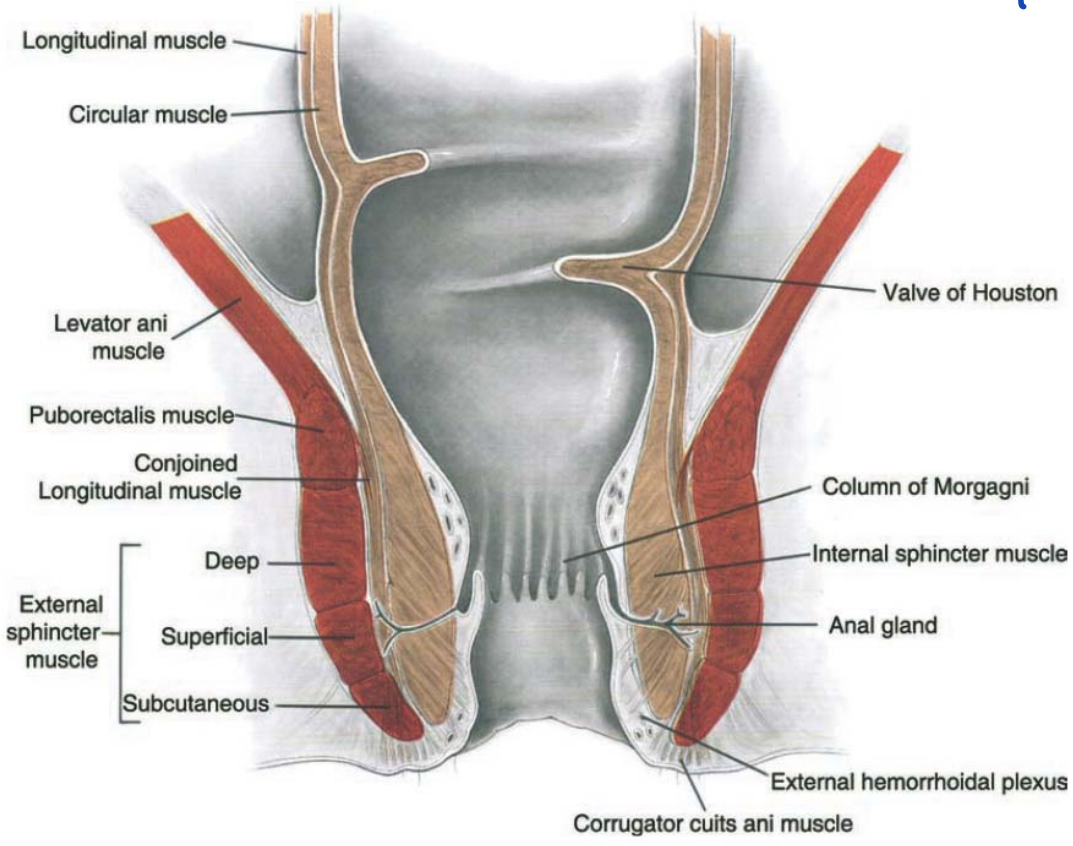
PERIANAL SUPPURATION
ANAL ABSCESS-FISTULA

Anatomy

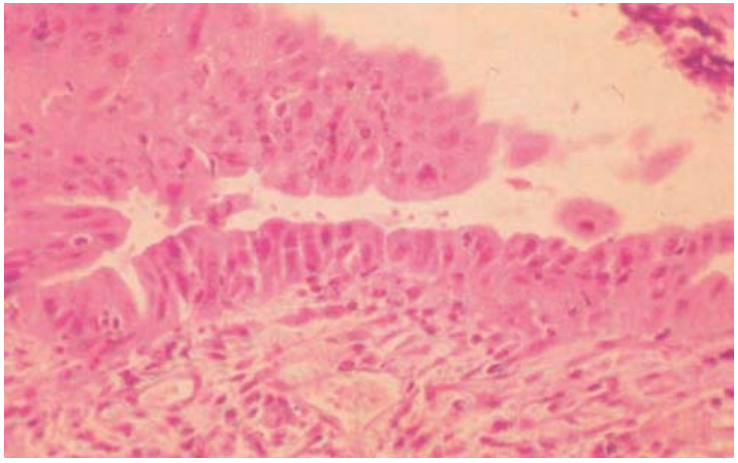
anal glands → located in the intersphenteric membrane between the internal and external sphincters but most of their ducts open into the crypts



