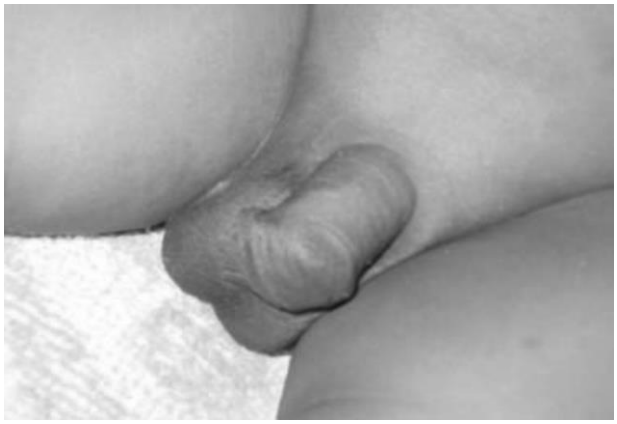


Fig: Dorsal hooding

1. External meatus opens on the underside of the penis or the perineum.
2. **Hooded prepuce:** the ventral aspect of the prepuce is poorly developed called 'hooded prepuce'.
3. **Chordee:** a ventral deformity of the erect penis.

[Baily and Love-26th-1360]

What are the problems in patients with hypospadias?

1. Abnormal location of external urethral meatus.
2. Often the external urethral meatus is stenosed. There may be narrowing of stream.
3. Ventral location of meatus may cause wetting of underclothes during micturition.
4. Chordee: Distal to the external urethral orifice, there is a fibrous band which causes bending of penis ventrally, which becomes more pronounced on erection.
5. Abnormal preputial skin: The prepuce is deficient in its ventral aspect and there is hood of prepuce on dorsal aspect.

6. Perineal type of hypospadias may be associated with undescended testis and ambiguous genitalia.
7. Infertility is often associated in patients with posterior hypospadias.
8. Due to chordee, there may be difficulty in sexual activity.

[Bedside clinics in surgery-2nd-578]

Which factors are responsible for development of hypospadias?

1. **Endocrine factors:** Deficiency of testosterone or dihydrotestosterone during development or androgen insensitivity syndrome may result in failure of development of urethra leading to development of hypospadias. Maternal progesterone therapy during early pregnancy is associated with high incidence of hypospadias.
2. **Enzyme deficiency:** Deficiency of 3-beta hydroxysteroid dehydrogenase enzyme is associated with incomplete musculine development and hypospadias. This enzyme is required for synthesis of almost all biologically active steroid hormones.
3. Local tissue failure and arrested development leads to hypospadias.

[Bedside clinics in surgery-2nd-579]

What are the complications of hypospadias repair?

- ✓ Bleeding and hematoma
- ✓ Meatal stenosis
- ✓ Urethrocutaneous fistula
- ✓ Urethral stricture
- ✓ Urethral diverticulum
- ✓ Wound infection
- ✓ Breakdown of repair

[Bedside clinics in surgery-2nd-581-82]