

Anorectal disorders

Elias arteen FRCSI

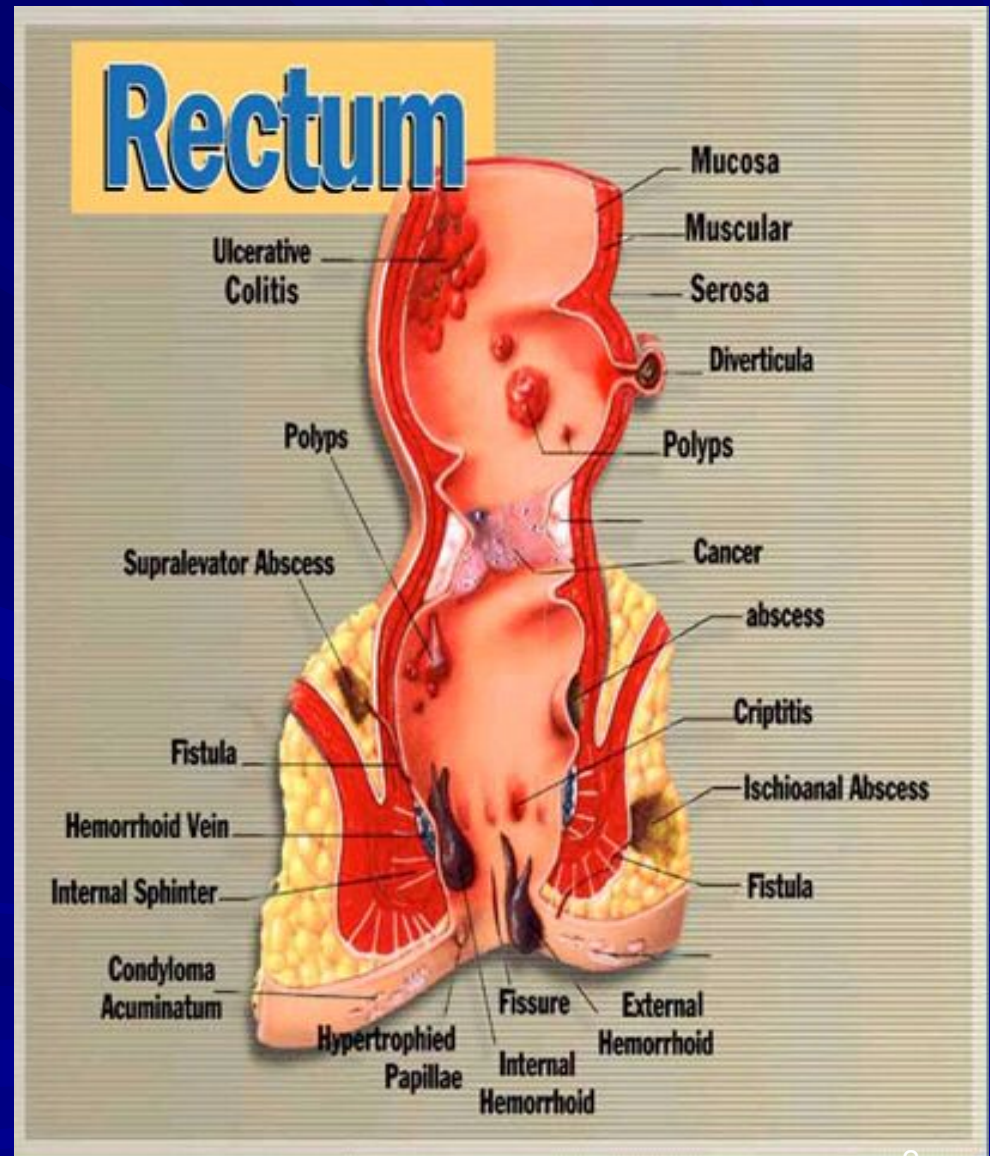
General and colorectal surgeon

European Gaza hospital

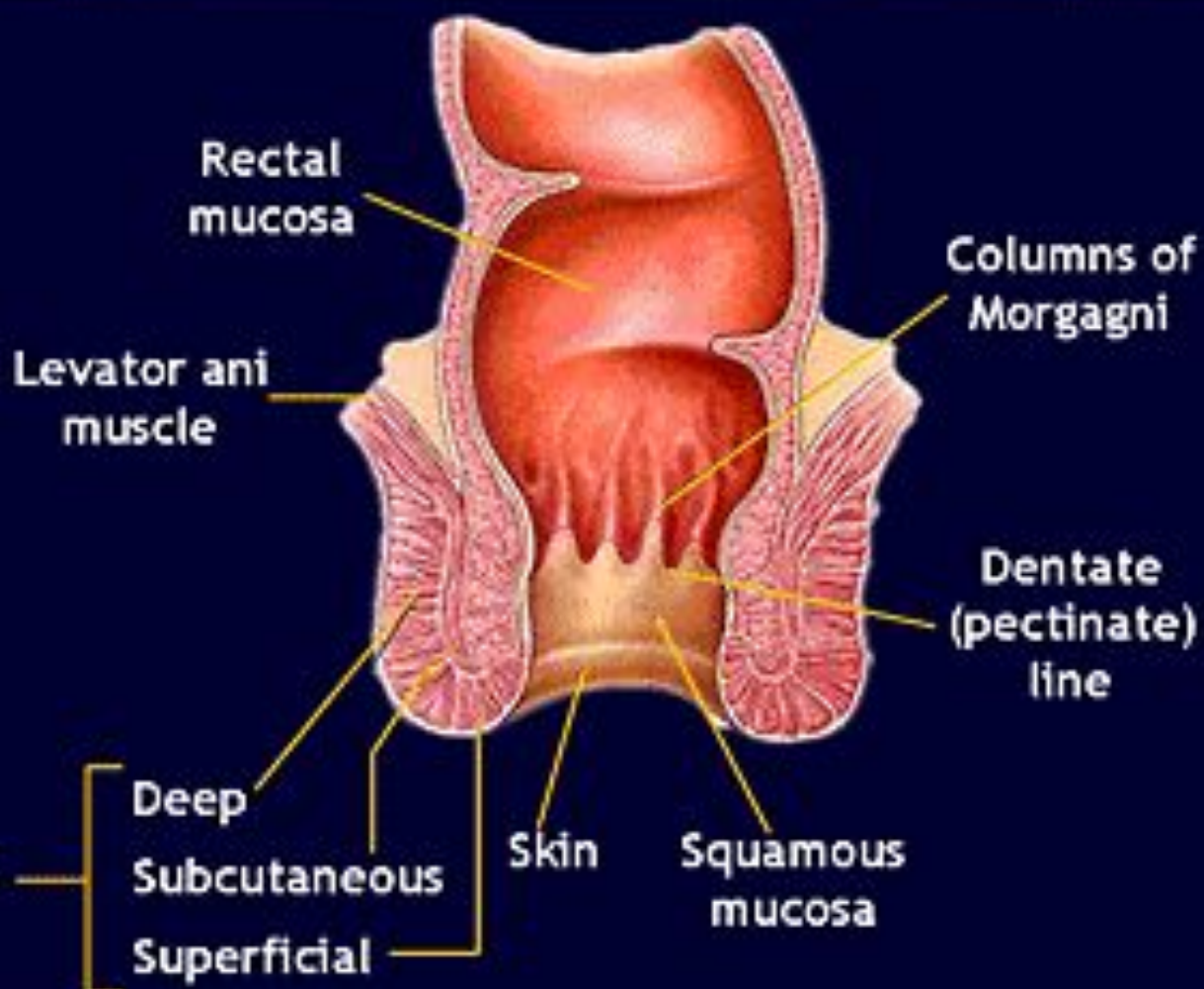
E-mail: E_Arteen@hotmail.com

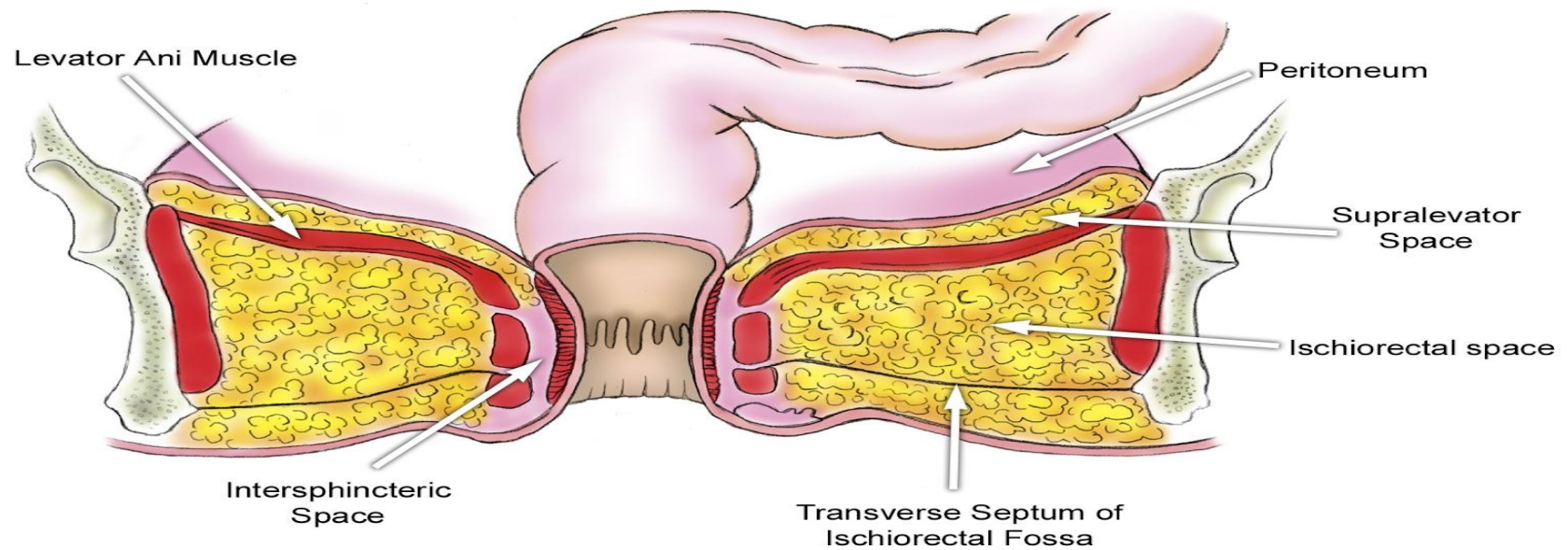
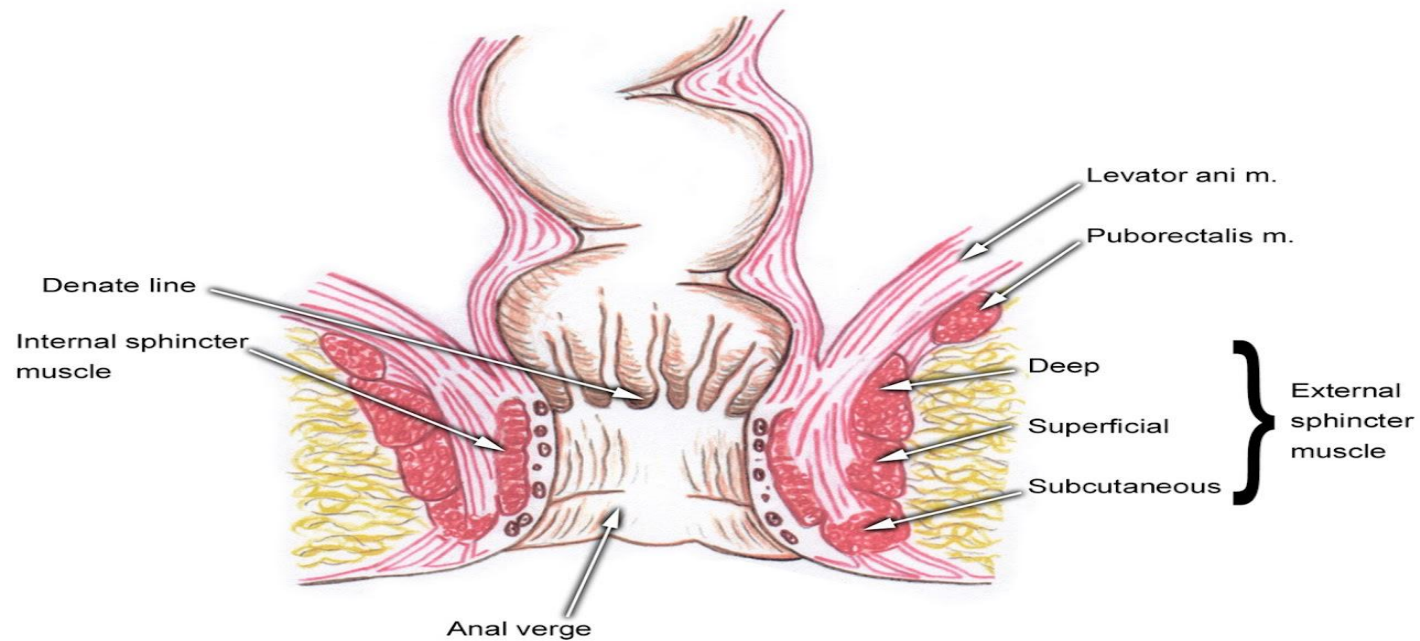
Topics

