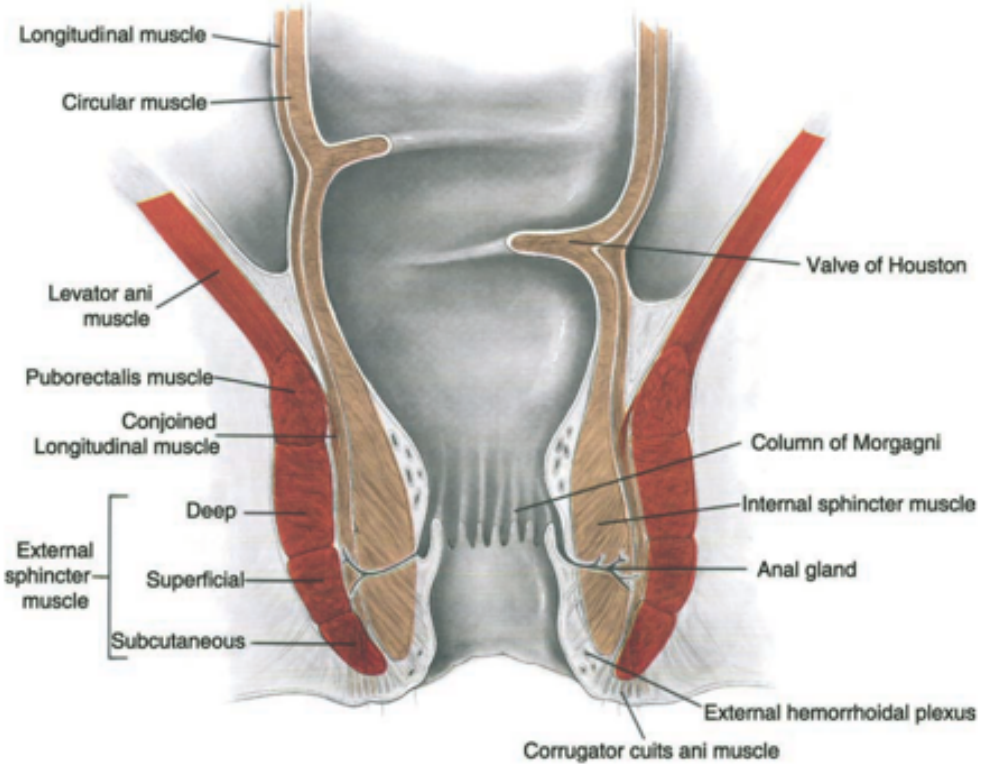
PERIANAL SUPPURATION
ANAL ABSCESS-FISTULA

- Suppuration means pus formation
- Acute phase → perianal abscess
- Chronic phase → anal fistula

Edited by : Ghada Alzoubi

Anatomy
anal glands

The origin of most of perianal suppuration :
originate from crypts due to blockage of the gland's duct or cryptitis .
for that it's called cryptogenic or crypto glandular disease.

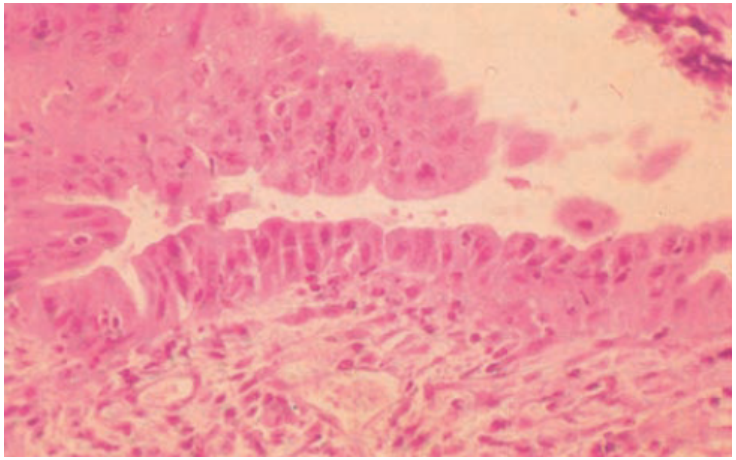


Anal glands are present mostly in mucus secreting gland , in inter-sphincteric plane btw the internal and external sphincter , then it's duct goes and open into the crypts

anal glands

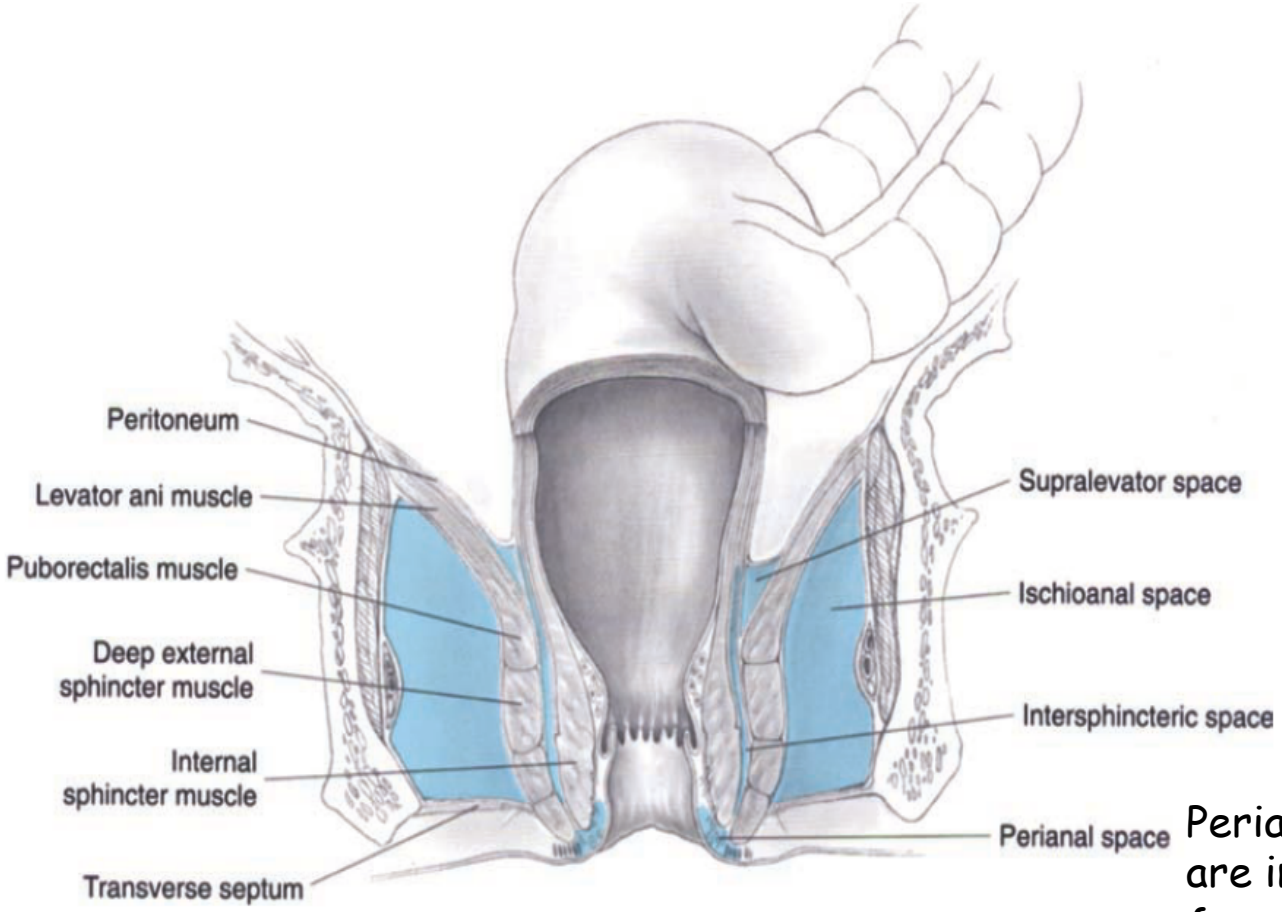
- The average number of glands in a normal anal canal is six (range, 3–10)
- Each gland is lined by stratified columnar epithelium with mucus-secreting or goblet cells interspersed within the glandular epithelial lining and has a direct opening into an anal crypt at the dentate line. That's why crypto granular disease internal opening most of the time are located in dentate line
- Occasionally, two glands open into the same crypt
- Half the crypts have no communication with the glands

