EXAMINATION OF SINUS AND FISTULA

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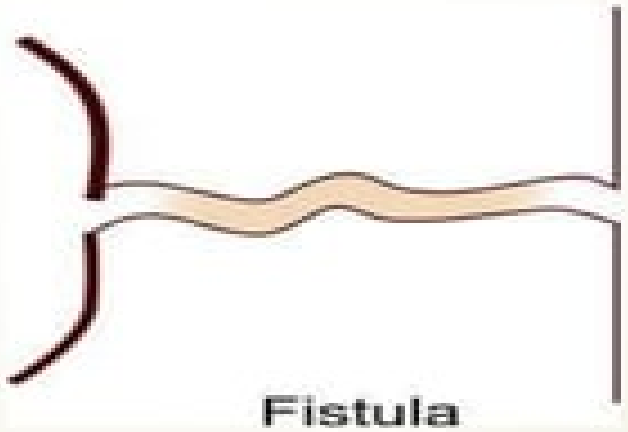
SINUS

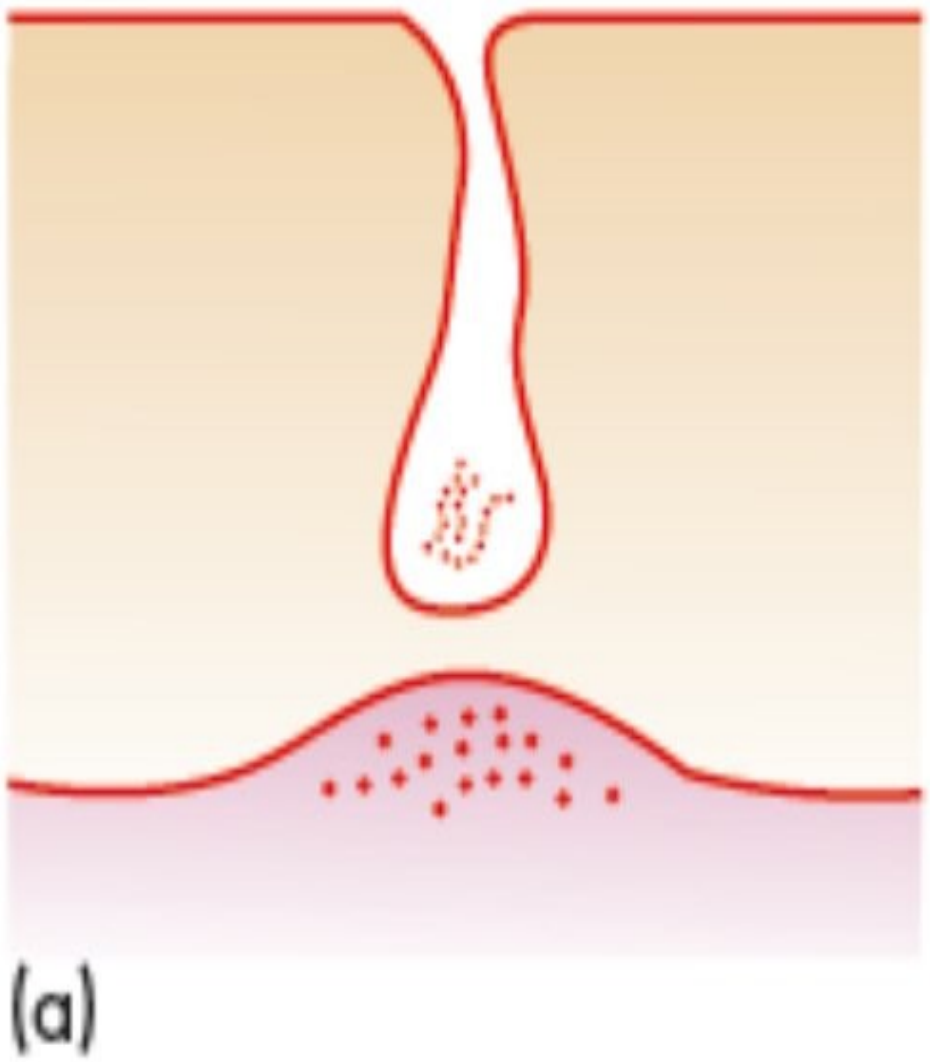
- A sinus is a blind track leading from the surface down to the tissues.
- There may be a cavity in the tissue which is connected to the surface through a sinus. The sinus is lined by granulation tissue which may be epithelialized.