- Anatomy.
- Anal Fissure.
- Anal Fistula
- Anal Abscess
- Hemorrhoids.
- Anal Cancer.



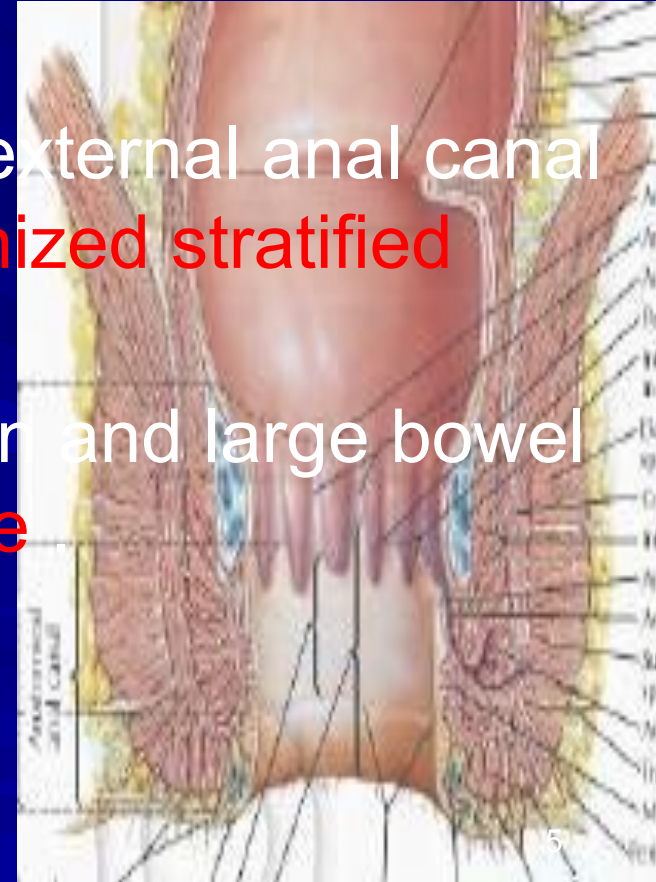
Anal Anatomy





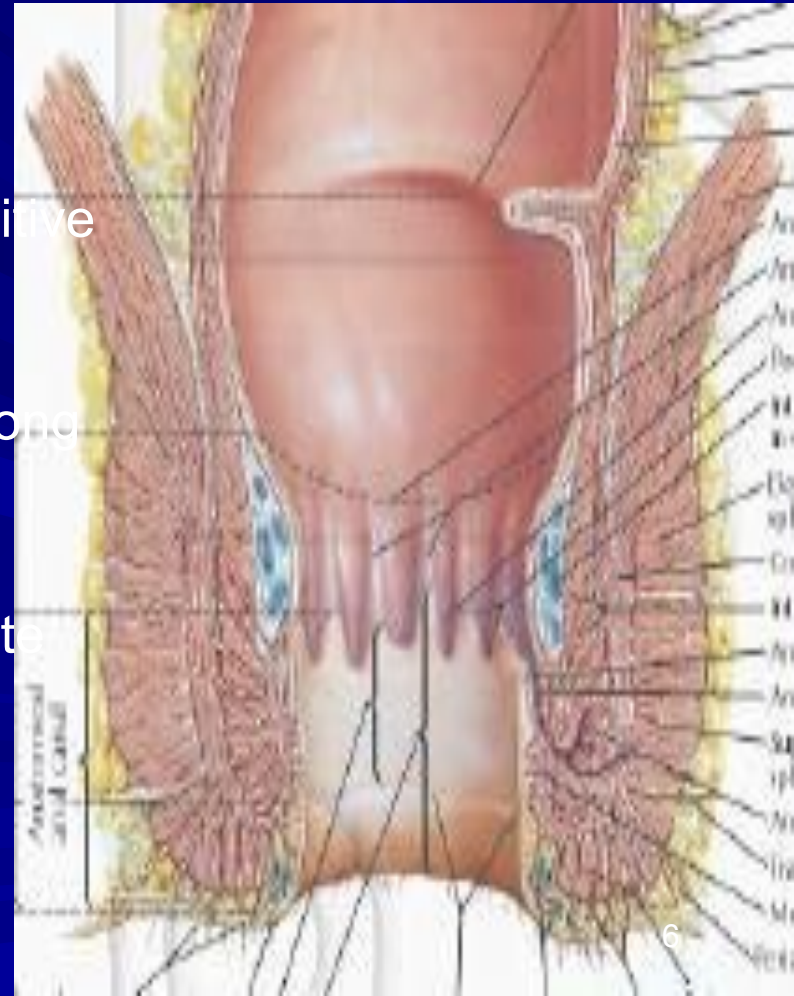
Anatomy

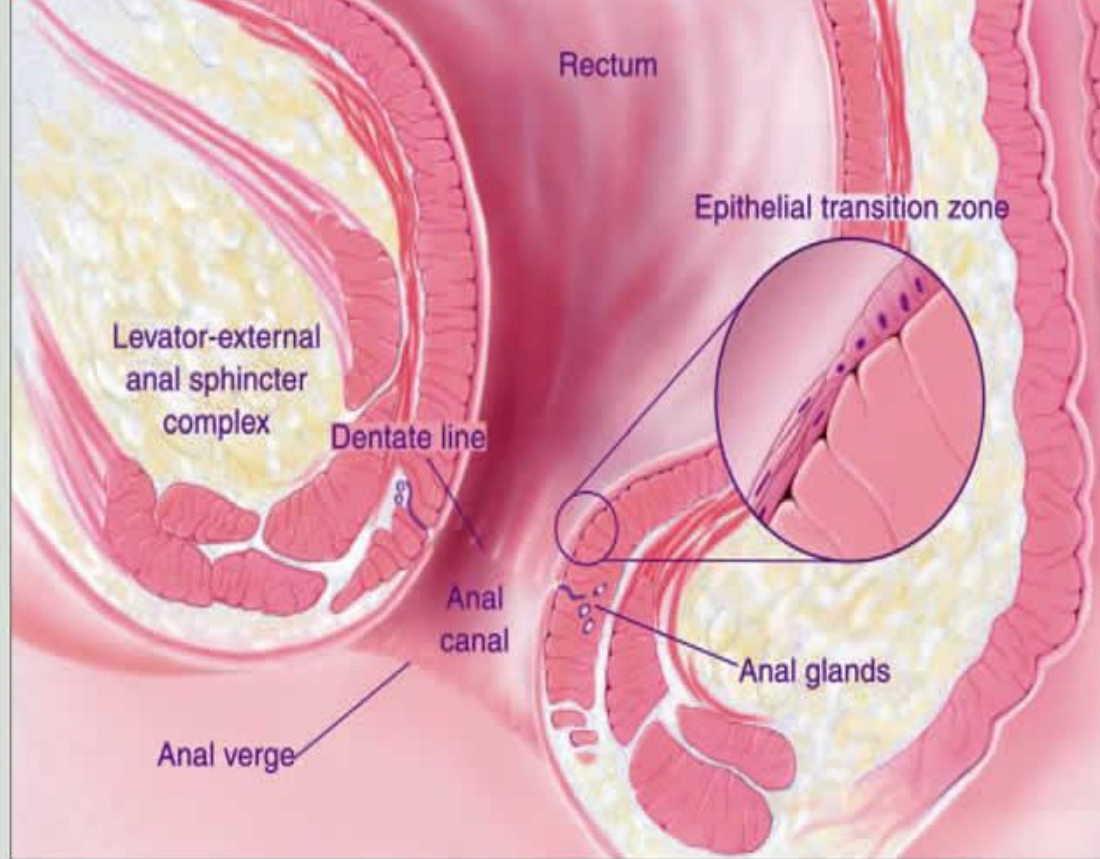
- **Surgical Anal canal** is about 4cm long.(shorter in females)
- It extends from the anal verge to the anorectal junction.
- **Pecten** is a hairless part of the external anal canal that exposed by traction (**keratinized stratified squamous epithelium**)
- The junction between the Pecten and large bowel mucosa is known as **dentate line**



Cont ..

- Above dentate line there is **transitional zone** extends (from 1cm to 2cm) having sensitive modified **non-keratinized squamous epithelium**.
- Above transitional zone there is insensitive large bowel mucosa (columnar epithelium).
- **Anatomical anal canal** is about 3cm long.
- It extends from anal verge to the dentate line.