anal glands



Stratified columner epithelium with goblet cell

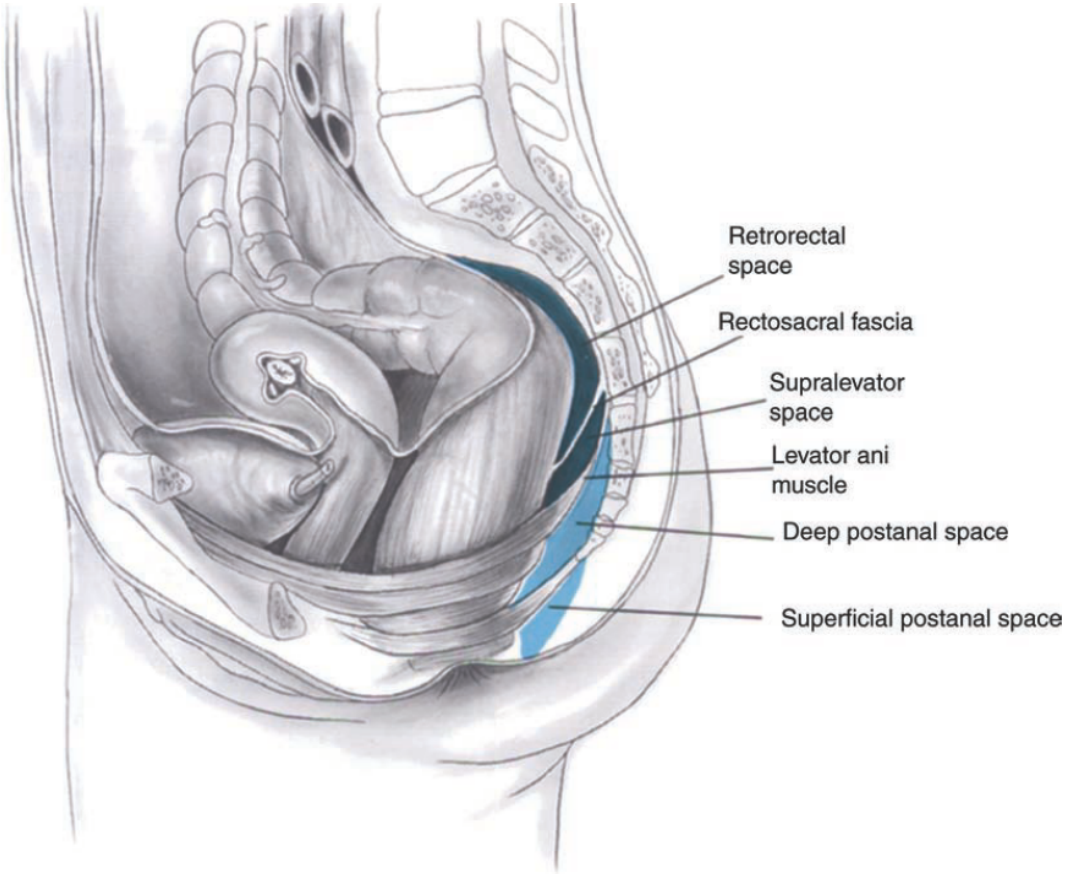
Perianal spaces



Perianal spaces are important for spread and location of the infection

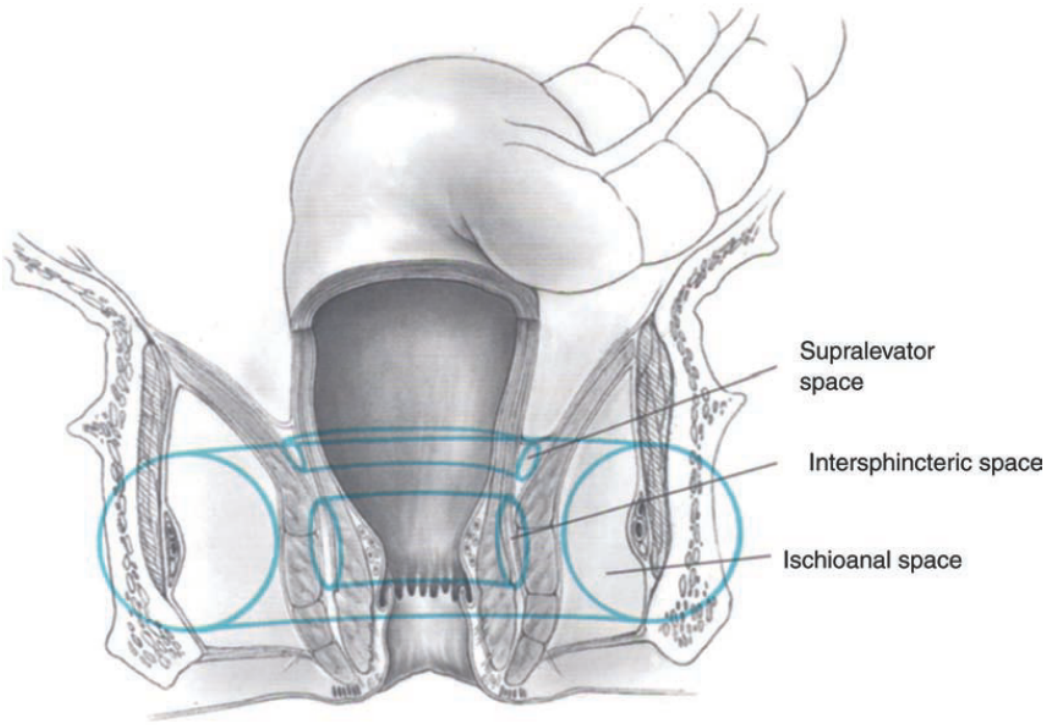
Perianal spaces

This is the posterior part , sometimes we have two spaces : The superficial of anal space which is the superficial to the anococygeal raphy and deep of anal space.



Horseshoe-shaped connections of the anorectal spaces.

Horseshoe shaped means the abscess or fistula Extend to both side Of the anus . Also , it can occur at different levels , supralevator space and most commonly in ischioanal space. On other hands , sometimes can occur in inter sphincter space.



Etiology

Some Other disease can cause infection and suppuration

- Cryptogenic or cryptoglandular
- Specific ones include the following:
  - Crohn's disease, chronic ulcerative colitis
  - Actinomycosis, lymphogranuloma venereum tuberculosis (TB)
  - foreign body
  - carcinoma, lymphoma, leukemia
  - trauma (impalement, enemas, prostatic surgery, episiotomy, hemorrhoidectomy)
  - Radiation
  - Chronic anal fissure

Cryptoglandular disease

- The anal glands were found to arise in the middle of the anal canal at the level of the crypts and to pass into the submucosa.
- two-thirds continuing into the internal sphincter
- one-half penetrating into the intersphincteric plane

Cryptoglandular disease

Obstruction of these ducts, whether secondary to fecal material foreign bodies, or trauma, results in stasis and infection

Chronicity is due to

Many of these fistulae don't heal until the gland tissue is removed .

1. persistence of the anal gland epithelium in the tract
2. nonspecific epithelialization of the fistula tract from either the internal or external openings

Destruction of the anal gland epithelium might explain the occasional spontaneous healing of a fistula

Bacteriology

- Escherichia coli (22%)
- Enterococcus spp. (16%)
- Bacterioides fragilis (20%)

Acute phase (abscess) symptoms

As we said that the presentation of perianal suppuration comes in two forms : Acute and chronic

Pain becomes sever Mainly when Occurs at closed space live intrasphincteric space

- acute pain in the anal region. Pain occurs with sitting or movement and is usually aggravated by defecation and even coughing or sneezing.
- Swelling Male who comes with swelling , may has discharge either from anus crypts it self or from ruptured abscess.
- purulent anal discharge
- bleeding
- General symptoms include malaise and pyrexia Occur specially in ischeoanal infection , due to the large space that appropriate to make infection.

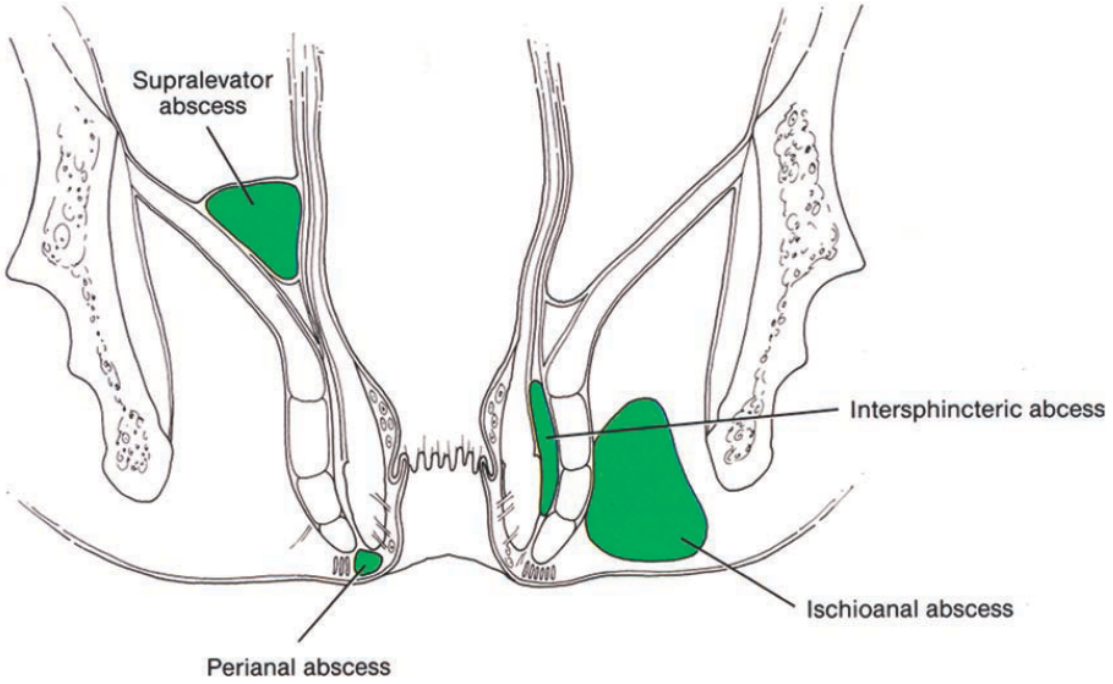
Acute phase (abscess) Findings

- Tender induration
- Pus may be seen exuding from a crypt
- Examination under anesthesia is not only justified but also indicated
- Supralevator abscess, a tender mass in the pelvis may be diagnosed by rectal or vaginal examination. Abdominal examination may reveal signs of peritoneal irritation

Where the peritonium cause a tender mass in the pelvis

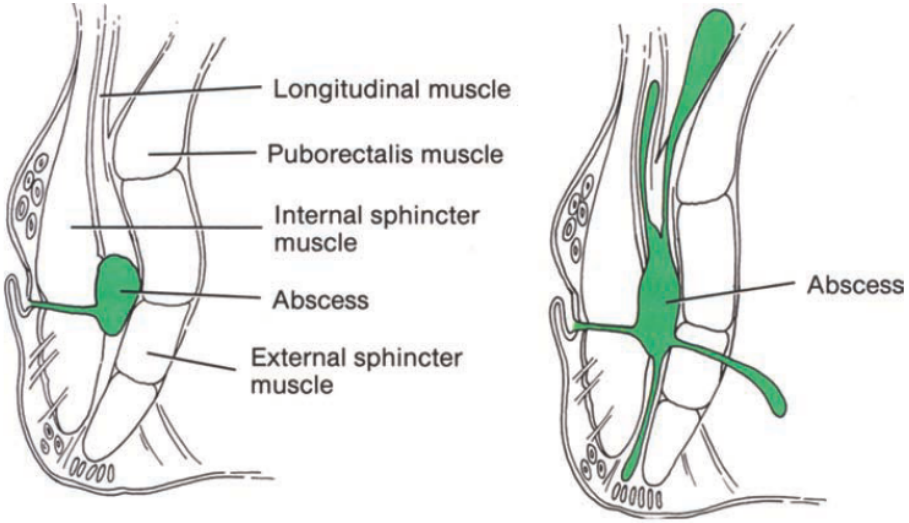
Acute phase (abscess) location

Green area : The most common site of abscesses. Probably ,Most of them start there , but the presentation is commonly occur in perianal abscess proper.



Avenues of extension for an anal fistula

Most of these abscesses start from the infection of the anal gland located in inter sphincteric plane. They tend to spread and later on become a fistula (spread to other spaces that we mentioned before).