anal glands

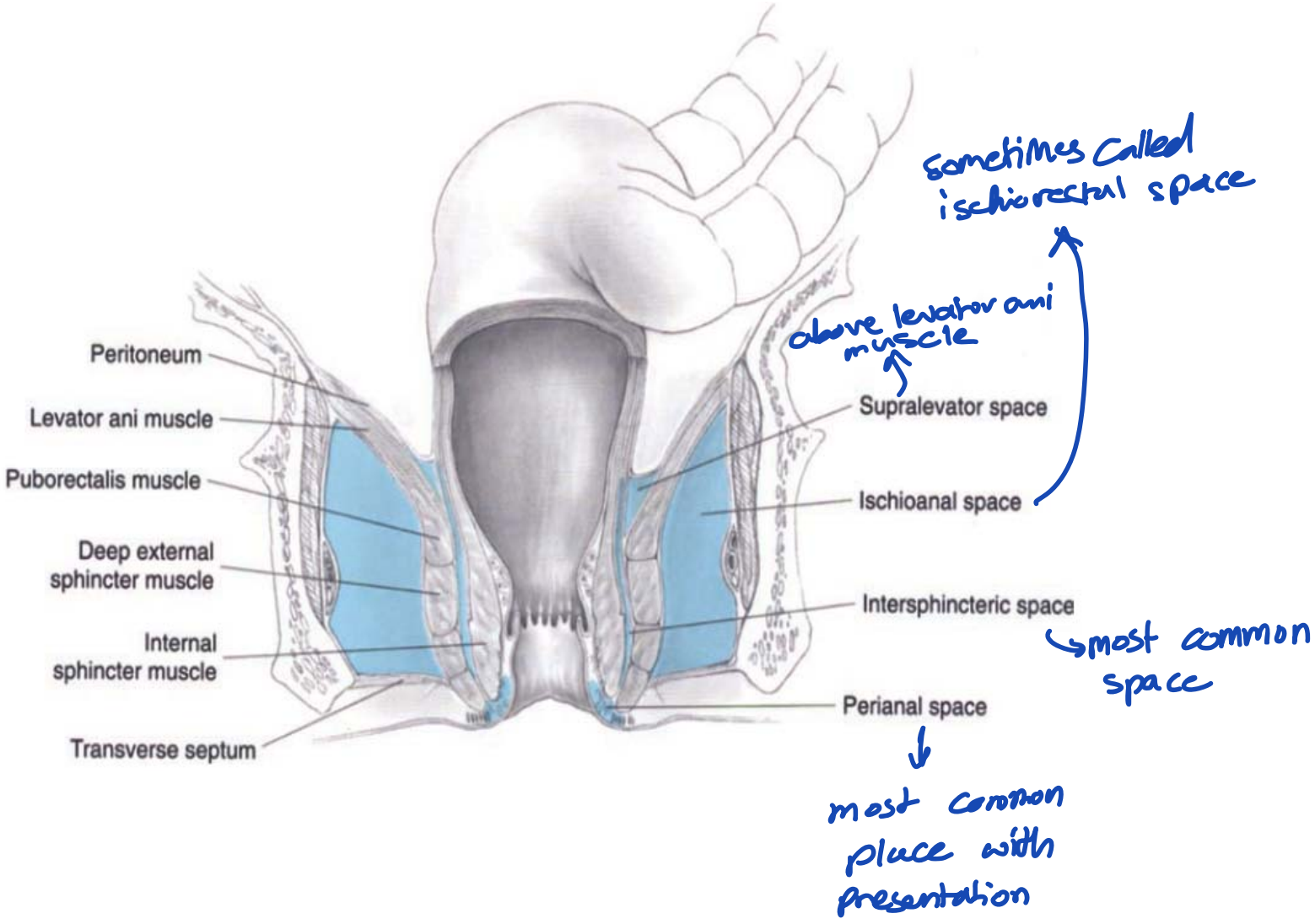
- The average number of glands in a normal anal canal is six (range, 3–10) *There's only one gland is located posterior in the anus, the rest are in the front
- Each gland is lined by stratified columnar epithelium with mucus-secreting or goblet cells interspersed within the glandular epithelial lining and has a direct opening into an anal crypt at the dentate line.
- Occasionally, two glands open into the same crypt
- Half the crypts have no communication with the glands