The anorectal area—the terminal portion of the GI tract—includes the rectum and the anal canal. The rectum is the last 12 cm above the anal verge. The anal canal extends from the anal verge to the proximal level of the levator-external anal sphincter complex. The dentate line is approximately 2 cm from the anal verge and is a place of transition from columnar epithelium to squamous epithelium. Between these layers is transitional epithelium. The anal glands—branched, straight tubular glands with ducts lined with stratified columnar epithelium—empty into the anal canal at the base of the anal columns. A clear sense of anorectal anatomy is fundamental to the evaluation of patients with anorectal disease.

Here and on the cover: Michele Graham

Cont ..

- **Muscle layers :**
- **Internal sphincter** is a condensation of circular smooth muscle of the rectum and is continuous with circular muscle of the whole GI tract. (autonomic nervous system).
- It maintains tone and resting pressure within anal canal (anal continence).

Cont ..

- **External sphincter** consist of ending of longitudinal muscle of the rectum at the anus as series of fibrous bands which radiate to the perianal skin (somatic nerves).
- The circular muscle of the external sphincter consists of **lower part of levator ani**, known as the **puborectalis sling**.

Cont ..

- **Blood supply.**

- The anal area receives an **intercommunicating** blood supply from superior, middle, inferior rectal arteries
- Venous drainage goes **mainly** to superior rectal vein then portal system, but from anal sphincter and below, the drainage goes towards systemic circulation .

Cont ..

- **Lymphatic drainage**
- **Above dentate line**

To inferior mesenteric and internal iliac nodes

- **Below dentate line**

To superficial inguinal nodes

Common symptoms of ano-rectal disorders

- bleeding
- anal pain
- itch
- faecal leakage / hygiene problems
- swelling
- discharge

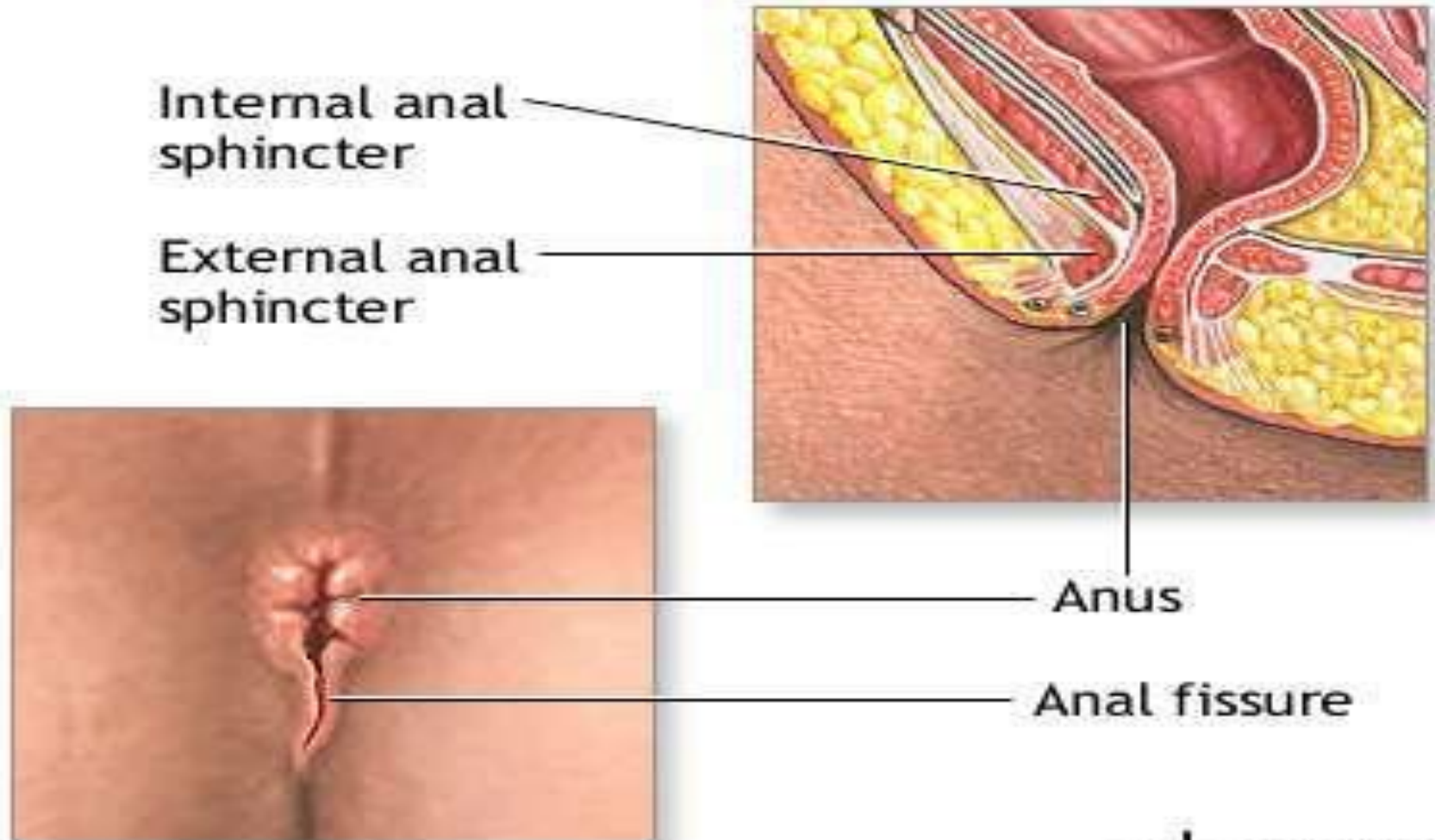
Examination

- Abdomen
- groins (lymph nodes)
- dermatoses

Ano-rectal examination

- External appearance
 - skin condition
 - swellings -soiling
 - / discharge
 - perineal descent
 - scars
- Digital examination
 - sphincter tone
 - squeeze pressure
 - cervix / prostate
 - coccyx
 - retrorectal space
 - rectocoele

anal fissure



anal fissure

- This is a tear involving the pectin .
- Posterior > Anterior
- Acute, chronic.
- Sentinel skin tag
- More than 6 weeks
- IAS visualized
- Keratinisation
- Simple, complex



etiology

- Constipation.
- Hyperactive sphincter
- IBD “Crohn's disease”

SYMPTOMS:

- Severe Pain.
- Bleeding on and after defecation

on examination!

- Tightly closed puckered anus
- By gently parting the anal margin the **lower end of the fissure** can be seen.
- Digital examination is so painful.
- **Proctology** is impossible unless under anesthesia
- Skin tag



Anal fissure management

- stool softeners
- dietary advice
- topical LA
- chemical sphincterotomy
 - topical
 - injected
- surgical sphincterotomy

Anal fissure surgery

- anal stretch
- lateral sphincterotomy
- chemical sphincterotomy
 - topical
 - injectable

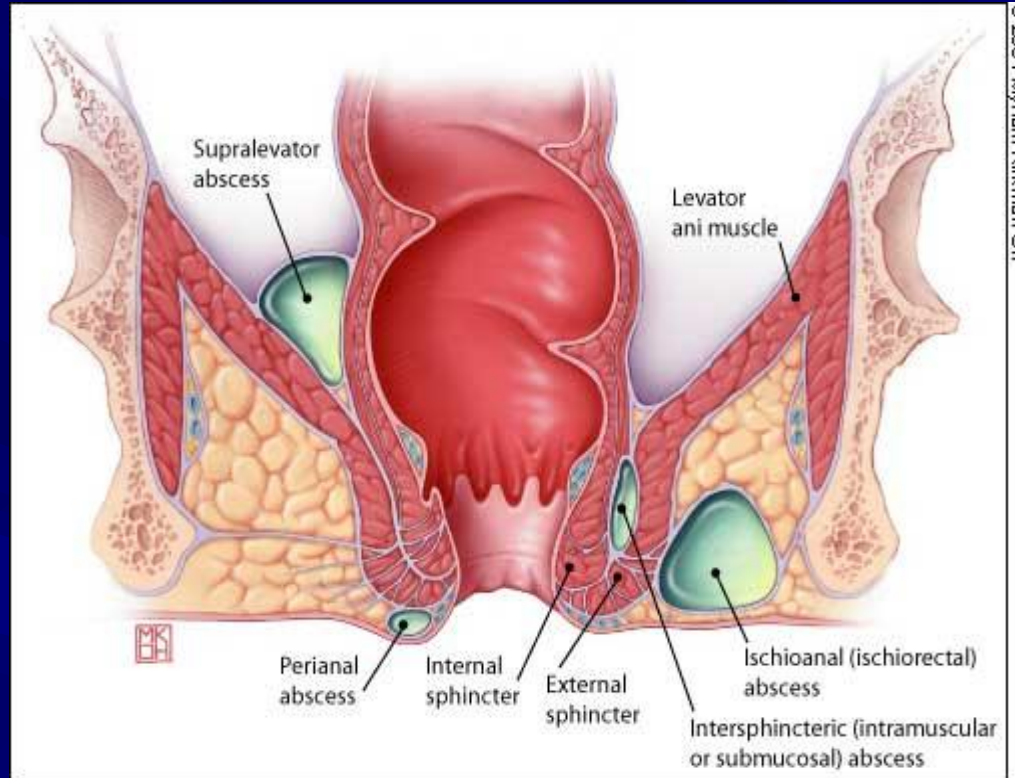
Anal fissure treatment

- GTN 40-50% successful s/e:
severe headaches
- Diltiazem 60-80% successful
s/e: nil generally
- Botox 60-90% successful s/e
transient minor leakage
- Sphincterotomy 98% successful
s/e 2% passive leakage

anal abscess and fistula



Ano-rectal sepsis



Sx: perineal pain (throbbing), possible prior history of similar

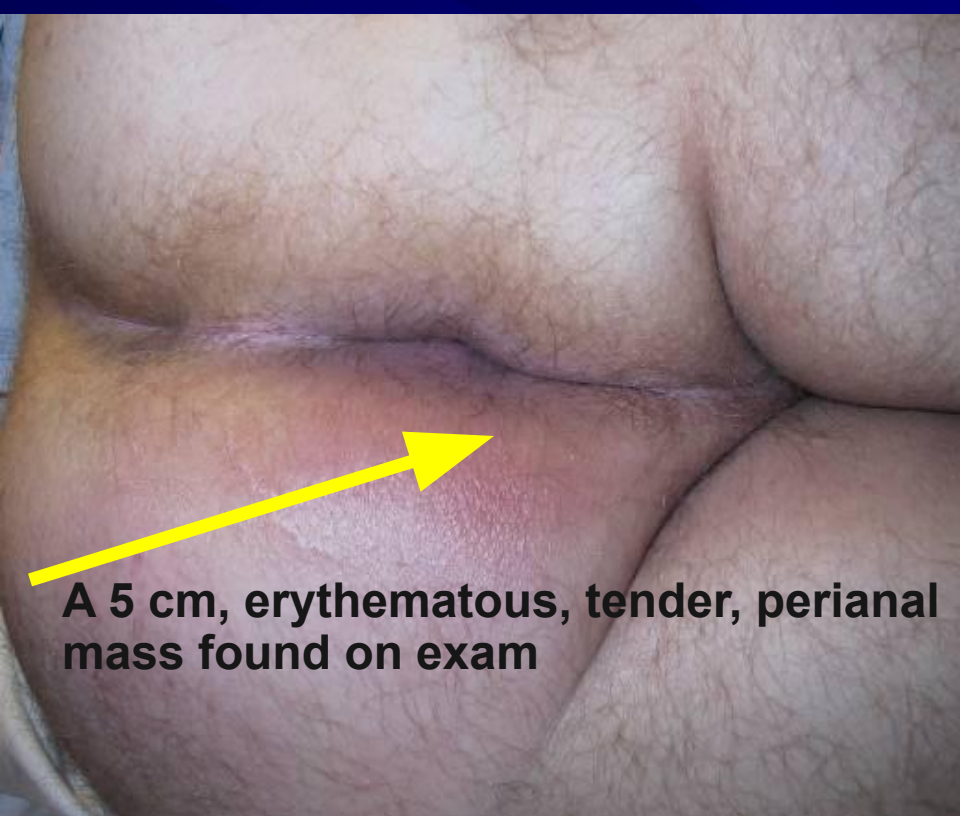
Exam: tender fluctuant mass +/- discharge, may be toxic