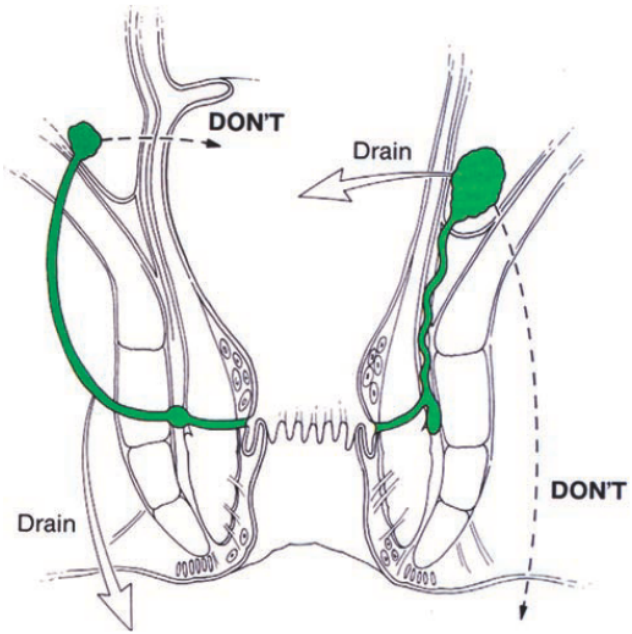


Treatment

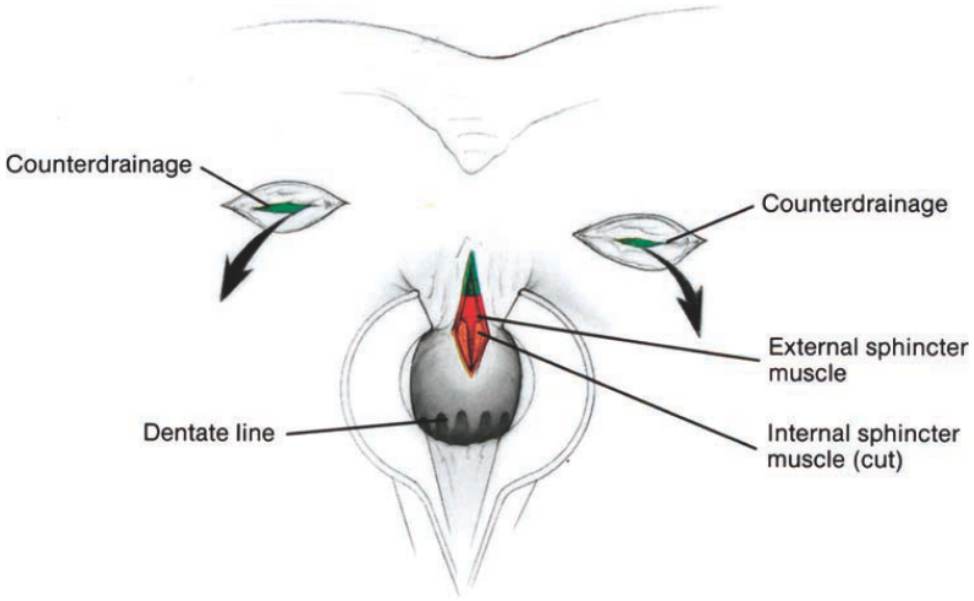
Sometimes we need to do imaging study and the best is magnetic resonance imaging . However , we have to examine the patient really under general anesthesia

- Drainage
  - Incision and drainage
  - Deroofing
  - Drains and aspiration
- Antibiotics; mostly unneeded except
  - Local sepsis Ex: ischeoanal abscess due to large space
  - Systemic sepsis
  - Immunocompromised host Any immunocompromised patient Should receive antibiotics And early drainage is mandatory .
  - Others, e.g. prosthetic valve …

Drainage of a supralevator abscess



incision and drainage of a horseshoe abscess.



chronic phase (fistula) history

Fistula is an abnormal tract connect between to epithelial covered surfaces that's drain an acute abscess after previous surgery , but sometimes patient develop fistula denovo from the start without preceding abscess.

- the patient's history will reveal an abscess that either
  - burst spontaneously or
  - required drainage
- small discharging sinus

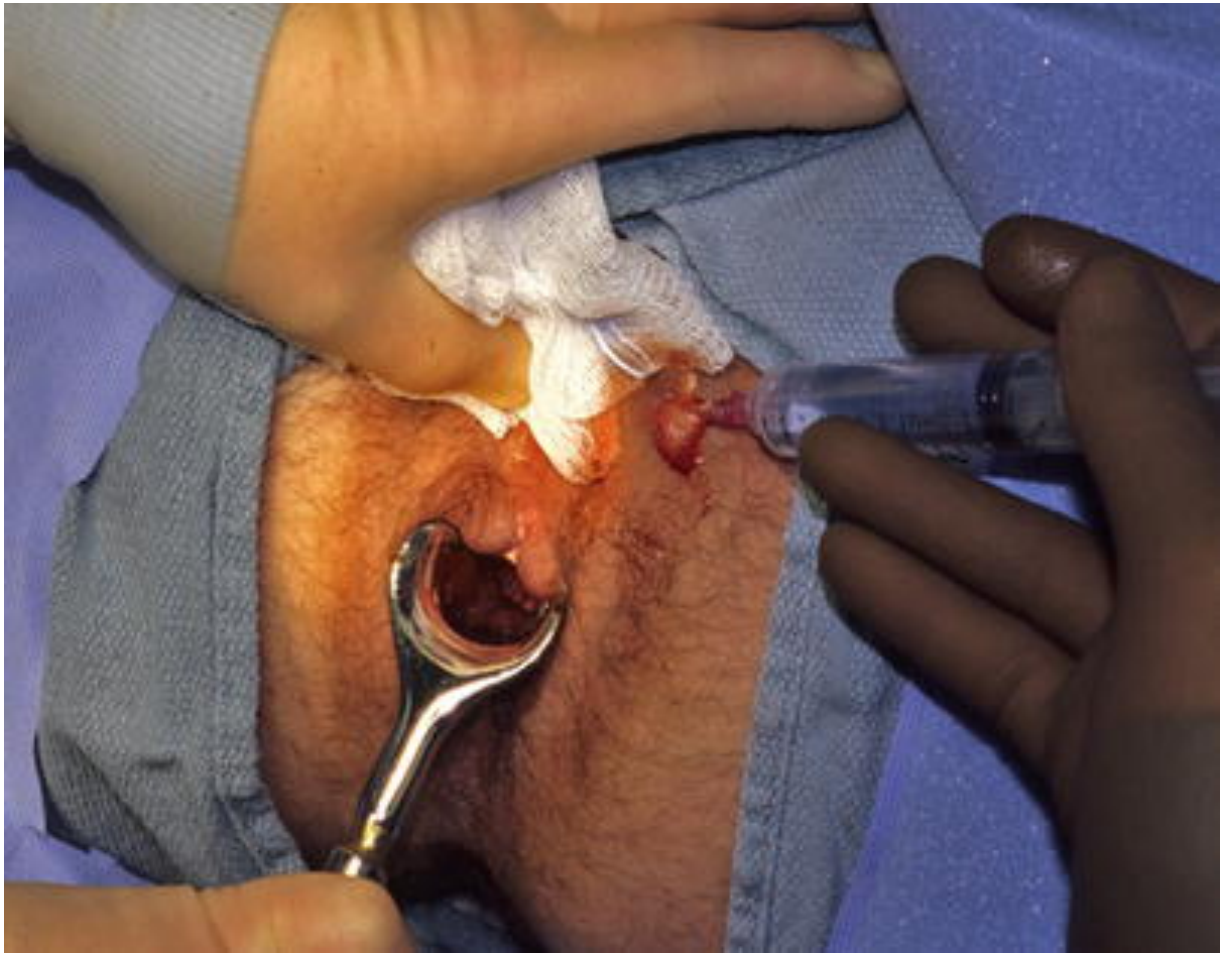
chronic phase (fistula)

- External opening usually can be seen as a red elevation of granulation tissue with purulent serosanguinous discharge on compression.
- Opening is sometimes so small that it can be detected only when palpation around the anus expresses a few beads of pus

chronic phase(fistula)

- An external opening adjacent to the anal margin may suggest an intersphincteric tract
- A more laterally located opening would suggest a transsphincteric one
- The further the distance of the external opening from the anal margin, the greater is the probability of a complicated upward extension
- increasing complexity and increasing laterality and multiplicity of external openings also has been observed

Injection of a dye



chronic phase(fistula)

- palpate the skin since with a superficial fistula a cord structure can be felt just beneath the skin leading from the secondary opening to the anal canal
- internal opening might be palpable
- crypt of origin is often retracted into a funnel by pulling the fibrous tract leading to the internal sphincter; this state is called the funnel, or "herniation sign" of the involved crypt

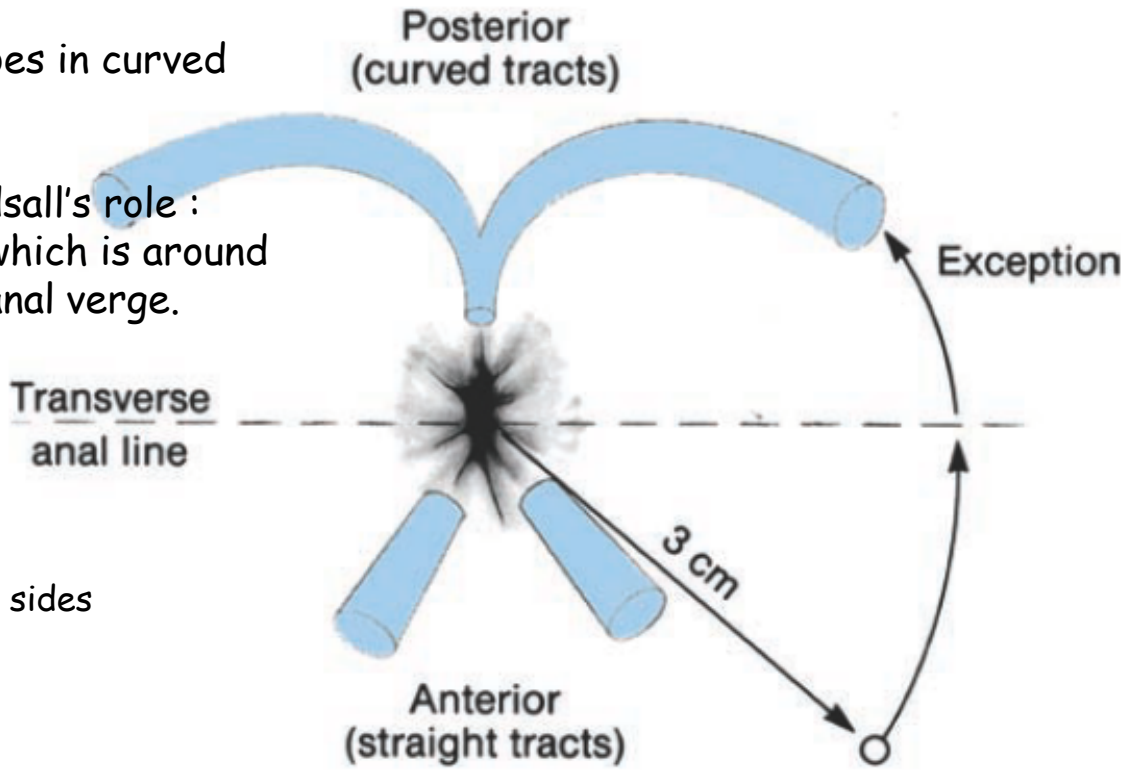
Goodsall's rule

Applies to almost all fistulae in the region.