FISTULA

- It is a communicating track between two epithelial surfaces, commonly between a hollow viscus and the skin (external fistula) or between two hollow viscera (internal fistula).
- The track is lined with granulation tissue which is subsequently epithelialized.

Latin : flute (or) a pipe (or) a tube

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CAUSES OF PERSISTENCE OF A SINUS

- Presence of foreign body or necrotic tissue (e.g. sequestrum or a suture material) in the depth
- absence of rest
- non-dependent drainage or inadequate drainage of an abscess
- when a specific chronic infection (e.g. tuberculosis, actinomycosis etc.) is the cause

  when the track becomes epithelialized
- sometimes there may be a dense fibrosis around the wall of the track and the cavity preventing their collapse, as occurs in chronic empyema.

CAUSES OF PERSISTENCE OF A FISTULA

- once a true fistula has been formed, it seldom shows any intention towards healing.
- Moreover irritant discharge such as urine, faeces, bile etc. are passed through the fistula and prevents its healing.
- But one thing should always be remembered that if the natural passage is made patent, all abnormal off shoots heal spontaneously.

HISTORY

Certain sinuses and fistulae are present since birth e.g.

PERIAURICULAR SINUS.

OSTEOMYELITIS SINUS : history of high fever followed by swelling and pain in the bone concerned. An abscess will develop, subsequently osteomyelitic sinus this will gradually move towards the surface and will burst showing sprouting granulation tissue resulting a discharging sinus. Sometimes a history of discharge at the mouth of the sinus. of bone chips may be elicited. The sinus will persist so long as there will be necrotic bone (sequestrum) at the depth of the wound.

TUBERCULOUS SINUS : a previous history of lymph nodes enlargement or tuberculous affection of the bone or joint may be elicited. Subsequently a cold abscess will develop which will bursts (or be incised) leading to a sinus.

Sinus or fistula in the perianal region a previous history of perianal or ischo-rectal abscess may be given by the patient.

Intermittent contraction of the anal sphincter will prevent proper rest to the part and thus interfere with healing of the sinus or the fistula

PAIN - If pain is associated with, inflammatory nature of the sinus or blockage of the opening of the sinus or fistula is assured.

FEVER AND REDNESS OF THE SURROUNDING SKIN also suggest inflammatory origin of the sinus or fistula.

PAST HISTORY

This is important as a few diseases are prone sinus or fistula later in life -

e.g. Tuberculosis,
Crohn's disease,
Ulcerative colitis
Actinomycosis.
Colloid carcinoma of rectum may produce a anal fistula in later stage.

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Sinus or fistula may develop as a complication of operation performed earlier.

FAMILY HISTORY

- A few diseases often involve more than one member of the same family which may predispose sinus or fistula formation e.g. tuberculosis, Crohn's disease, ulcerative colitis etc.
- Even fistula-in-ano is often seen in more than one member in a family

LOCAL EXAMINATION

1. INSPECTION -

- Number
- Position
- Opening of the sinus
- Discharge
- Surrounding skin

2. PALPATION -

- Tenderness
- Wall of the sinus
- Mobility
- Lump

3. EXAMINATION WITH A PROBE

4. EXAMINATION OF DRAINING LYMPH NODES

INSPECTION

The following points are carefully noted :

1. Number - Though majority of the fistulae which occur in the body are single, yet a few are notoriously known for their multiplicity.