Beware: diabetics (risk of rapidly progressive infection & Fournier's gangrene)
skin necrosis (possible Fournier's gangrene)

anal spasm & throbbing pain (inter-sphincteric abscess)

Treatment: I&D

Ischiorectal abscess



A 5 cm, erythematous, tender, perianal mass found on exam



Cruciate Incision (cross – like)

anal abscess and fistula

- **Anal fistula** : it is an abnormal communication between **primary** opening inside the canal and **secondary** opening in the peri-anal skin .
- a chronic abscess is a fistula while an acute fistula is an abscess

Perianal fistula



- ~ 30-40% of all perineal sepsis once drained goes on to develop a fistula
- ~ 80-90% of perineal sepsis that yielded enteric organisms will develop a fistula

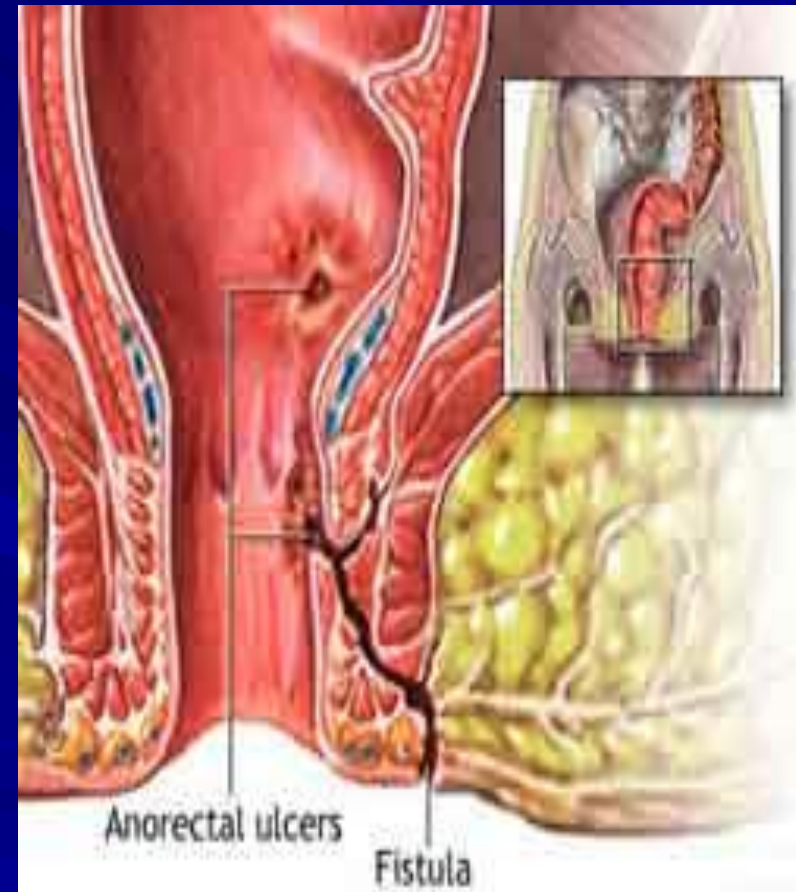
Fistula in ano

- 95% crypto glandular
ano-rectal crypts at dentate line - i.e. origin in
- 5% rarities
 - TB
 - suppurativa
 - malignancy
 - diverticular disease
 - anastomotic leakage
 - Crohn's
 - hidradenitis
 - traumatic
 - complicated
 - radiation

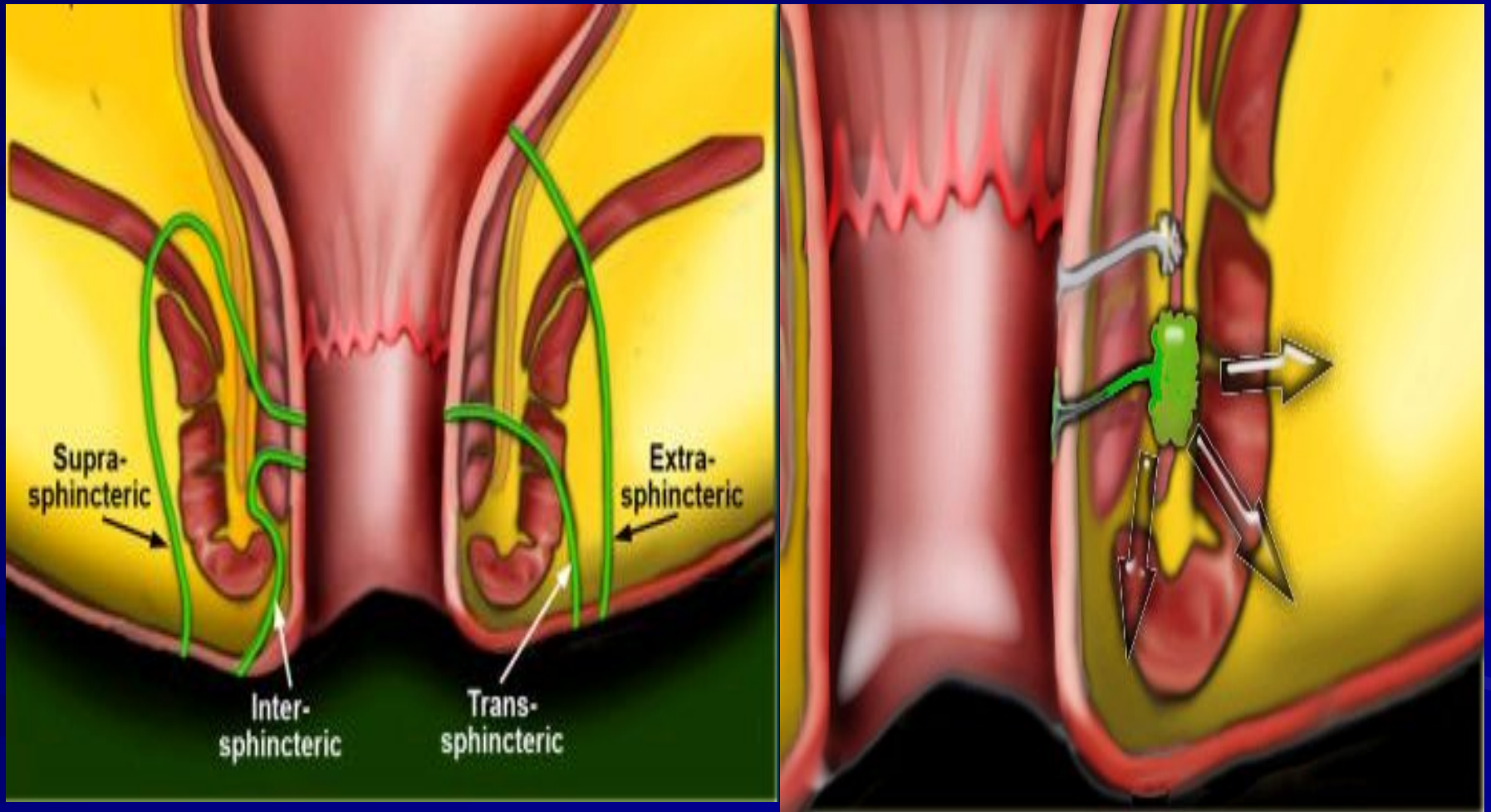


classification of fistulas

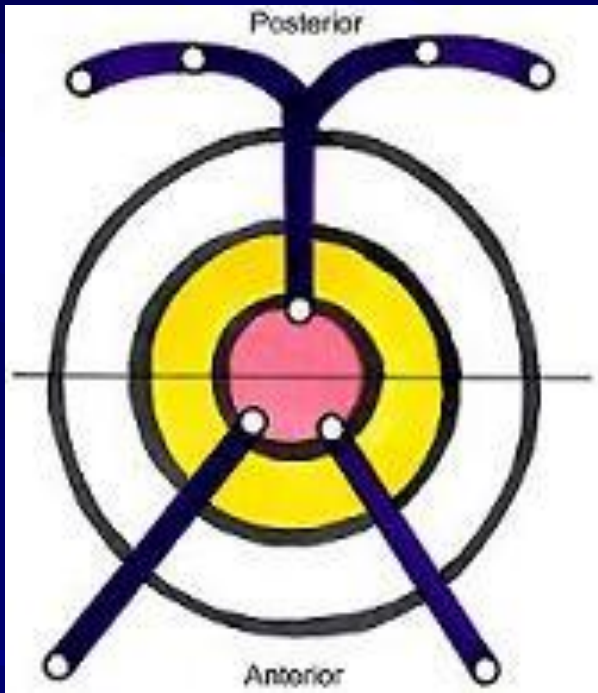
- Inter-sphincteric: 70%
- Trans- sphincteric: 25%
- Supra-sphincteric: 5%
- Extra-sphincteric : 1%