Goodsall's role said that the:

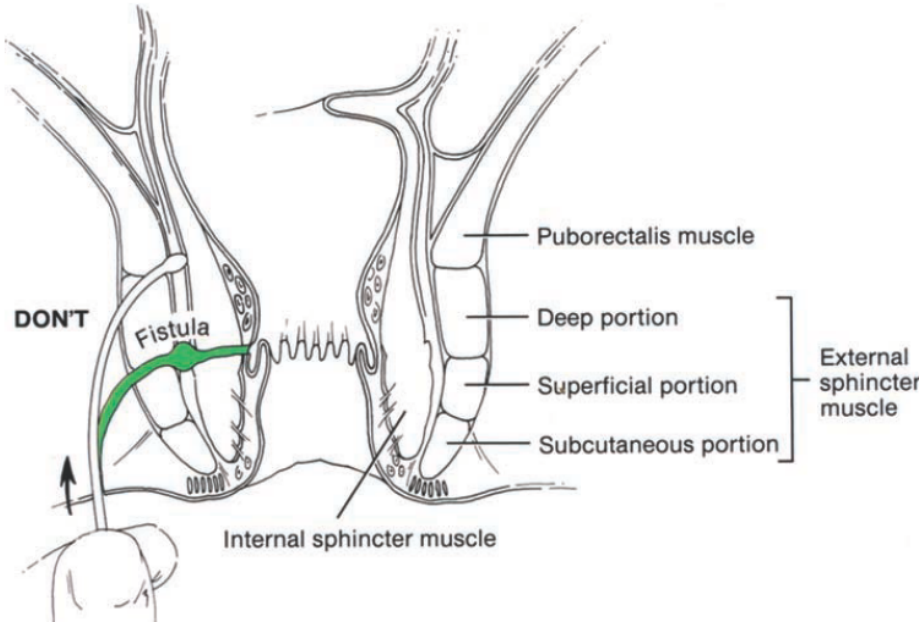
- Anterior tract goes in straight line
- Posterior tract goes in curved line

- Exception of goodsall's role : belongs anterior which is around 3 cm a way from anal verge.

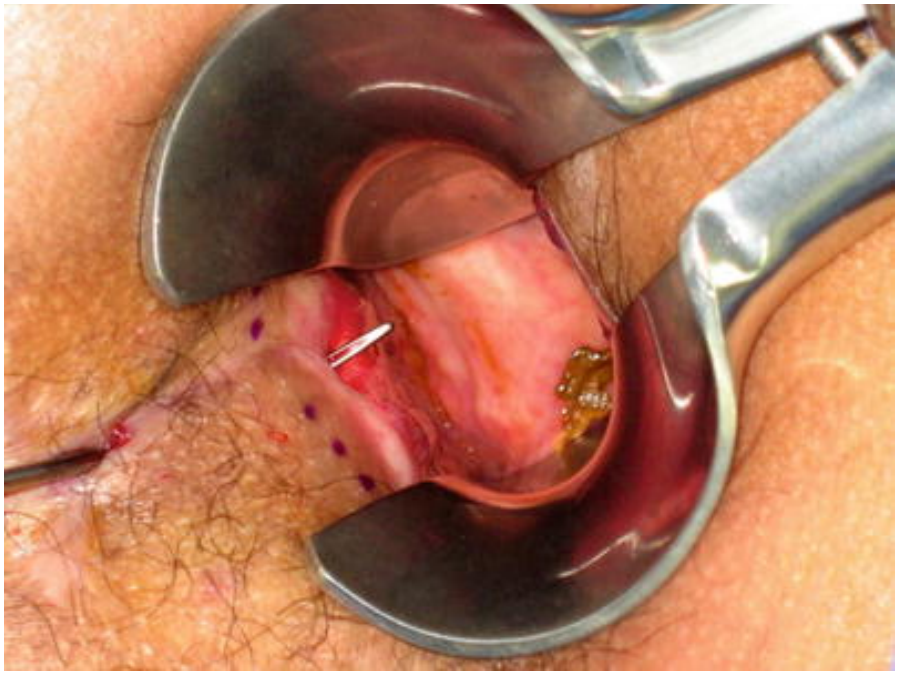


Tracts passes in both sides toward midline

Probing of the fistulous tract



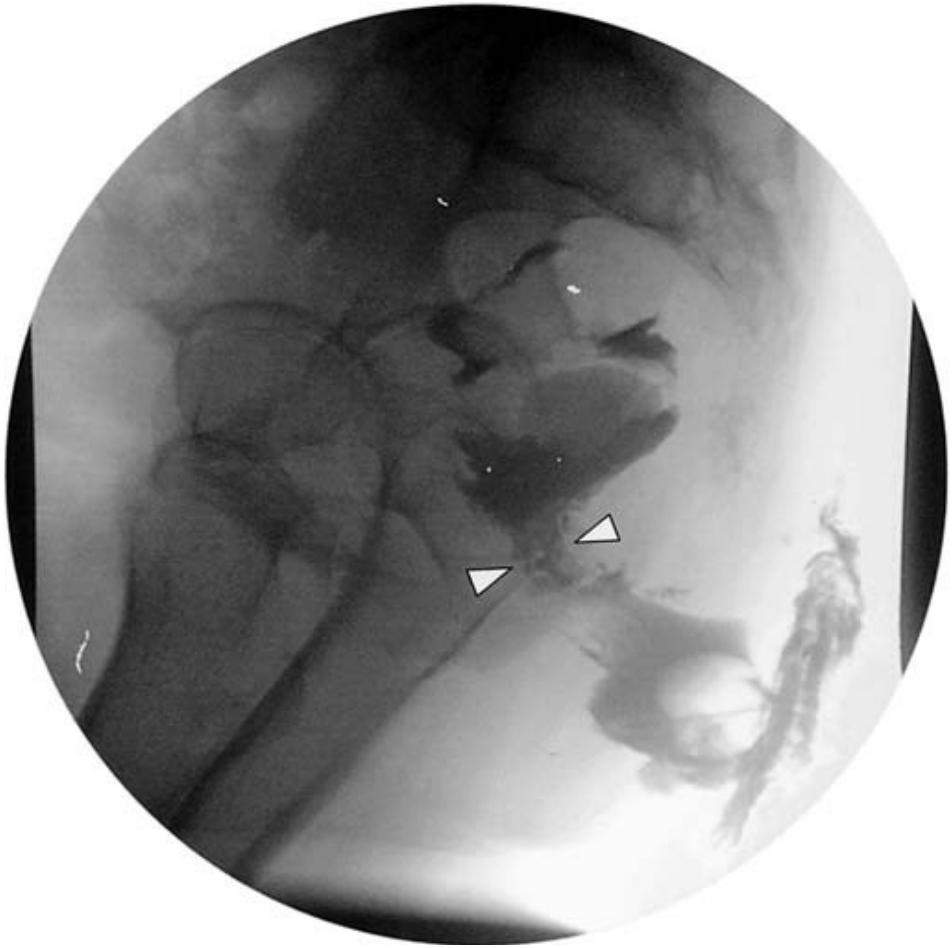
probing



INVESTIGATION

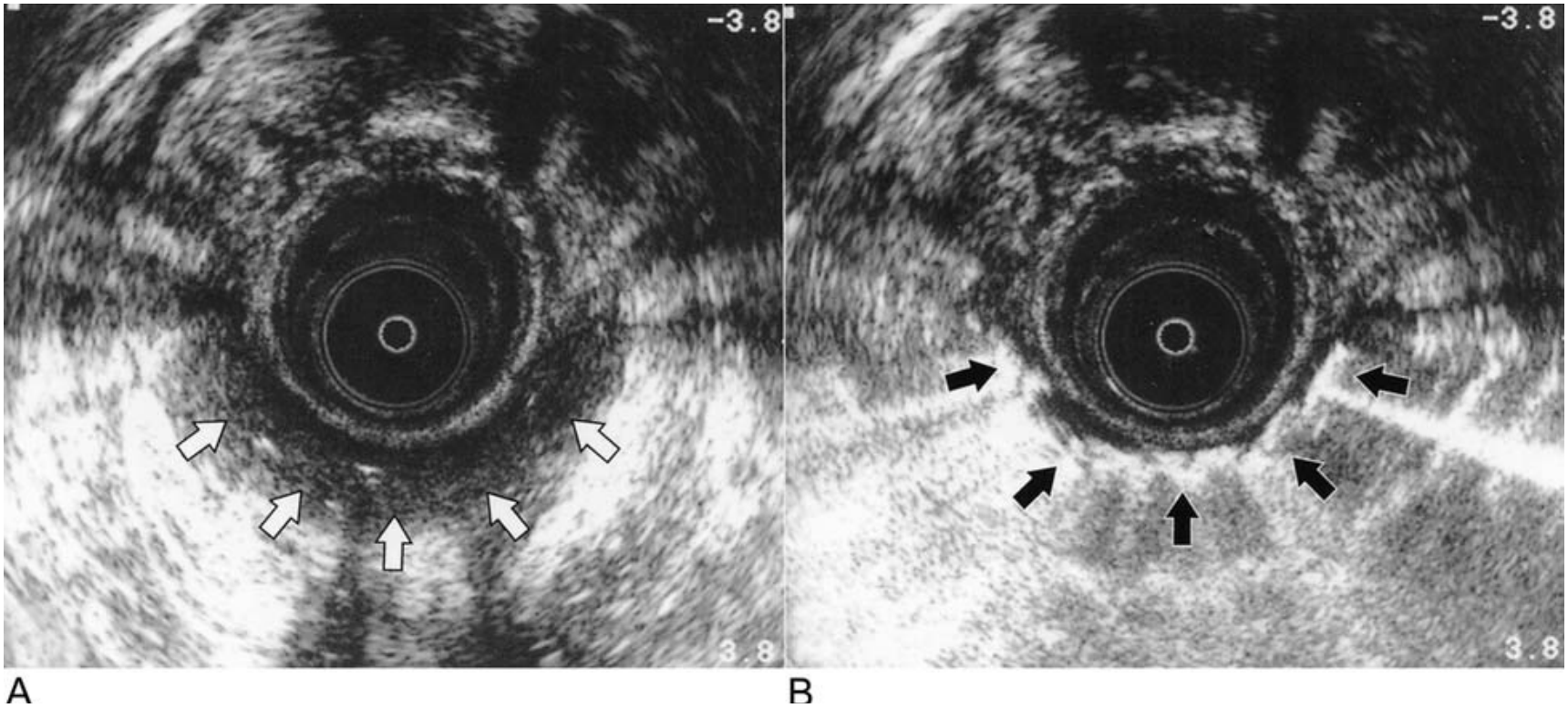
- Anoscopy and sigmoidoscopy
- Fistulography
- Endoanal Ultrasonography
- Magnetic Resonance Imaging
- Endoanal Magnetic Resonance Imaging