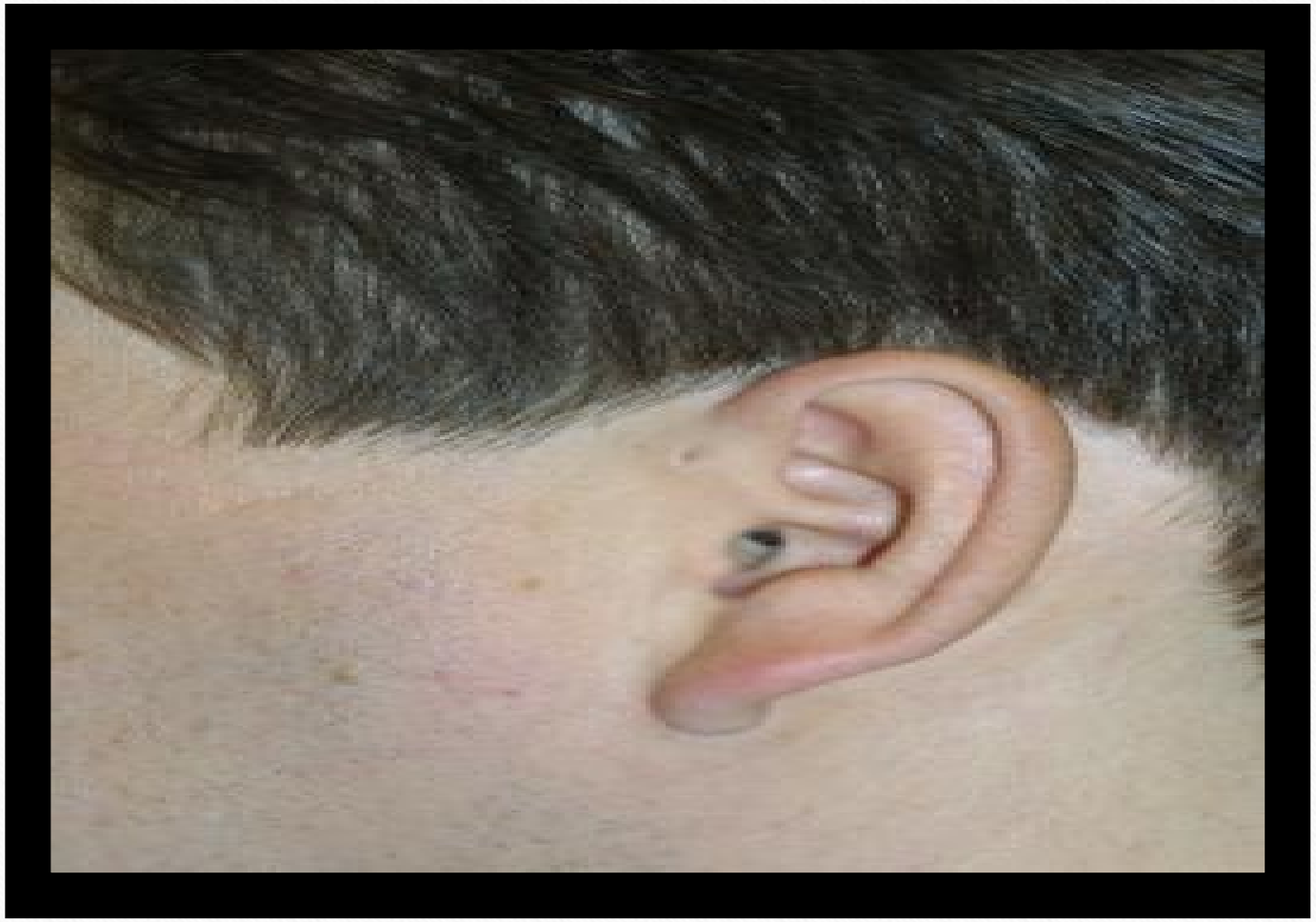
These are 'Watering Can' perineum, Crohn's disease affecting the rectum and analcanal which produces multiple anal fistulae actinomycosis always produces multiple sinuses and sometimes ulcerative colitis may produce multiple fistulae.

Multiple indurated sinuses in the upper part of the neck suggest the diagnosis of actinomycosis.