anal glands

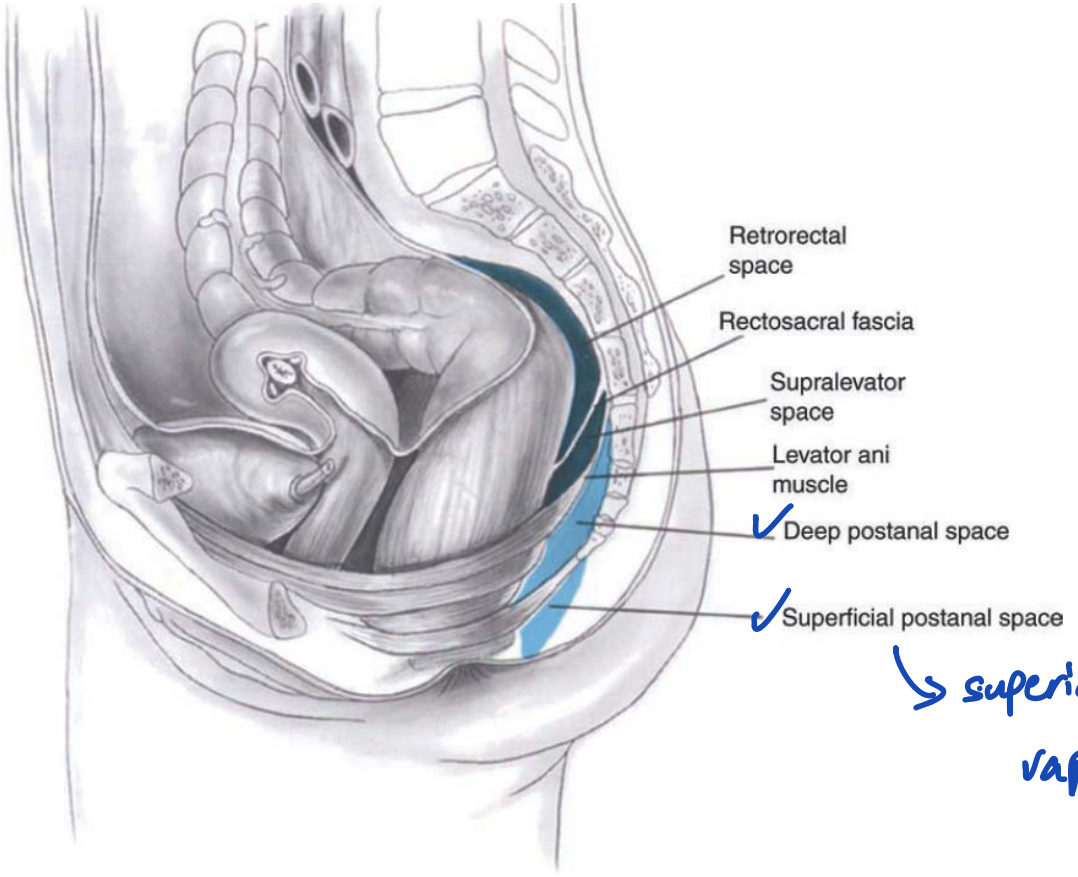


stratified squamous epithelium with goblet cells

Perianal spaces



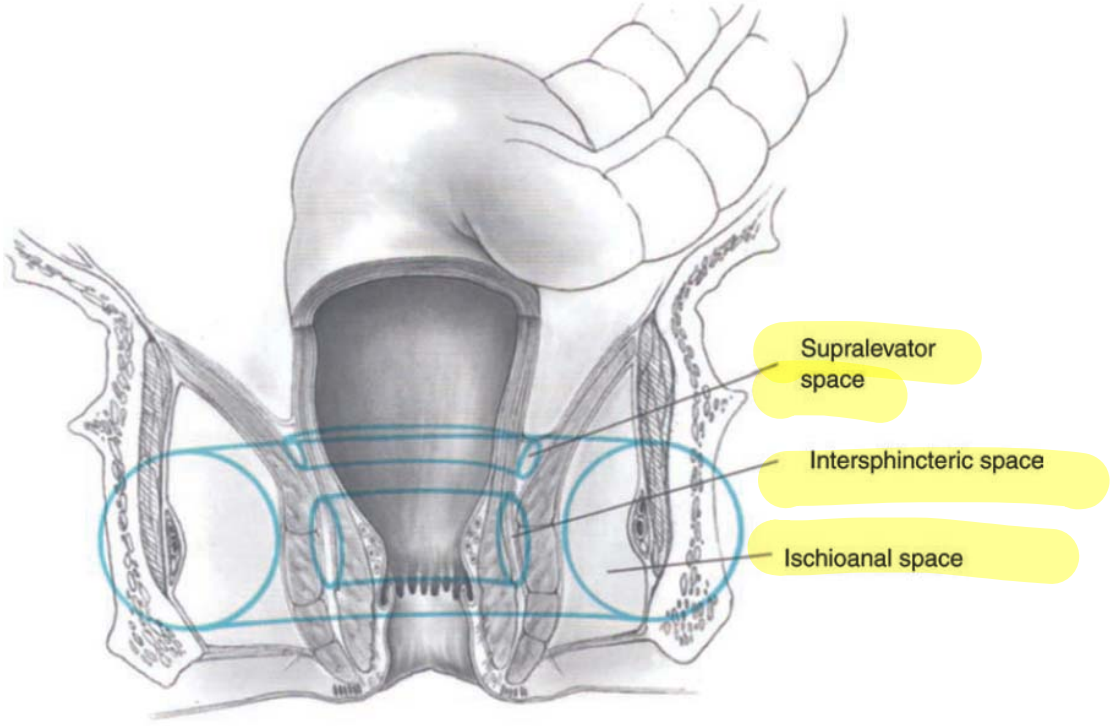
Perianal spaces



↳ superior to anococcygeal raphe

Horseshoe-shaped connections of the anorectal spaces.

means that fistula or abscess extends on both sides of the anus and can occur in different levels



Etiology

- 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 → may block posterior of the anus forming cryptogenic infection

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 → leading to formation of fistulas

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

← at the dentate line

→ at the skin