Fistulography



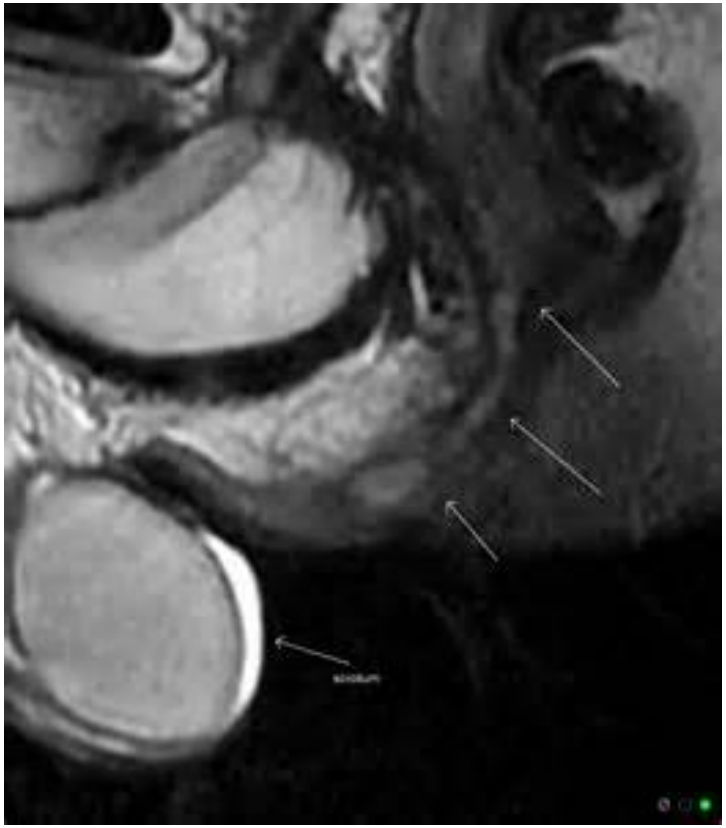
Endoanal Ultrasonography

Accurate



MRI

Endoanal MRI is probably the most diagnostic accurate way show the fistula.



FISTULA-IN-ANO INCIDENCE

- Men predominate in most series with a male-to-female ratio varying from 2:1 to 7:1
- Age distribution is spread throughout adult life with a maximal incidence between the third and fifth decades

FISTULA-IN-ANO DEFINTIONS

- COMPLEX; more than one tract (branching)

Complex could be high , low or horseshoe

- HIGH; the main tract or a branch passes to the level of anorectal ring

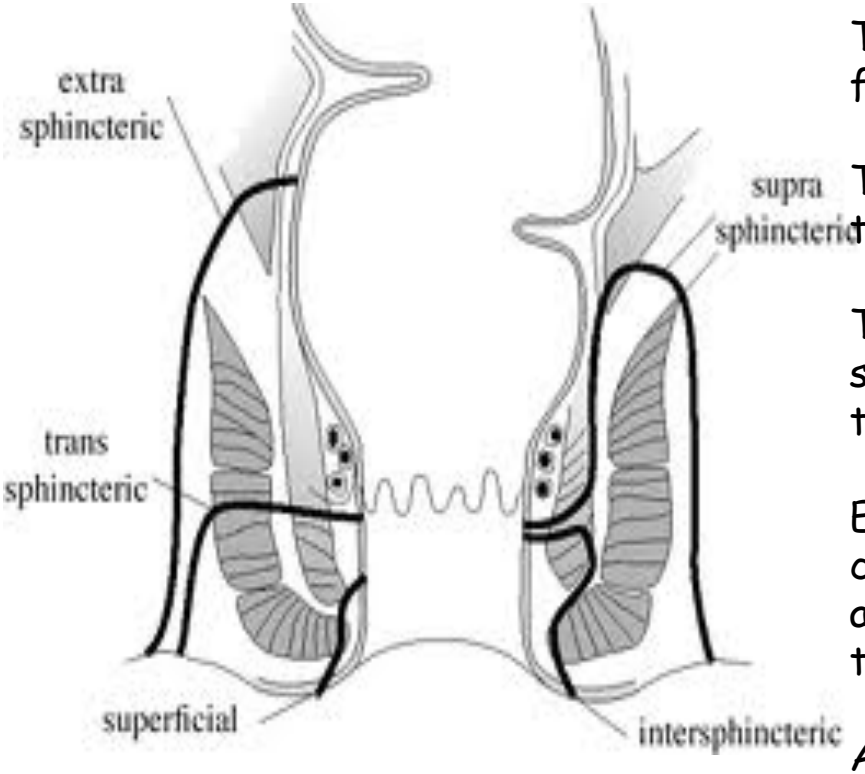
It's a very dangerous if it treated be usual way , because the anorectal ring the major continence mechanism of the anus , if it is cut most patient will be totally incontinent

- HORSE-SHOE; the tract passes on both sides of the midline

INCIDENCE

- Intersphincteric, 70%
- Transsphincteric, 23%;
- suprasphincteric, 5%
- extrasphincteric, 2%.

FISTULA-IN-ANO types



The most common type of fistulae is cryptogenic fistula that's come from inter sphincteric fistulae.

The second type is trans sphincteric fistulae passes through internal then external sphincter.

Third type is suprasphincteric which can pass in inter sphincteric and above the sphincter (by definition this type is a high tract fistulae) .

Extra sphincteric and pylorectal types actually not a cryptogenic (usually occurs by pyloric diseases such as crohns disease , tumor , diverticular diseases..etc.) they come from rectal and colon and pass outside .

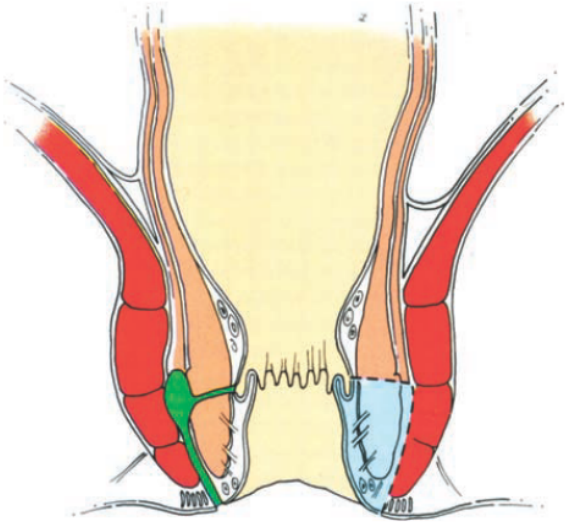
Another non cryptogenic is a superficial or submucous which occurs here and related to fissures healing by bridging of the tissue .

FISTULA-IN-ANO
principles of management

1. the primary opening of a tract must be identified
2. the relationship of the tract to the pubrorectalis muscle must be established;
3. division of the least amount of muscle in keeping with cure of the fistula should be practiced;
4. side tracts should be sought
5. the presence or absence of underlying disease should be determined

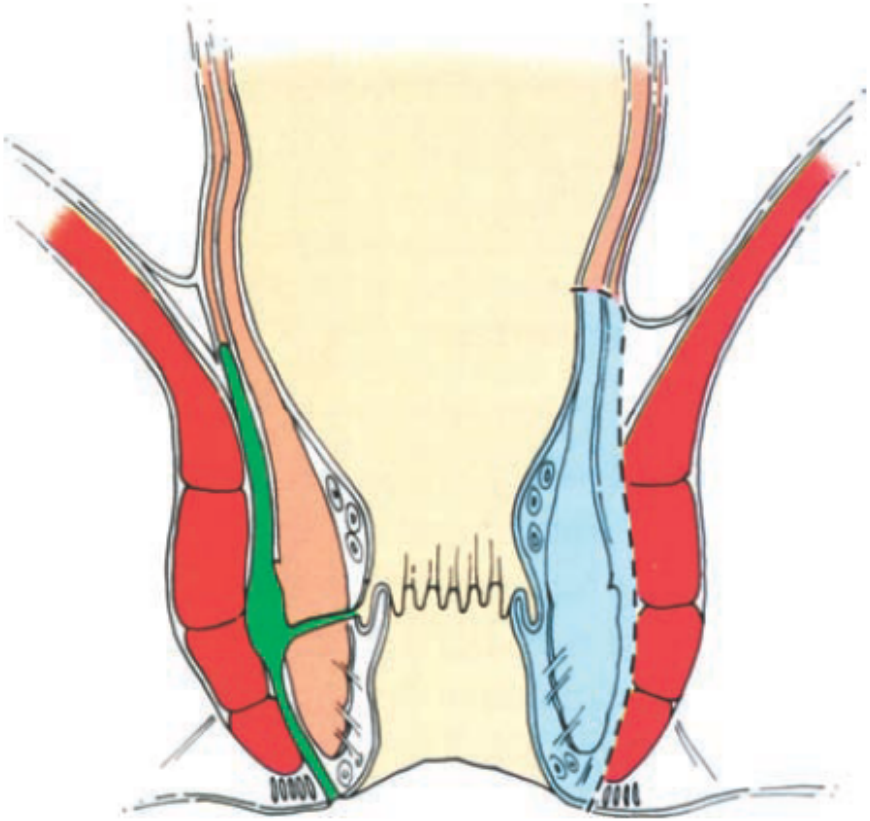
Intersphincteric fistula: simple low tract

Inter sphincteric fistula ,low tract that opens in crypts internally at the level of dentate (pectinate) line then into sphincteric extension .

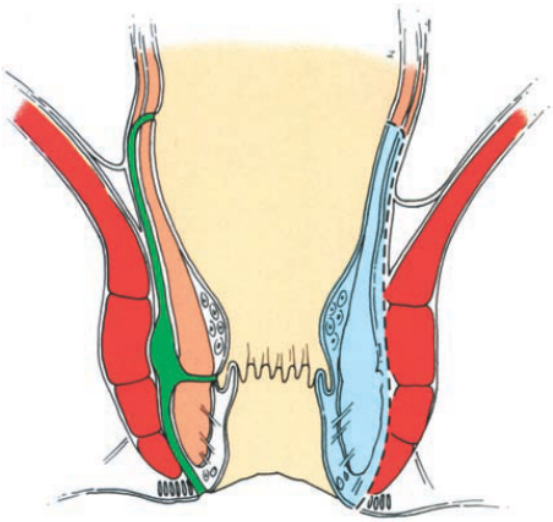


Intersphincteric fistula: high blind tract

Inter sphincteric complex and high fistula that has extensions upward.