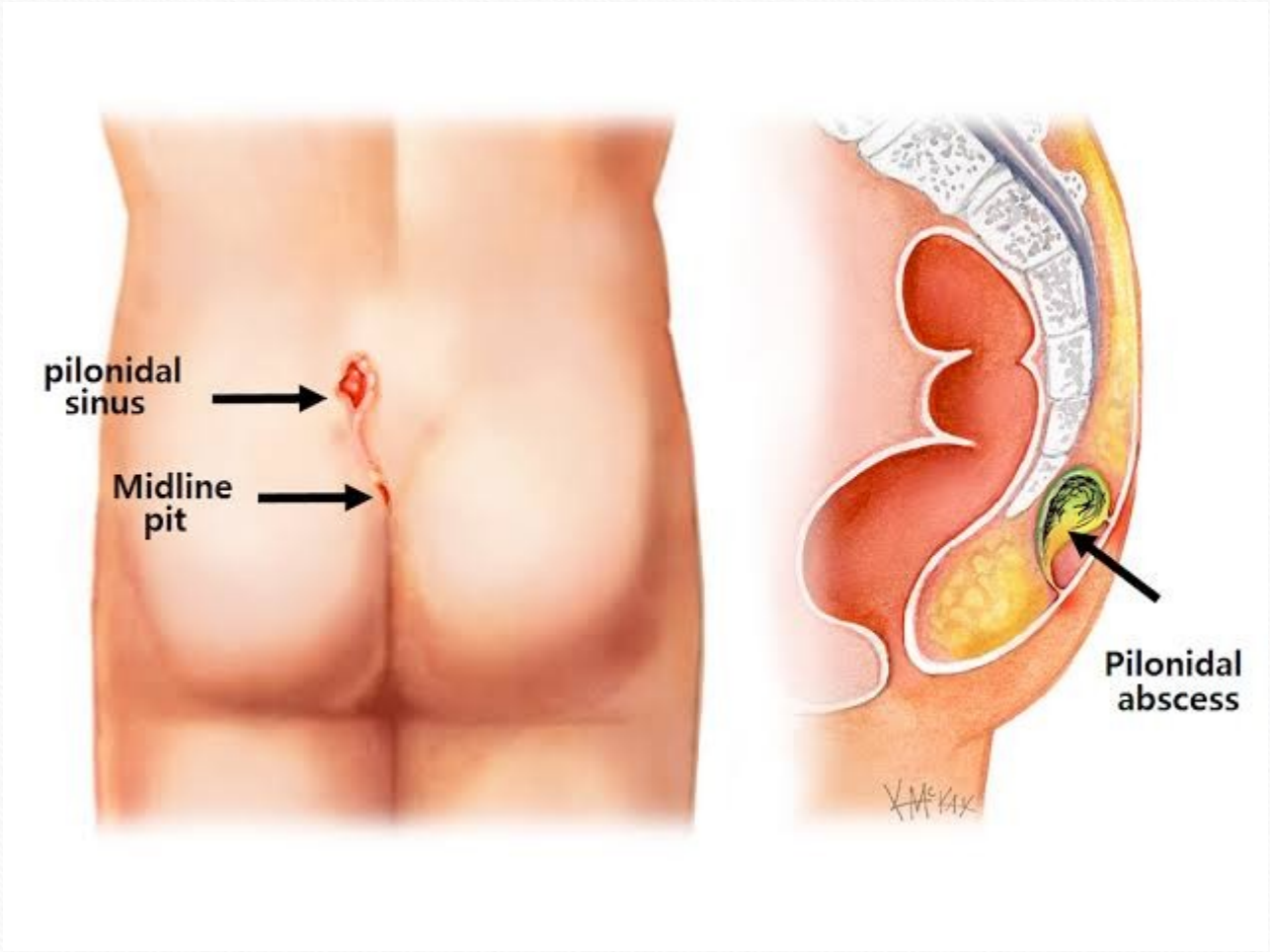
2. Position –

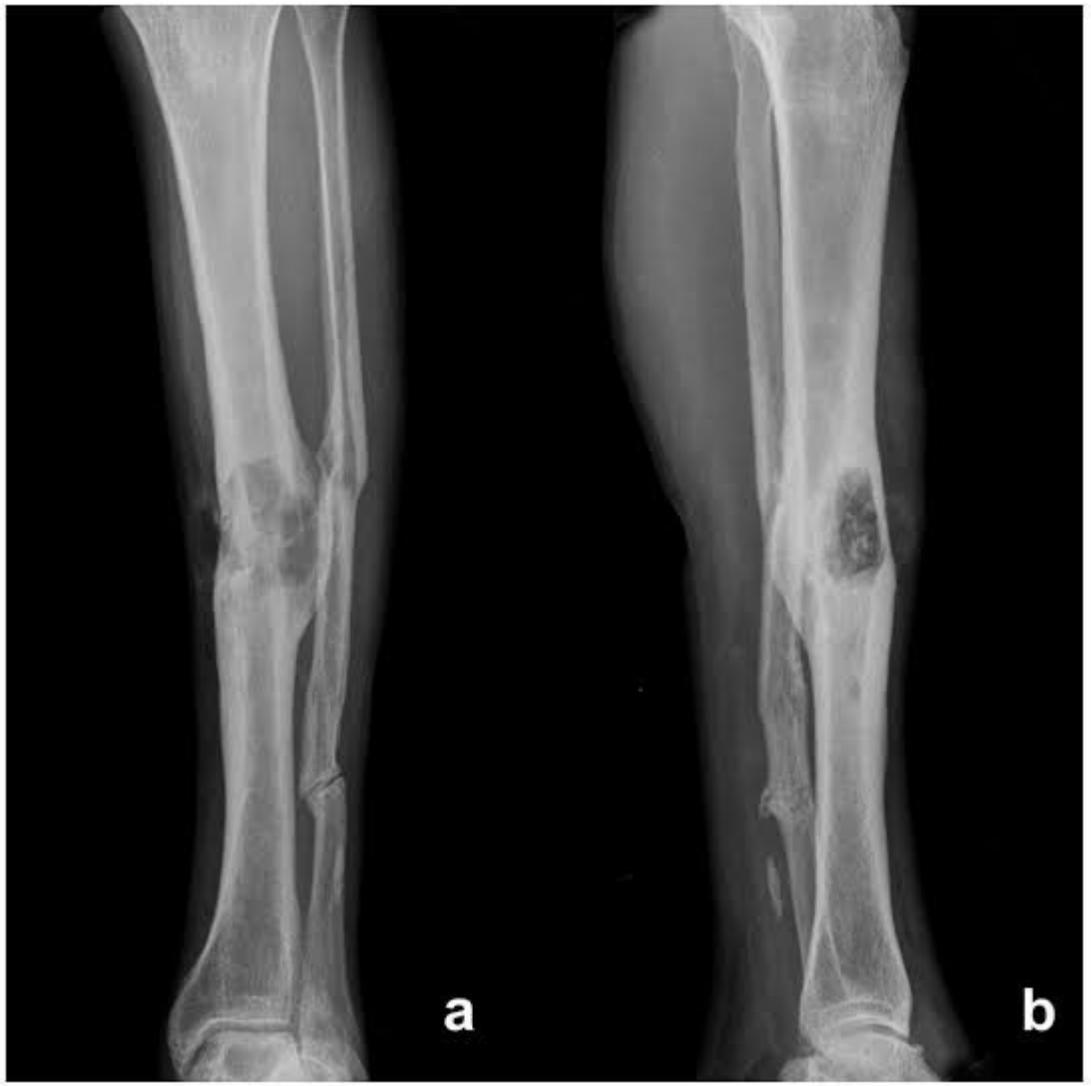
- Diagnosis of many sinuses and fistulae can be made only looking at the position of these sinuses and fistulae.
- Preauricular sinus is situated at the root of the helix on the tragus of the pinna, the direction of sinus being upwards and backwards.
- The branchial fistula (due to failure of fusion of the second branchial arch with the fifth) is almost always situated at the lower third of the neck just in front of the sternomastoid muscle

- The pilonidal sinus is mostly seen in the middle behind the anus.
- Actinomycosis - Multiple indurated sinuses in the upper part of the neck suggest the diagnosis of actinomycosis
- Tuberculous sinus often takes a peculiar position which by itself mentions the diagnosis
- Osteomyelitis - A single sinus over the lower irregular jaw is mostly due to osteomyelitis




Branchial fistula


pilonidal sinus
Midline pit
Pilonidal abscess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3. OPENING OF THE SINUS –

- Sprouting granulation tissue at the opening of the sinus suggests presence of foreign body at the depth e.g. **sequestrum**, a drainage tube, bullet etc.

- The opening of a tuberculous sinus is often wide and the margin is thin blue and undermined.

4. DISCHARGE –

It is always advisable to look for the character of the discharge.

- **Osteomyelitis :** it is often pus.
- **Tuberculous ulcer :** it is often serosanguineous
- **Actinomycotic sinuses** : sulphur granules
- **Fistulae** : urine, faeces, bile.

5. SURROUNDING :

- Scar : indicate chronic osteomyelitis or previously healed tuberculous sinus.
- Dermatitis and pigmentation : Crohn's disease and actinomycosis

PALPATION

While palpating a sinus or a fistula the following points should be noted –

1. **TENDERNESS –**
   - Is the sinus tender? The sinus from inflammatory source will be tender (e.g. osteomyelitis)
2. **Wall of the sinus –**
   - is palpated to note any *thickening* there. Chronic sinuses will have thick wall due to presence of fibrosis surrounding the wall of the sinus.
3. **Mobility –**
   - ls the sinus mobile over the deep structures? Sinuses resulting from osteomyelitis are fixed to the bone, which becomes irregular, thickened and tender.
4. **Lump –**
   - Presence of lump in the neighbourhood of a sinus often indicates tuberculous lymphadenitis.