Destruction of the anal gland epithelium might explain the occasional spontaneous healing of a fistula (about most of the time they persist)

Bacteriology

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

Acute phase (abscess) symptoms

- acute pain in the anal region. Pain occurs with sitting or movement and is usually aggravated by defecation and even coughing or sneezing.
- Swelling
- purulent anal discharge
- bleeding
- General symptoms include malaise and pyrexia

Acute phase (abscess) Findings

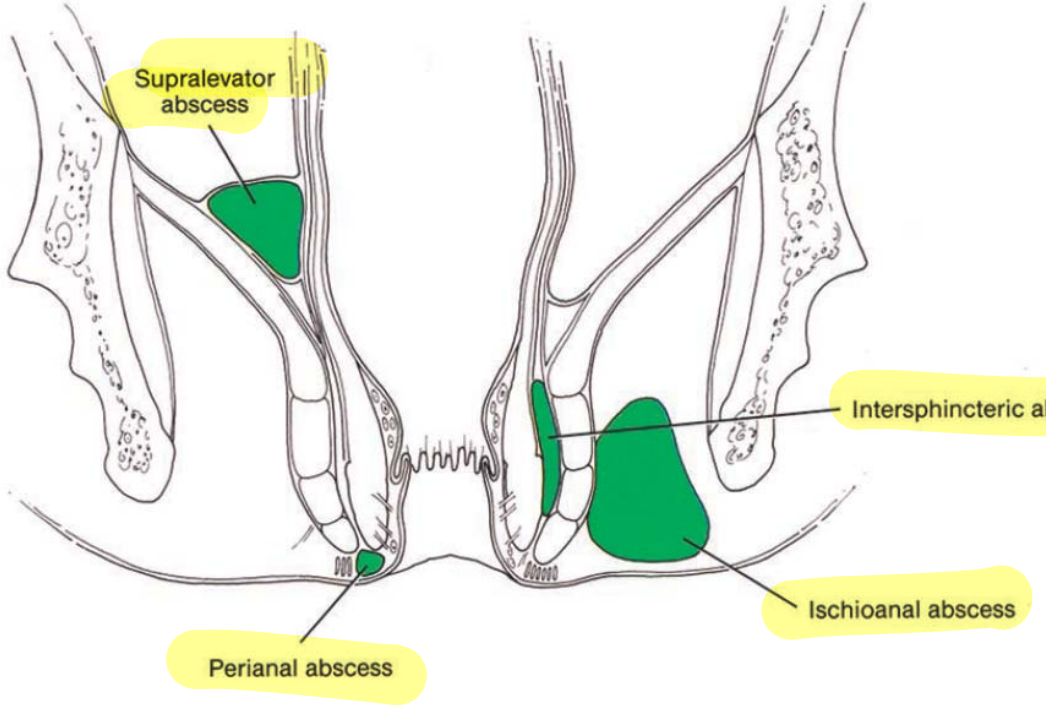
- Tender induration
- Pus may be seen exuding from a crypt
- Examination under anesthesia is not only justified but also indicated