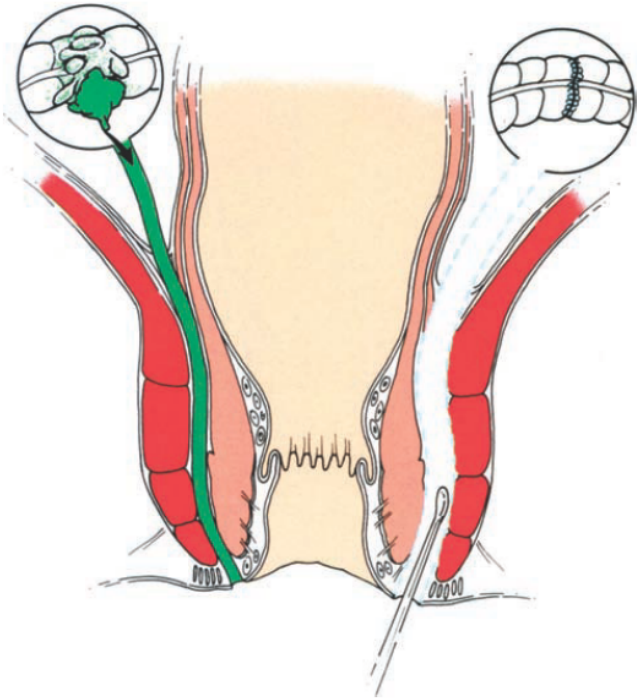


Intersphincteric fistula: high tract with a rectal opening



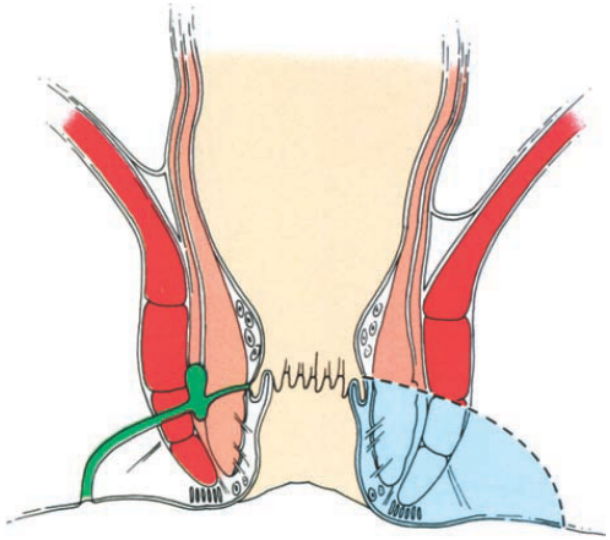
Intersphincteric fistula: secondary to pelvic disease

Inter sphincteric fistula Coming from disease of the pelvic for example like diverticulitis which can present in perianal abscess fistula

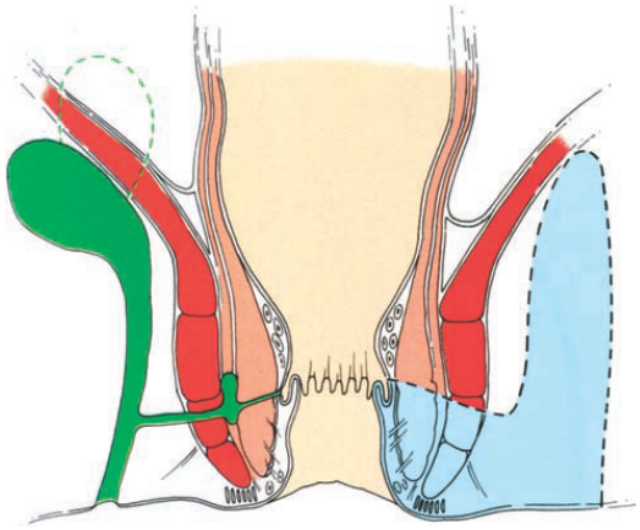


Transsphincteric fistula: uncomplicated type

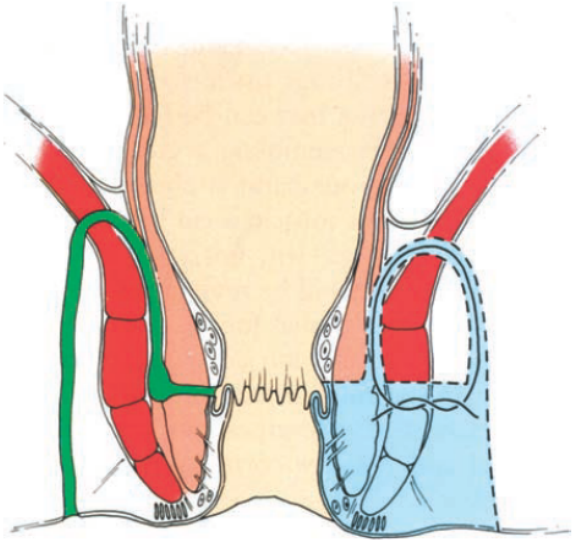
Simple trans sphincteric fistula : this fistula tracts passes directly through both sphincters in the skin



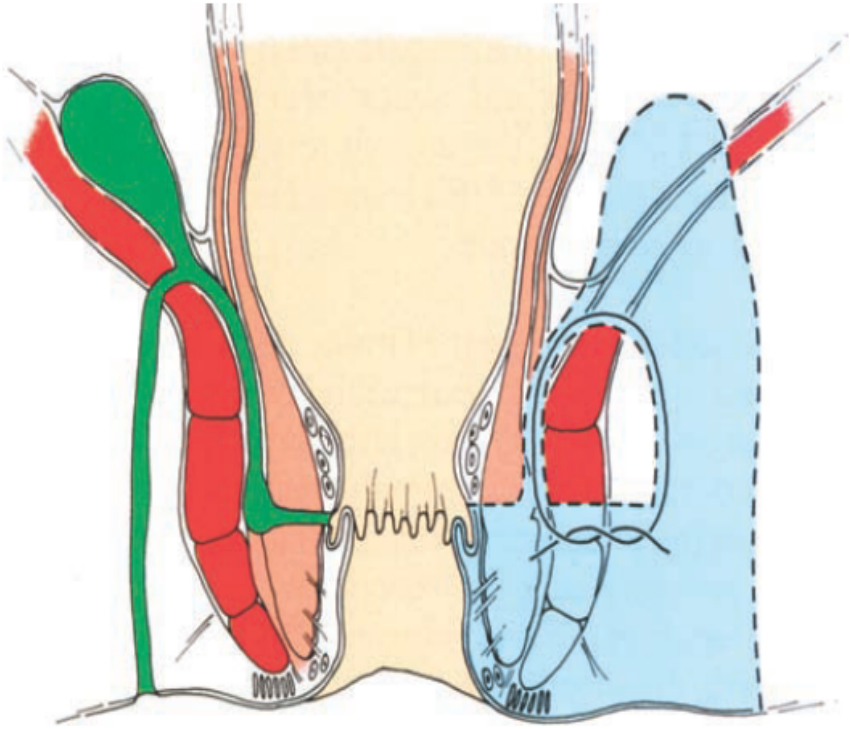
Trans-sphincteric fistula: high blind tract



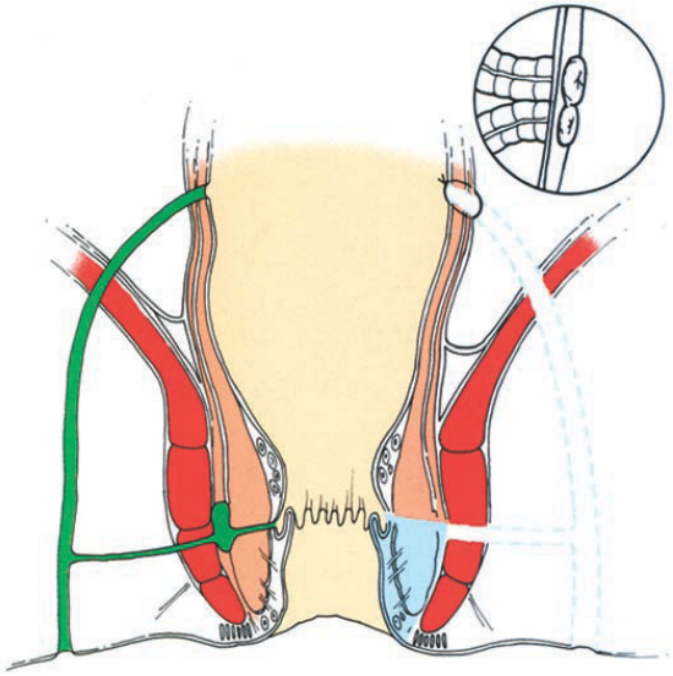
Supraspincteric fistula: uncomplicated type