Classification



Goodsall's rule



- External opening posterior to 3-9 o'clock position open in posterior midline of the anal canal
- External opening anterior to 3-9 o'clock position open radially in the anal canal
- ~80-90% accurate

symptoms

- Peri-anal discharge.
- Pain
- Swelling
- Bleeding
- Diarrhea

FIGURE 2

Perianal abscess

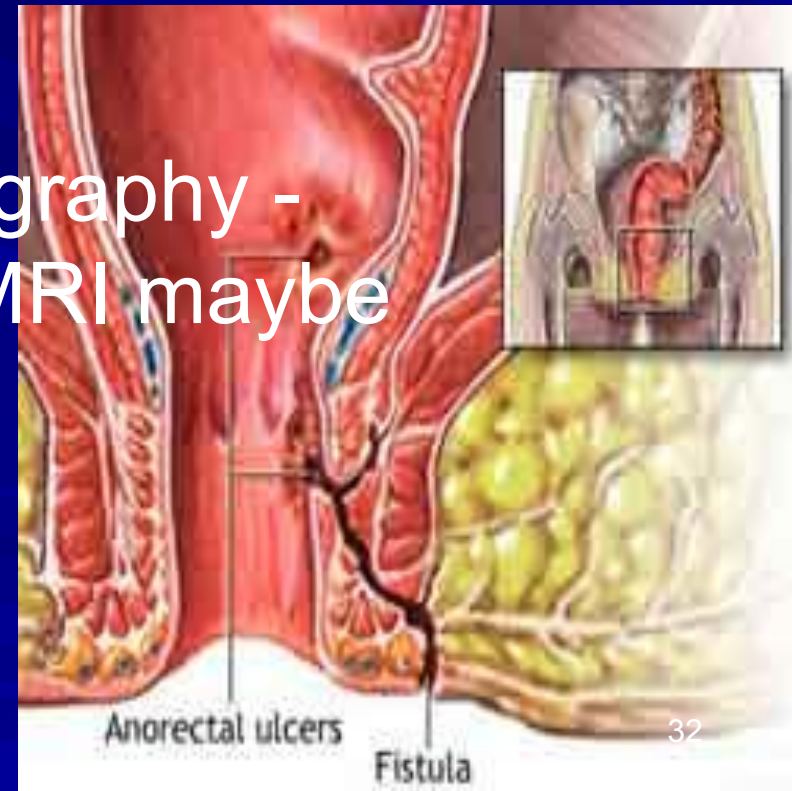


Perianal abscess is the most common type of anorectal abscess and is typically caused by infection with staphylococci, although other organisms can be responsible. This abscess occurred in a 12-year-old boy.

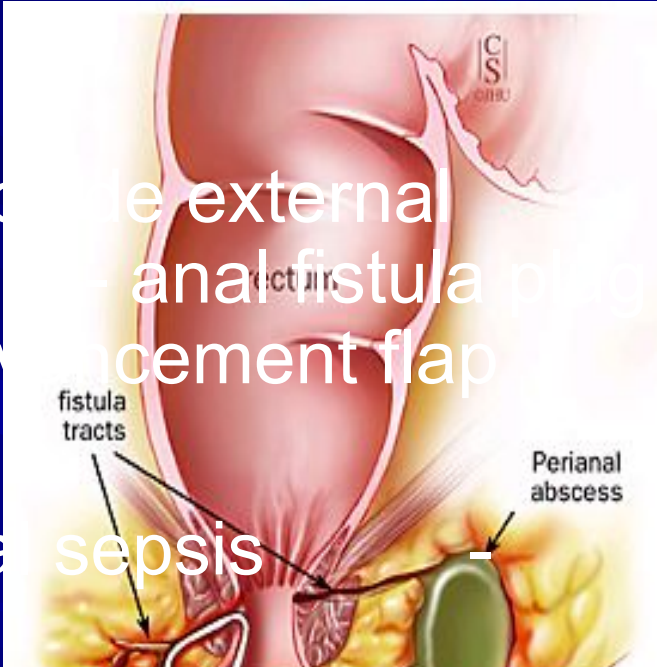
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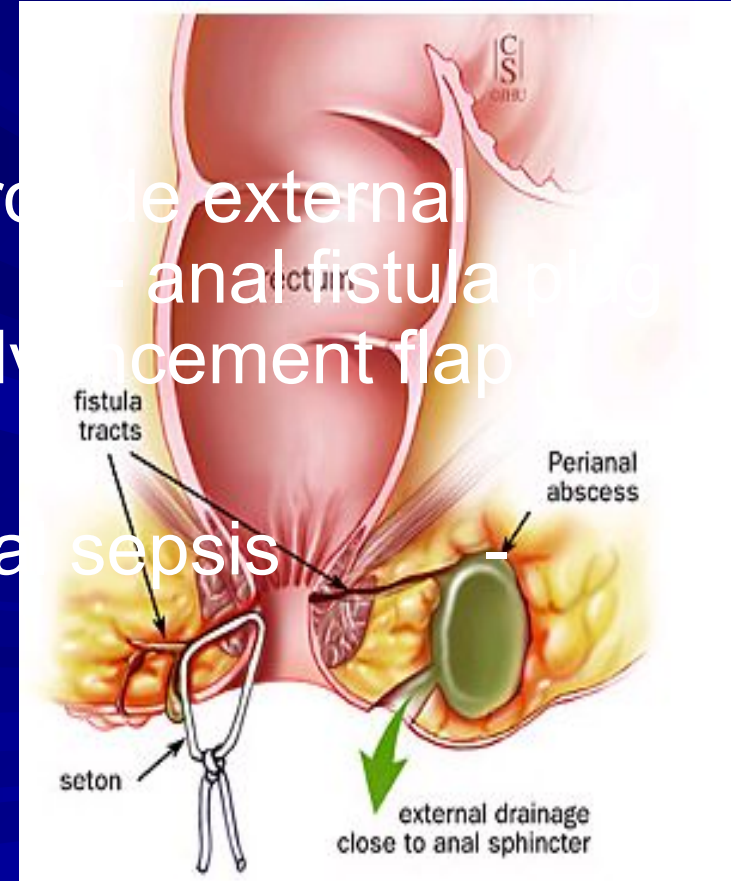
on examination

- Digital examination is usually all that is required.
- It may reveal **a fibrous tract or cord beneath the skin.**
- In complex cases fistulography - endorectal ultrasound- MRI maybe employed



treatment

- Divide tissues overlying track (to allow healing by 2y intent)
 - lay open
 - cutting seton
 - Occlude internal opening & provide external drainage
 - rectal or anal advancement flap
 - Prevention of further ano-rectal sepsis
 - draining seton
- 
- The diagram illustrates the anatomy of a perianal abscess and its potential progression to a fistula. It shows a cross-section of the rectum and anal canal. A 'Perianal abscess' is depicted as a collection of pus in the perianal space. A 'fistula tracts' is shown as a channel extending from the abscess towards the rectum. The diagram also shows the 'anal canal' and 'rectum'. A small inset in the top right corner shows a surgical incision site with a 'C' and 'S' marking.



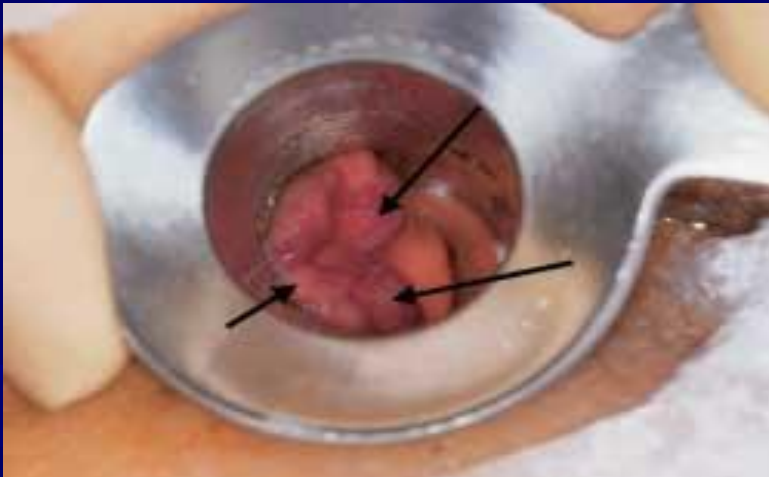
Management of fistula in ano

Strike a balance between

- -Cure of fistula
- -Prevention of further anorectal abscess
- -Preservation of continence



hemorrhoids

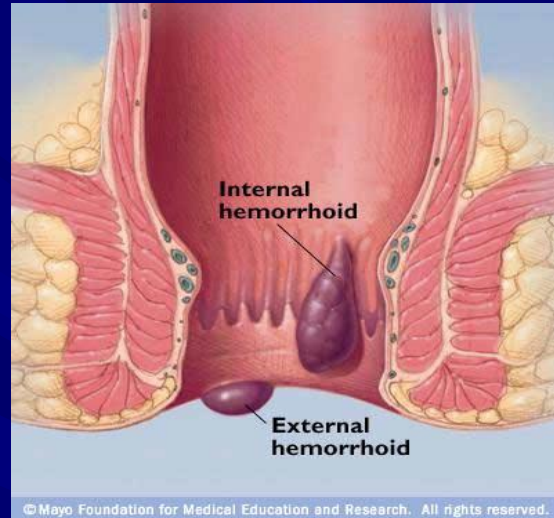


hemorrhoids

- They are engorgement of venous plexi “cushions” that sit in the anorectal junction.

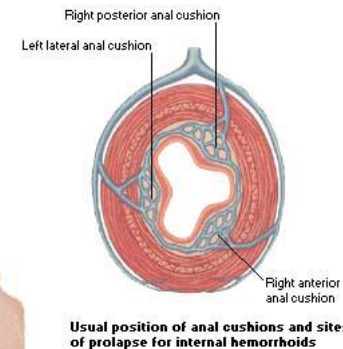
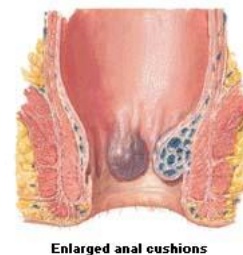
It could be :

1. *External* : below the dentate line.
2. *Internal* : above the dentate line.
3. mixed



- While the patient is in the **lithotomy** position:
Hemorrhoids are commonly situated at :

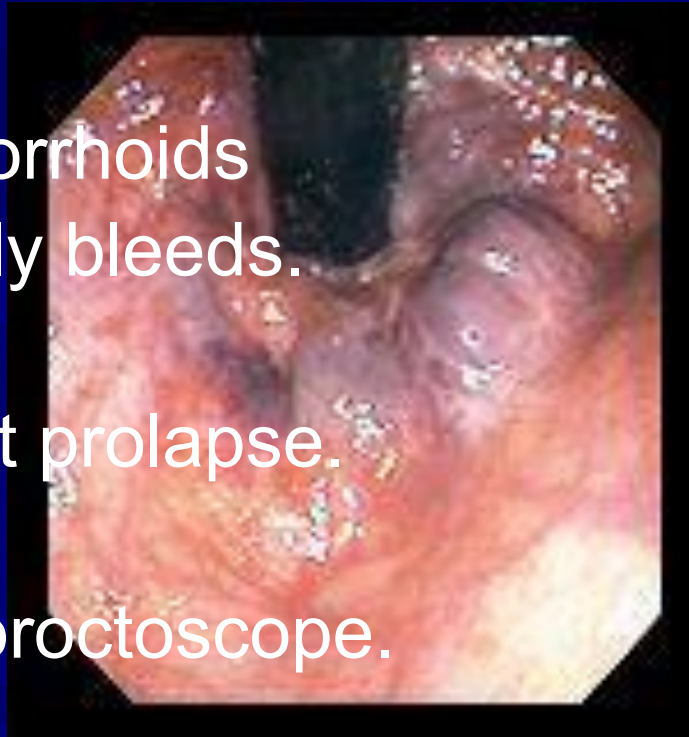
1. 3 o'clock “left lateral”
2. 7 o'clock “right posterior”
3. 11 o'clock “right anterior”



classification

- **1st degree :**

- Small hemorrhoids which simply bleeds.
- They do not prolapse.
- Visible on proctoscope.