we use imaging nowadays to detect small abscesses

- Supralevator abscess, a tender mass in the pelvis may be diagnosed by rectal or vaginal examination. Abdominal examination may reveal signs of peritoneal irritation

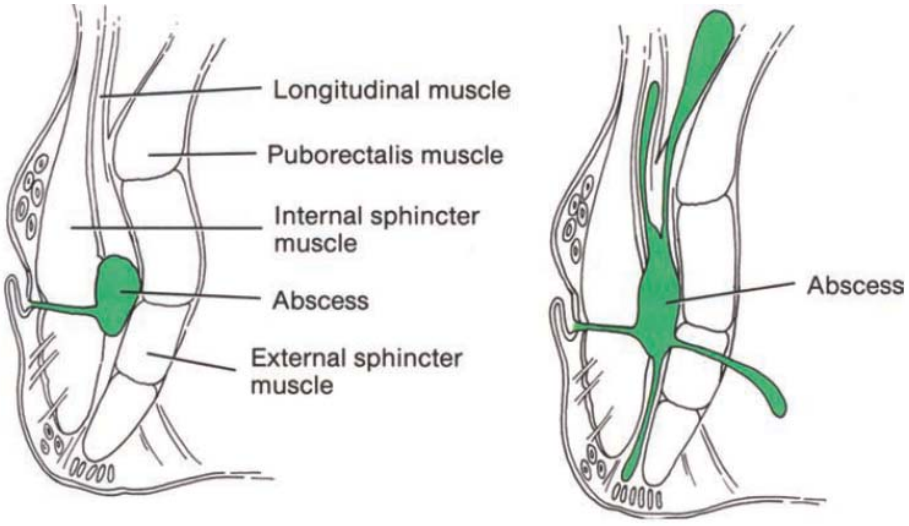
near peritoneum

Acute phase (abscess) location



→ mostly 5 parts here but they tend to spread other locations

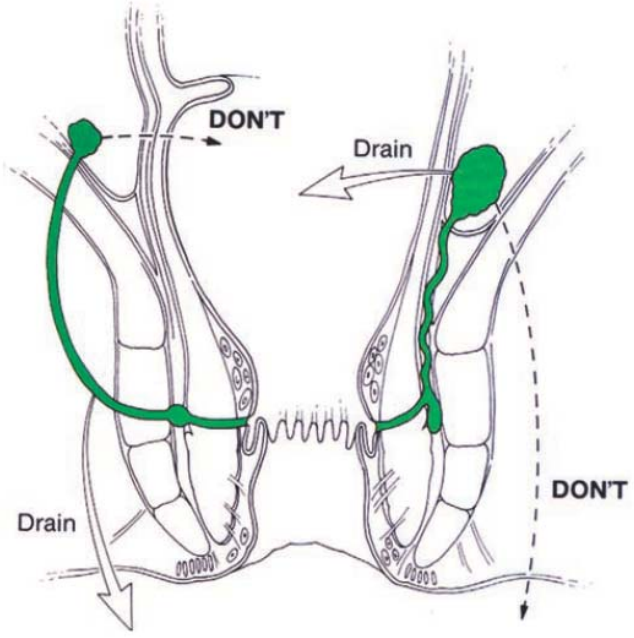
Avenues of extension for an anal fistula