Supraspincteric fistula: high blind tract



Extrasphincteric fistula: secondary to anal fistula

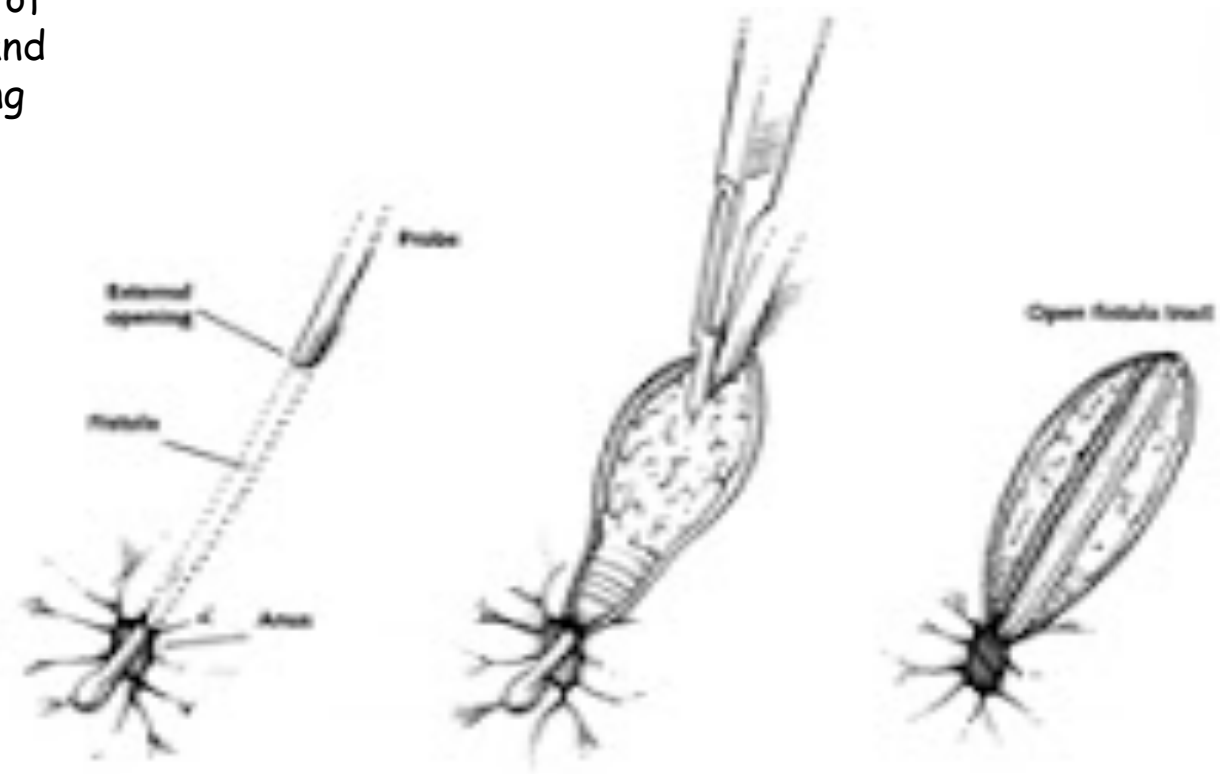


Fistulotomy

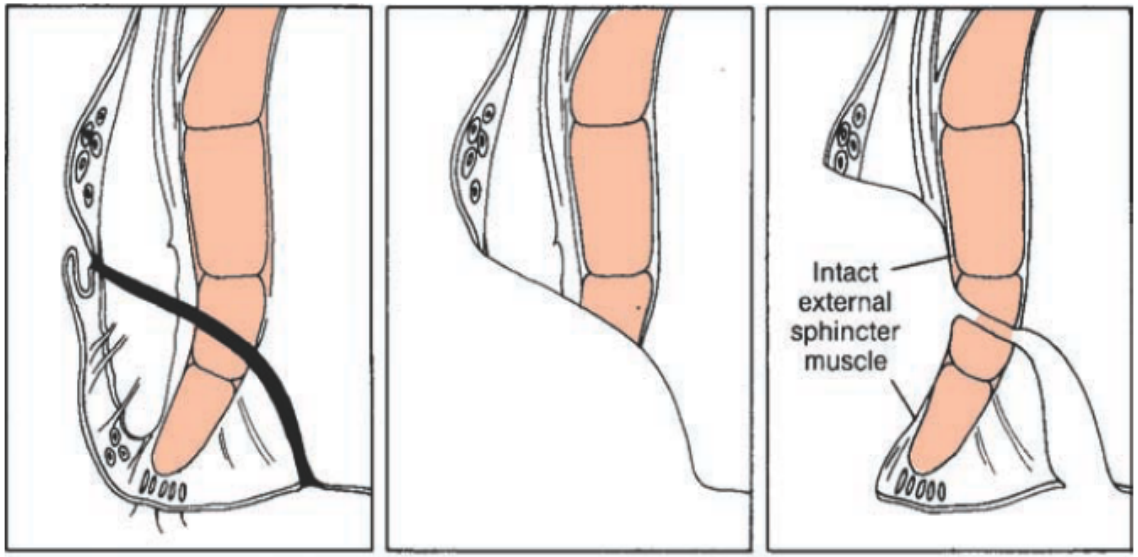
Surgical treatment

Using antibiotics treatment for a long time may suppress the needed treatment lead to high prevalence to recurrent and complexity .

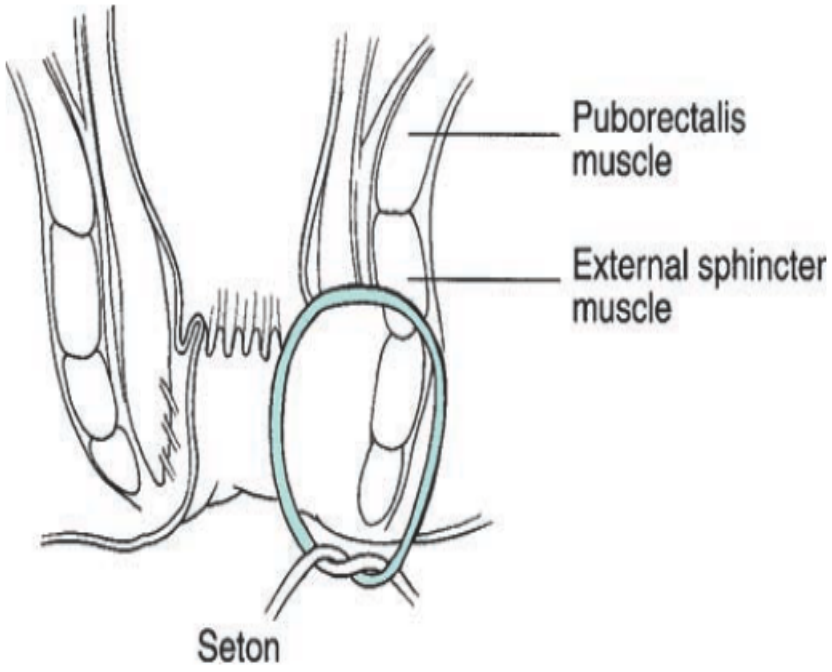
The simple and stander operation of fistula is fistulotomy by opening and put prope in the fistula and cutting of the fistula tract



Fistulotomy vs. fistulectomy

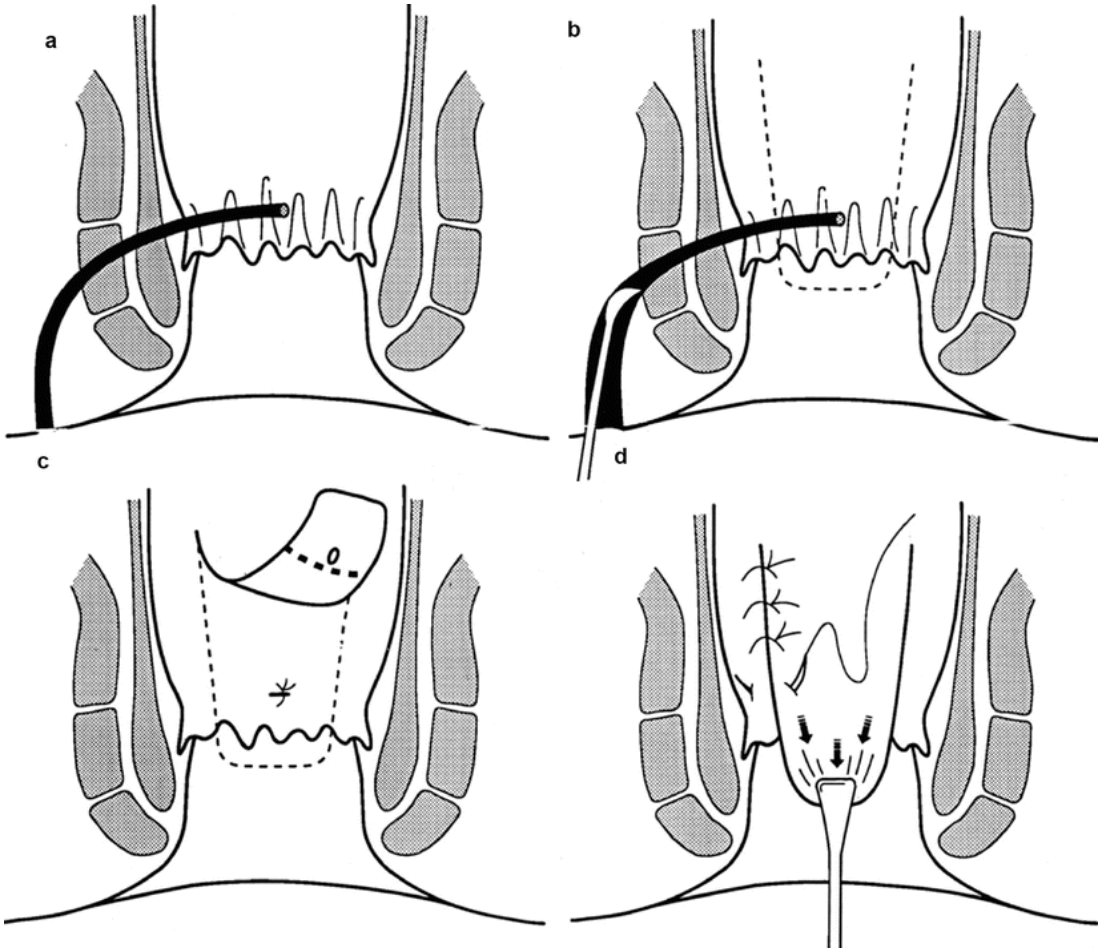


Seton insertion (draining)

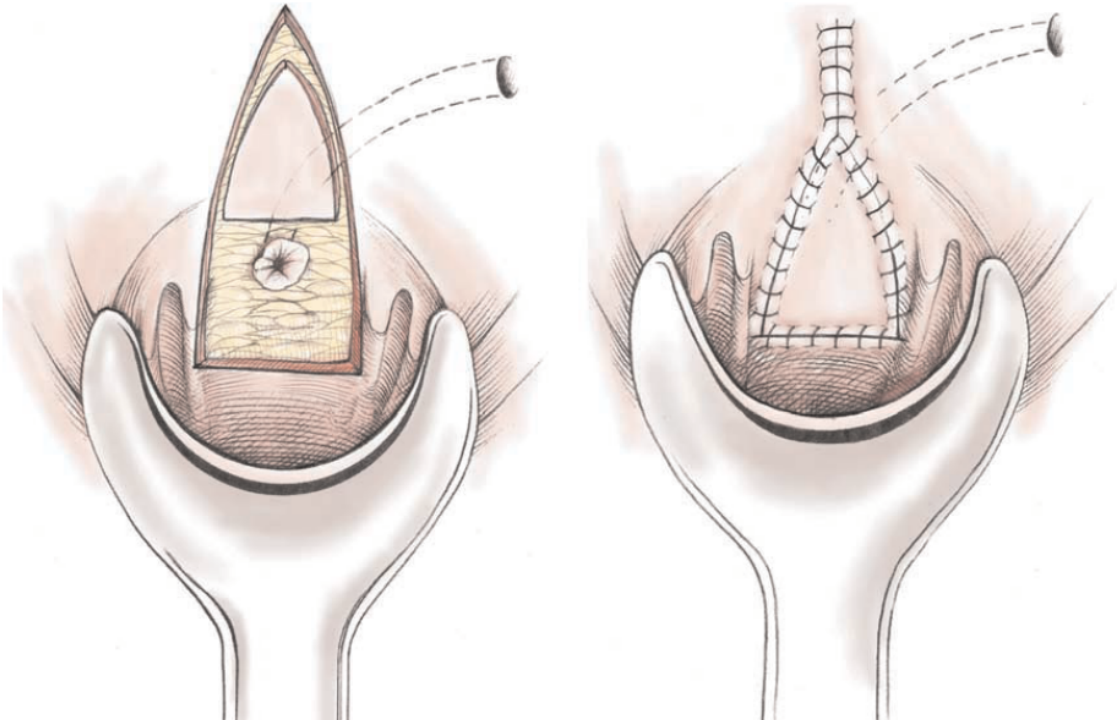


Advancement rectal flap

Usually used to close the fistula and pull the mucosa of the rectum below the fistula (high and intermediate fistulae)