classification

- **2nd degree :**

Prolapsed and can be reduced either :

- *Spontaneously*
- *Manually*: in another classification these are considered as 3rd degree hemorrhoids.



classification

- **3rd degree :**
Prolapsed but can't be reduced : in another classification these are considered as 4th degree hemorrhoids.



possible causes

- Constipation “ most important “
- Straining (raised intraabdominal pressure)
- Altered bowel habits
- Anorectal carcinoma
- Portal hypertension “ rare cause “

symptoms

- Bleeding
- Prolapse
- Pruritis
- Soiling of underwear “mucous”
- Discomfort on defecation
- *If pain is present with absence of strangulation look out for other conditions “fissure-hematoma-abscess”*

differential diagnosis

- Anal polyps
- Fissures
- Peri-anal hematoma
- Rectal prolapse
- IBD
- Dermatitis
- Ano-rectal carcinoma

diagnosis

- History
- Examination
- Proctoscopy
- Sigmoidoscopy or colonoscopy to rule out other causes such as **CARCINOMAS**

complications

- Hemorrhage
- Strangulation
- Thrombosis
- Ulcerations
- Gangrene
- Fibrosis
- Suppurations



treatment

- **Advise the patient to :**
 - Receive a high fiber diet
 - Use bulking laxatives
 - Avoid straining
 - Keep a good anal hygiene

treatment

- The definite treatment varies according to the degree of hemorrhoids.
- **1st degree:**

Usually in the outpatient clinic by

- **Sclerotherapy** :

Injection of a sclerosing agent such as 5% phenol in oil, 4% polidocanol

- **Infra-red photocoagulation**

treatment

- **2nd degree:**
- **Rubber band ligation :**
 - Tight rubber band is applied over the pedicle.
 - It will draw the prolapsing hemorrhoids back up into the anal canal and may lead to its destruction.
 - This is done in the outpatient clinic :
 - 2 bands per session
 - 4 weeks between each session



Surgical treatment

3rd degree:

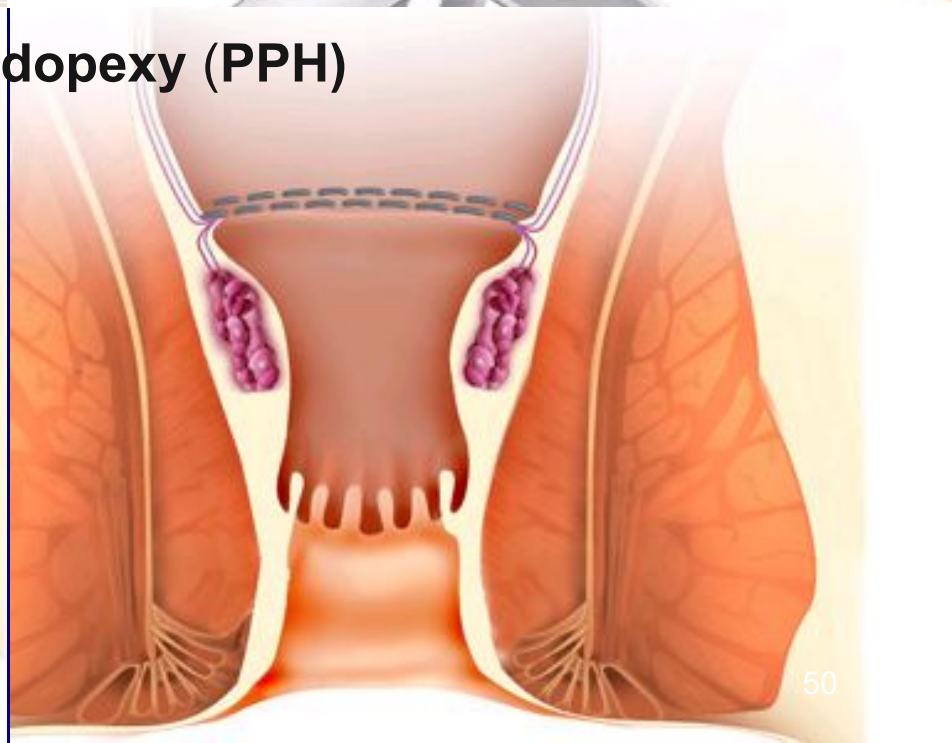
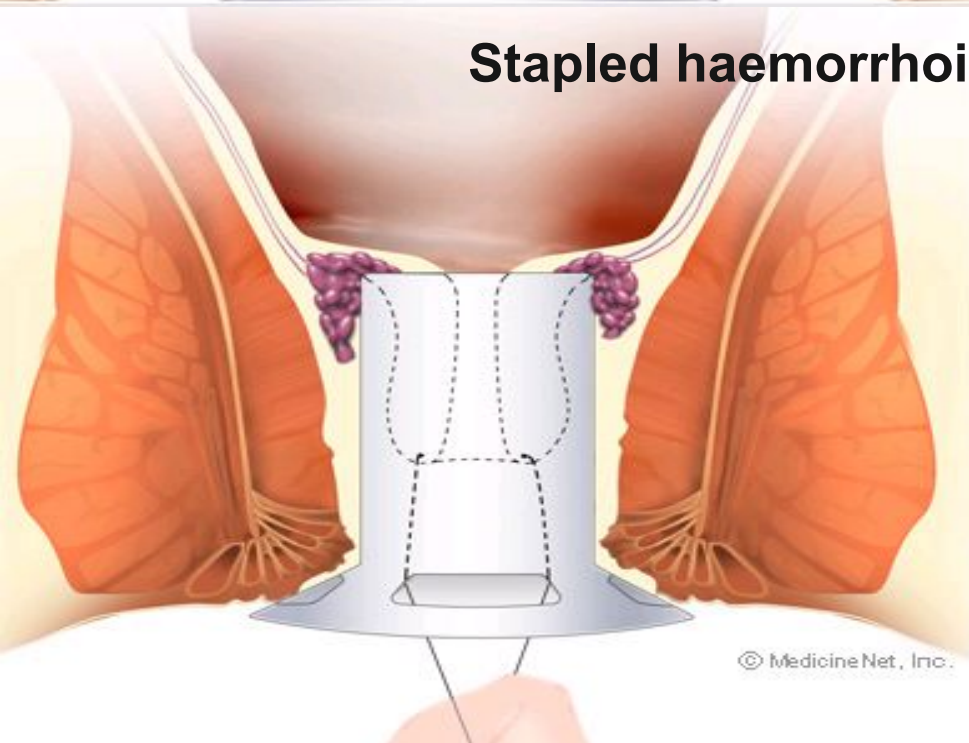
- For 3rd / 4th degree haemorrhoids
- Open haemorrhoidectomy
- Closed haemorrhoidectomy
- Ligasure haemorrhoidectomy
- THD
- Stapled haemorrhoidopexy (PPH)







Stapled haemorrhoidopexy (PPH)

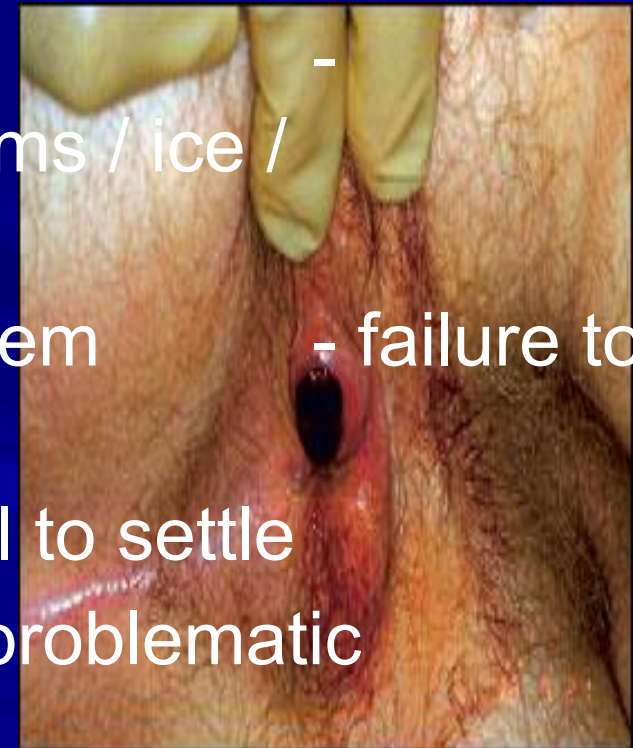


treatment

- **Complication of Hemorrhoidectomy:**
 - Acute urine retention.
 - Exsanguinations “ bleeding may pool proximally in lumen of colon”.
 - Pelvic infection.
 - Incontinence.