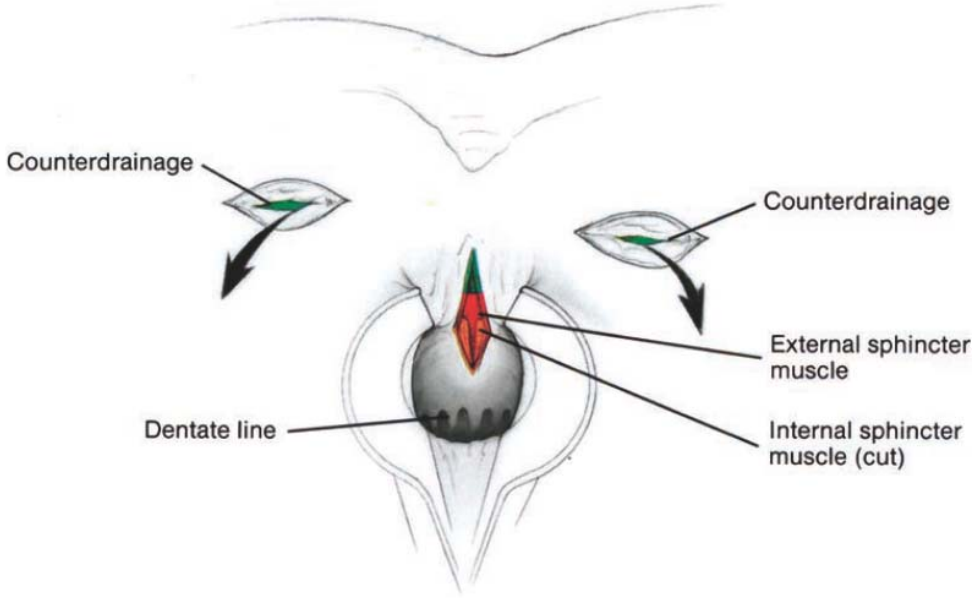
Treatment

- Drainage
  - Incision and drainage
  - Deroofing → removing the wall of the abscess
  - Drains and aspiration
- Antibiotics; mostly unneeded except → Covering all the organisms
  - Local sepsis
  - Systemic sepsis
  - Immunocompromised host → and early drainage is mandatory in their case.
  - Others, e.g. prosthetic valve …

Drainage of a supralevator abscess



incision and drainage of a horseshoe abscess.



chronic phase (fistula) history

internal opening in the crypts usually and external opening in the skin

- 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

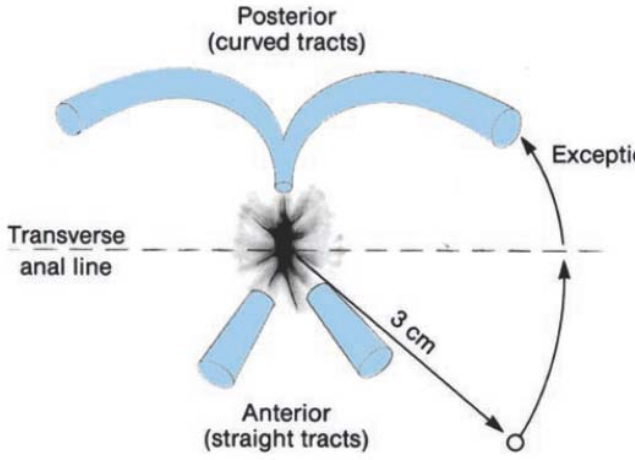
chronic phase(fistula)