Dermal Island Flap Anoplasty



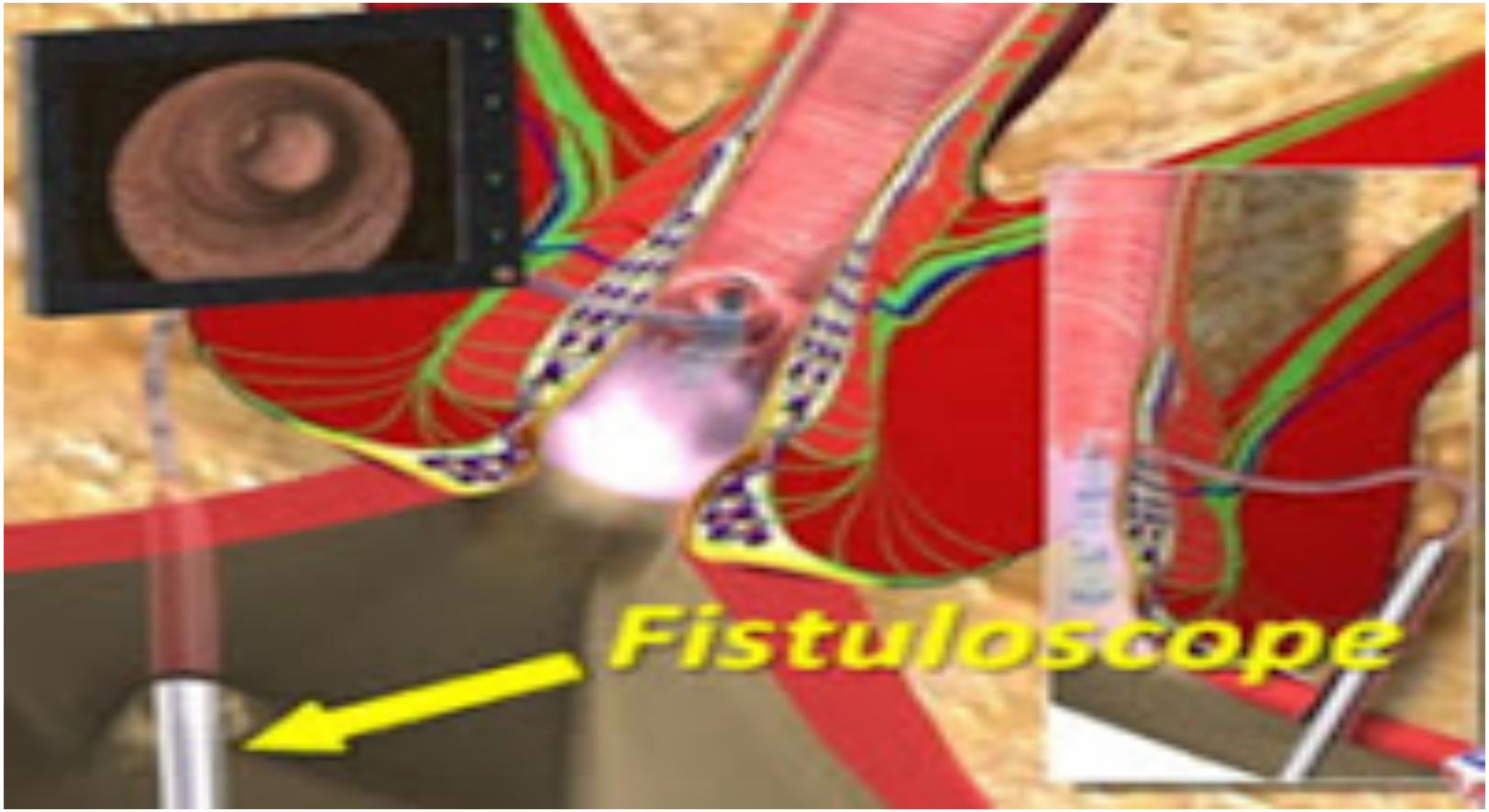
Other procedures

- Fistulectomy and Primary Closure
- Video assisted anal fistula treatment
- Cutting Seton
- Fibrin Glue
- Anal Plug
- Lift Technique Ligation of inter sphincteric fistula tracts
- ablation: laser and cautery

Fibrin Glue

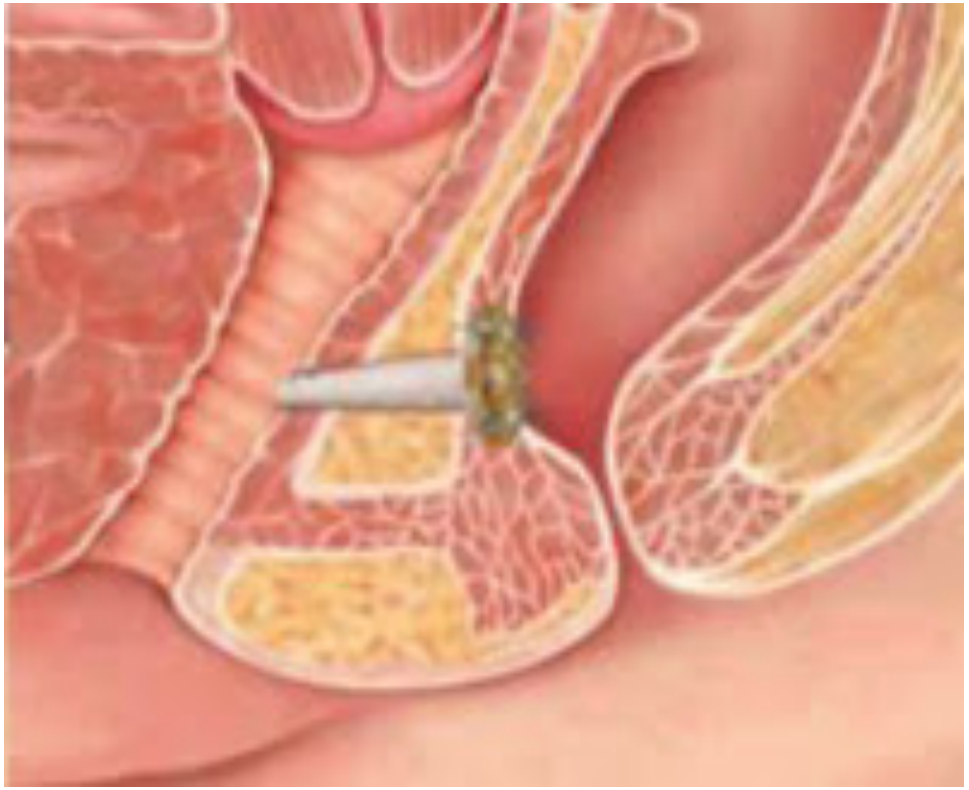
Can be repeated without cutting.

Video assisted anal fistula treatment



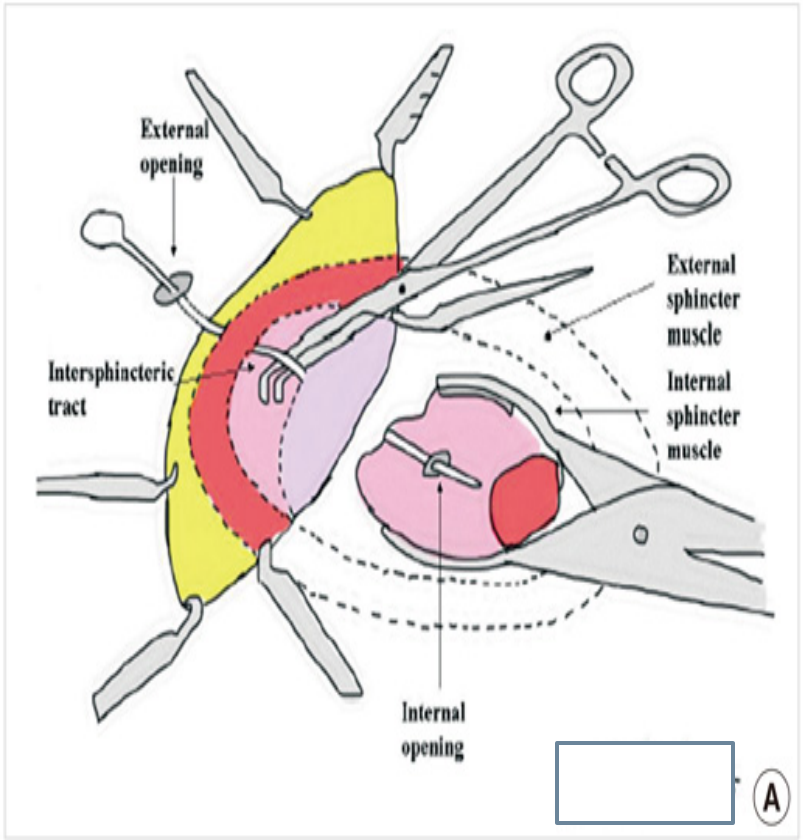
Anal Plug

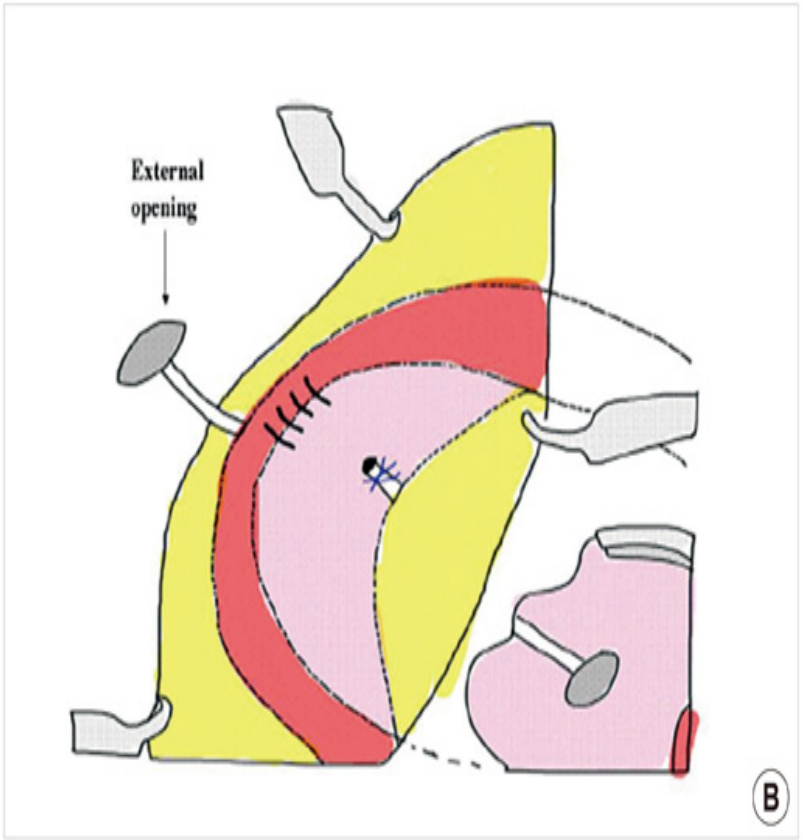
Not for
perianal fistula



Intersphincteric fistula tract removal

Ligation of inter sphincteric fistula (lift procedure)





Laser closure

Causes burn of the fistula tracts which is later on lead to fibrosis and obliteration of the tracts . However , most of the time should be proceeding by draining .