Painful prolapsed haemorrhoids

- natural history (worst pain days ~ 3-7, then settles)
- most resolve with conservative Rx
lactulose / topical anaesthetic creams / ice /
paracetamol & NSAIDs /
- relief of anal spasm (GTN or diltiazem
resolve > haemorrhoidectomy
- - refer gangrenous or those that fail to settle
- interval haemorrhoidectomy if still problematic



Anal Cancers

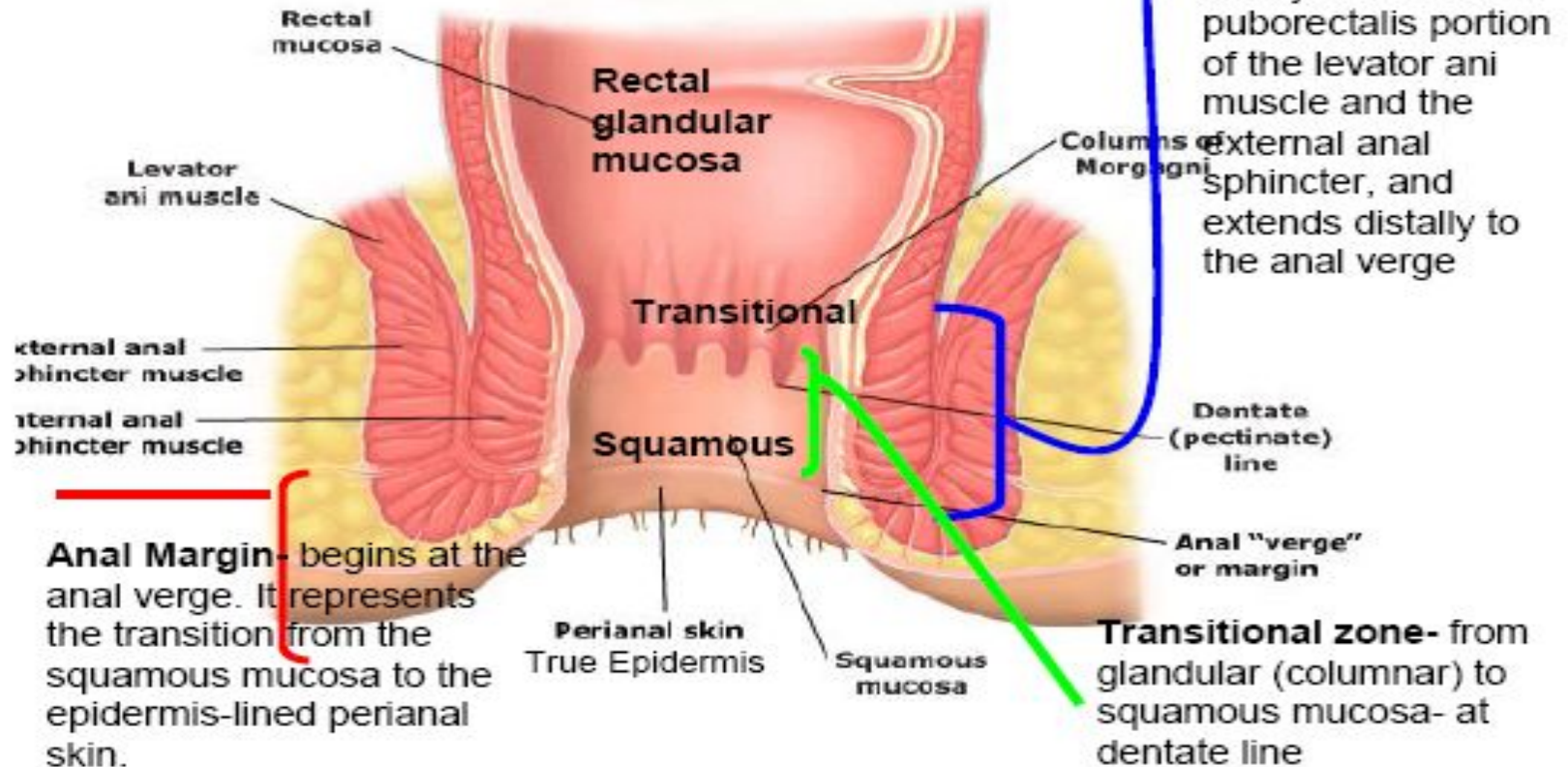


Anal cancers

- Perianal and anal canal malignancies are rare accounting for only 2% to of GIT malignancies
- 75% are in anal canal itself, 25% are marginal tumors

Anal cancers

Anal Anatomy



Cont....

- The commonest type is a squamous (epidermoid) carcinoma 80%

Most anal cancers arise from:

- keratinized squamous epithelium of the anal margin .
- The Pecten.
- Non- keratinized squamous epithelium of the anal canal transitional zone immediately above the (dentate) line.

Cont....

- 10% of anal tumors are adenocarcinoma which arise from the glandular epithelium of the upper anal canal.

Most patients (with adenocarcinoma) present in the 6th and 7th decades.

- Other rare tumors include malignant melanoma, lymphoma and Kaposi's sarcoma (often associated with AIDS).

Causes and Risk Factors

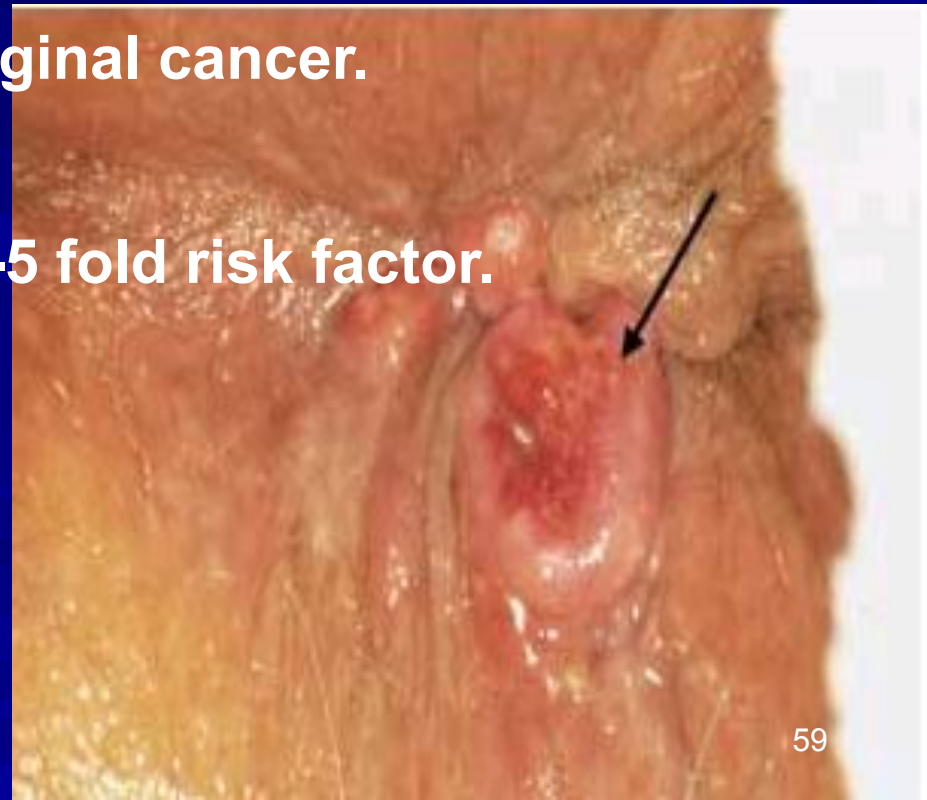
- Is not fully defined.
- Human papilloma virus infection is the most causative agent, HPV types 16 & 18 have been identified in more than 50% of the anal carcinoma.
- HIV infection is also a predisposing factor owing to immunosuppression and susceptibility to viral infection.
- Anogenital warts are a risk factor.



condyloma

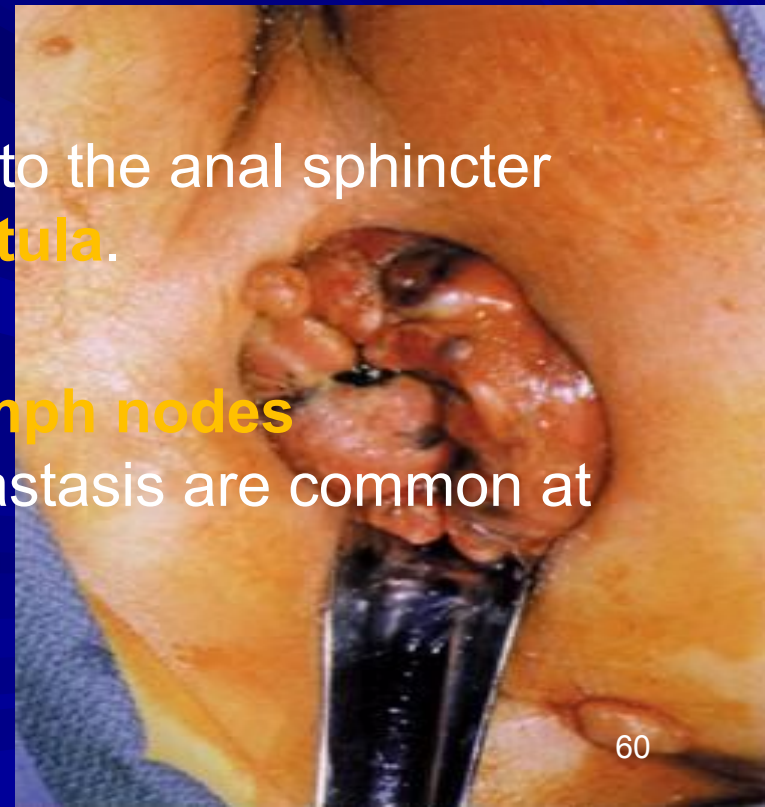
Cont....

- **Other risk factors:**
 - Receptive anal intercourse:
 - Hx of cervical, vulvar, or vaginal cancer.
 - Smoking appears to be a 2-5 fold risk factor.



Clinical Presentation

- The most common symptom is **bleeding**.
- **Anal pain** and painful defecation, mass, discharge into underwear, or **Pruritis**.
- Advanced tumors that have spread to the anal sphincter may present with **incontinence, fistula**.
- In case of malignant melanoma, **lymph nodes involvement** and wide spread metastasis are common at presentation.



Cont....

- **Hard, irregular, ulcerated mass.**
- **The inguinal lymph nodes are the most commonly involved. canal tumors can spread proximally to the mesorectal or the internal iliac LNs.**
- **Examination under anesthesia is necessary in almost all cases to allow tumor biopsy and Sigmoidoscopy.**
- **Biopsy is essential to confirm the Dx and to determine the tissue origin.**

Staging

Staging system for anal cancer

T1	<2 cm
T2	2-5 cm
T3	>5 cm
T4a	Invading skin, rectal or vaginal mucosa
T4b	Invading structures other than the skin, rectal or vaginal mucosa (i.e. local spread to muscle or bone)

Cont....

- The staging is important for prognosis and direct treatment approaches.
- Examination under anesthesia is an important part of clinical staging as the tumor is often painful and anus is very tender.

Cont....