EXAMINATION WITH A PROBE

This is important but should be performed with due precaution. This examination will inform the clinician about –

1. the direction and the depth of the sinus.
2. presence of an y foreign body such as sequestrum, which will be moveable, at the depth of the wound.
3. whether the fistula is communicated with a hollow viscus or not.
4. whether fresh discharge comes out on withdrawal of the probe or not.

EXAMINATION OF DRAINING LYMPH NODES

This examination is always essential and should not be missed under any circumstances.

GENERAL EXAMINATION

- Depending on the site and cause of the sinus, examination of the particular system should be performed.
- In case of a sinus in the loin, the spine, ribs and the kidneys should be examined to know the exact cause of the lesion.
- In case of a sinus due to chronic empyema, the chest should be thoroughly examined.
- In case of a sinus due to osteomyelitis, the bone should be examined as described under 'Examination of diseases of bone'.
- In case of fistula around the anus a thorough examination not only of the anal canal and rectum both manually and proctoscopically should be called for but also sigmoidoscopic examination and examination of the whole abdomen should be performed.
- In case of multiple fistulae in the perineum and scrotum, the lower urinary track should be thoroughly examined.
- In case of a groin sinus, the hip joint and the spine should be examined as it may be due to bursting of cold abscess originating from there.

SPECIAL INVESTIGATIONS

- Examination of the discharge
- X-ray examination
- Examination using coloured solution

- Examination of the discharge –
- is of utmost importance to come to a diagnosis. It should be examined macroscopically, physically, chemically, microscopically (e.g. for sulphur granules in case of actinomycosis) and bacteriologically.

X-ray examination -

- Straight X-ray may show a sequestrum and osteomylitic change of the bone concerned or presence of opaque foreign body.
- Injection of radio-opaque fluid (lipiodol or hypaque) into a sinus (sinogram) or a fistula (fistulogram) will indicate the cause of the sinus or fistula by delineating its course.

- Examination using coloured solution

✓Sterilized methylene blue may be pushed through a catheter into the urinary bladder and if the color is detected in the vagina vesicovaginal fistula is confirmed.

✓Charcoal powder may be used in the food to confirm presence of upper G.I. tract fistula by detecting charcoal particles in the discharge of the fistula after a few hours.

✓Colored drug e.g. pyridium may be used to confirm presence of urinary fistula, as the colored drug is excreted through the urine.

CLASSIFICATION OF SINUS

- Congenital e.g. preauricular sinus.
- Traumatic e.g. following trauma a foreign body may be implanted into deep tissues and following infection a sinus may persist.
- Inflammatory e.g. osteomyelitic sinus, tuberculous sinus, actinomycotic sinus or sinus of a chronic abscess which discharges pus due to inadequate treatment of acute abscess.

- Neoplastic e.g. sinus due to degenerative change of a malignant growth or due to secondary infection of a malignant growth which was incised for drainage.

- Miscellaneous e.g. pilonidal sinus.

CLASSIFICATION OF FISTULA

- Congenital :e.g. branchial fistula , thyroglossal fistula, rectovesical fistula, vesicovaginal fistula, tracheooesophageal fistula, umbilical fistula.
- Traumatic : Such fistula may occur after operation or after accidental injury to certain viscera e.g. salivary fistula, pancreatic fistula, biliary fistula, faecal fistula, urinary fistula etc.
- Inflammatory :Abscess related to a viscus if bursts to the exterior may develop a fistula e.g. Abscess related to a viscus if bursts to the exterior may develop a fistula e.g. appendicular fistula or external fistula following diverticulitis of colon.

- **Malignant :** Advanced carcinoma of one viscus may either infiltrate into the neighbouring viscus to form a fistula (internal fistula) or may infiltrate into the parietes to form external fistula e.g. carcinoma of the rectum may involve urinary bladder in males to produce rectovesical fistula. Carcinoma cervix may involve urinary bladder in females to produce uterovesical fistula. Extensive malignant lesion of abdominal viscus may involve umbilicus to produce umbilical fistula (faecal fistula).


Thank
You!