- Endoanal US also performed under anesthesia.
- CT scan and MRI are now standard because they are highly accurate and widely available.
- CT PET

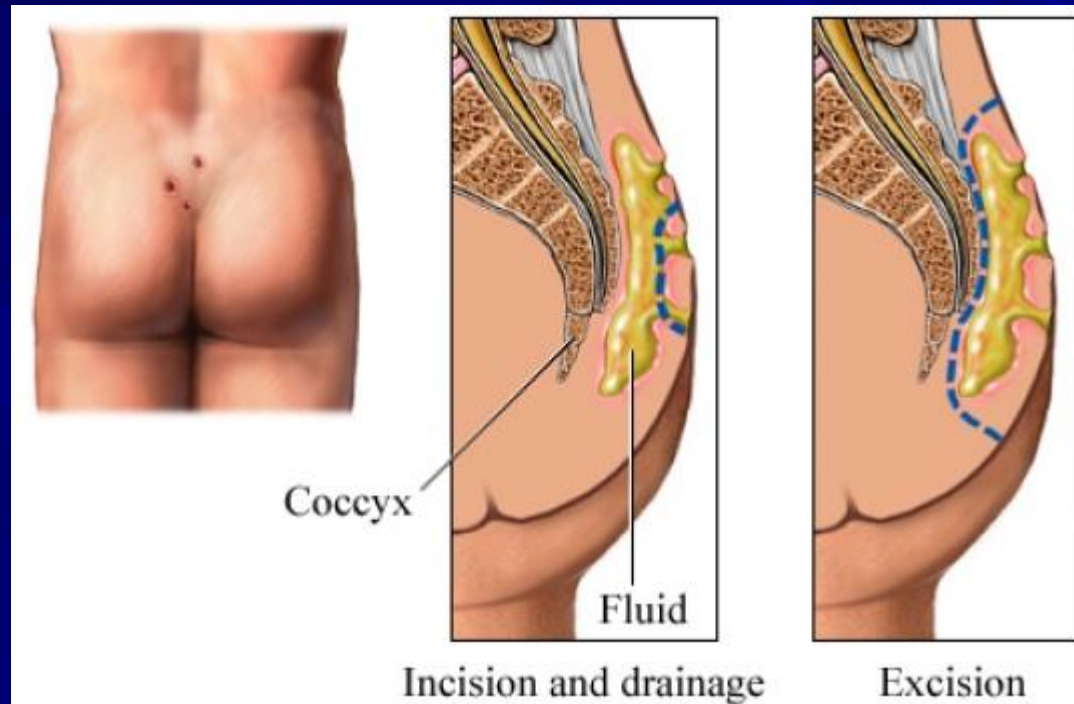
Treatment

- Treatment for anal SCC is a radiotherapy to the anal canal and inguinal LNs, combined with 5-fluorouracil and mitomycin c.
NIGRO regimen
- Surgery (**APR**) is indicated in cases in which residual tumor is present after radiation and chemotherapy.
- Also, surgery plays an important part in management of advanced disease after radiotherapy treatment failure.

Prognostic Factors:

- Tumors < 2 cm have $> 90\%$ 5-years survival.
- Tumors > 5 cm have $< 50\%$ 5-years survival.
- Patients with positive lymph nodes involvement regardless of tumor size, have $\approx 50\%$ 5-years survival.

Pilonidal sinus / & abscess



Abscess often deep-seated – do not respond to antibiotics

Pilonidal sinus / & abscess

- Pilo = hair Nidal = nest
- More common in men 4:1
- Acquired theory ?
- Peak incidence 15 -35 year
- Chronic trauma **Jeep rider's** disease
- Most are asymptomatic with midline pores 2-3 in number
- 5 cm away from anus



Treatment

- Early conservative treatment
- Natal cleft hygiene
- Removal of hair outside and inside
- Early infection Antibiotics for anaerobic bacteria
- 80% phenol injection
- Abscess drained away from midline

Pilonidal sinus disease

Treatment is surgical

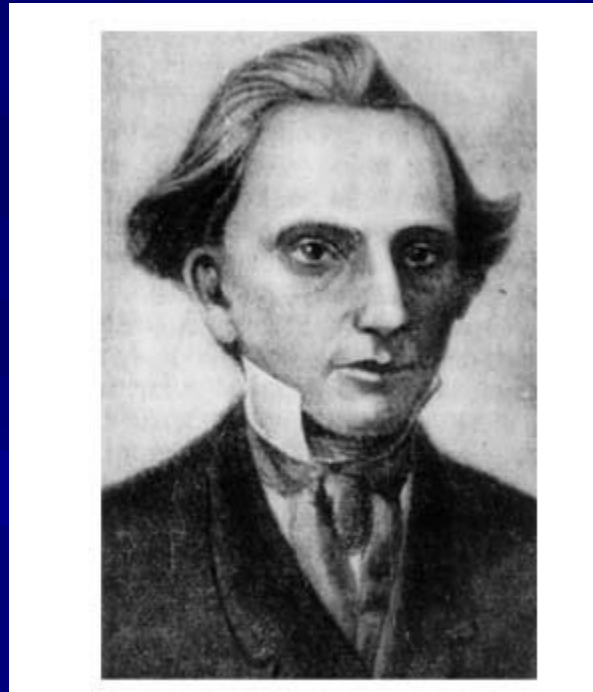
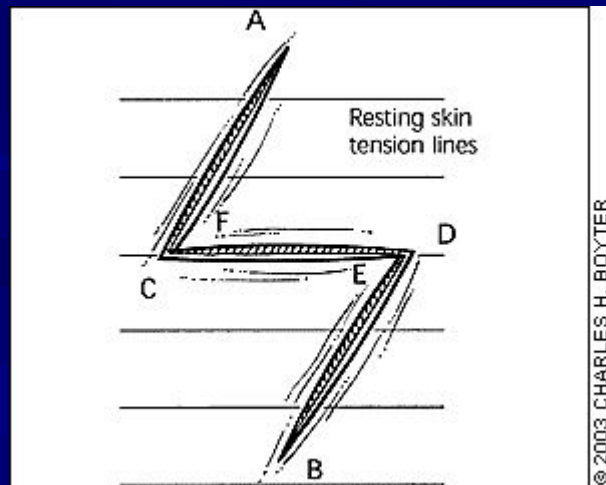
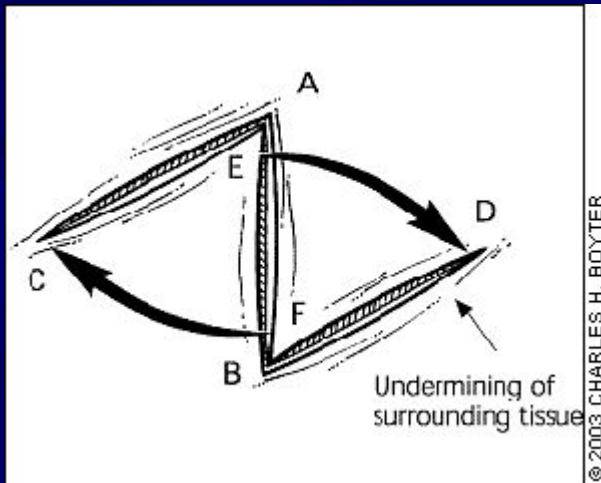
- Open method
- Excision, cavity left open
- Daily dressing
- Healing 6-8 weeks
- Closed method
- Excision and primary closure
- Many options



Healing by 2y intent



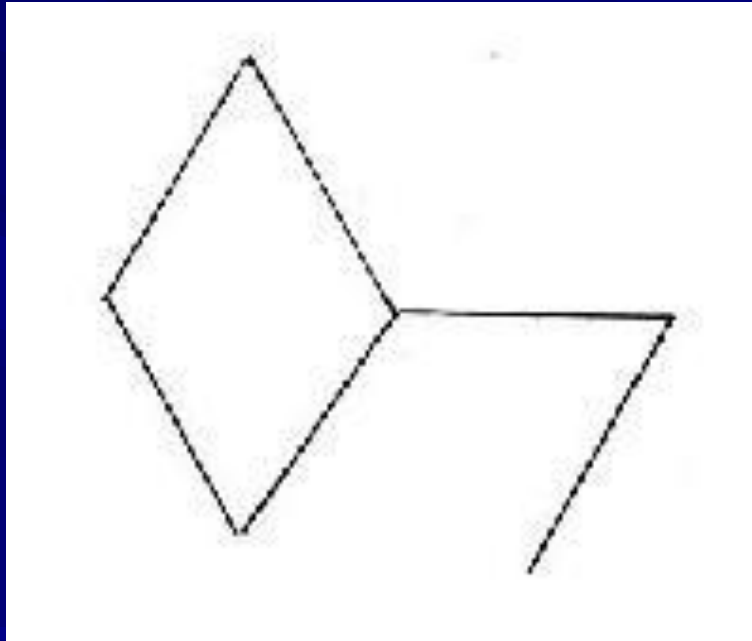
Z plasty



Uli Szymanowski

Developed 'Z' plasty wound closure

Rhomboid flap



Healing by 1y intention ~90% of time as with Z plasty

Healing using Vac Therapy



Pruritus ani



Night > day male > female

Rule out coexistent dermatoses / renal failure / liver disease

Fungal, parasitic, bacterial disease.

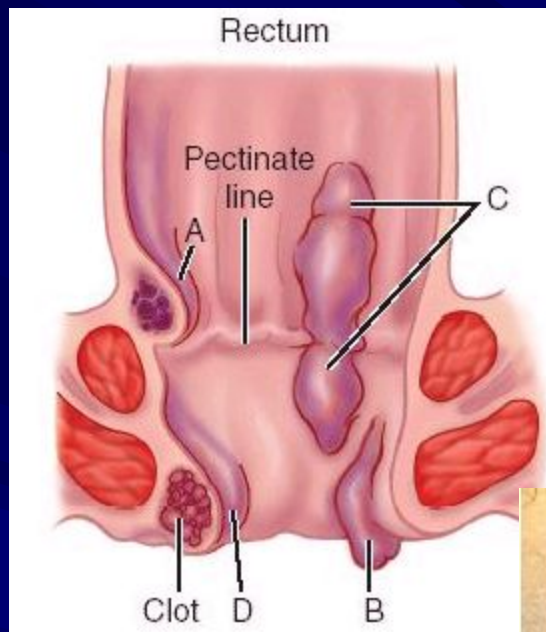
Ano-rectal examination & proctoscopy.

Treat ano-rectal pathology (haemorrhoids / faecal incontinence / anal tags etc).

Pruritus treatment

- Avoid synthetic / tight underwear
 - Avoid perfumed soaps etc
 - Avoid scratching
 - Use hairdryer to dry skin
 - Avoid steroid creams
 - Treat anal pathology / diarrhoea
 - Dermatology involvement
-
- Methylene blue injections
 - > ~80% successful
 - - s/e occasional cellulites / ulcer / incontinence





Faecal incontinence

- understand continence first!

- Brain / higher centres
- Spinal cord
- Reflex arcs
- Pudendal nerves
- Ano-rectal sensation 'sampling'
- Stool consistency
- Rectal compliance
- Anal sphincter complex

Faecal incontinence

- Causation
- Obstetric injury (8-30% sphincter injury rate at childbirth)
- Post-surgical
- Faecal impaction
- Neuropathy / MS / Parkinson's
- Poor mobility / impaired cognition
- Diarrhoea
- IBS / rectal non-compliance

Treatment incontinence

- dietary measures
- treat diarrhoea / impaction / IBS
- non-operative injections
 - collagen
 - anal plug
- sacral nerve stimulation
- sphincter repair
- artificial sphincters
- graciloplasty

Assessment of incontinence

- Cleveland clinic score
 - severity of soiling
 - frequency of soiling
 - use of pads
 - lifestyle disruption
- History of back injury / neurological disorder
- Urinary incontinence
- Saddle anaesthesia

Assessment of faecal incontinence

- History
- Examination
- Endoanal USS (sphincter injury)
- Anorectal manometry (rest & squeeze strength)
- Pudendal nerve terminal latency (sensation)