- 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

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

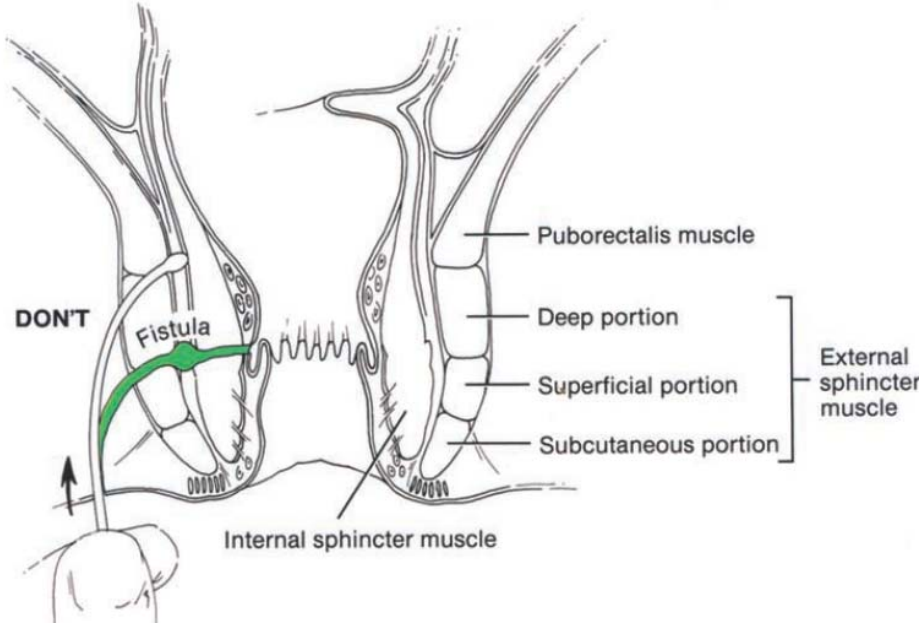
Goodsall's rule



→ long anterior curves
as the posterior one
while the anterior ones
go straight

Probing of the fistulous tract → in OR

Make sure not to make false tracts resulting in a high fistula instead of a low one ←



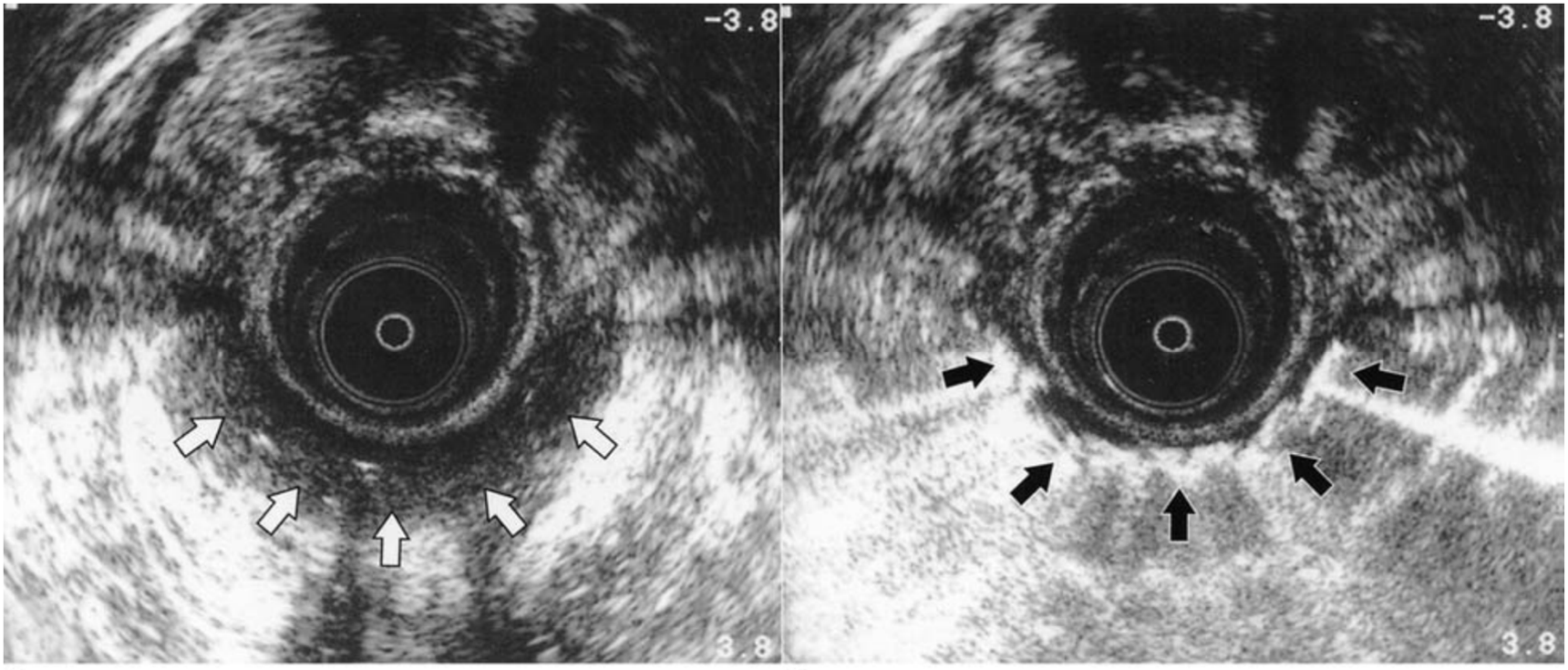
probing

INVESTIGATION

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

Fistulography → not used commonly except for making sure that's it's communicating with the rectum

Endoanal Ultrasonography



A B

MRI → extension of the fistula

↳ endoanal MRI : most diagnostic

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 *can occur in children but it's self-healing

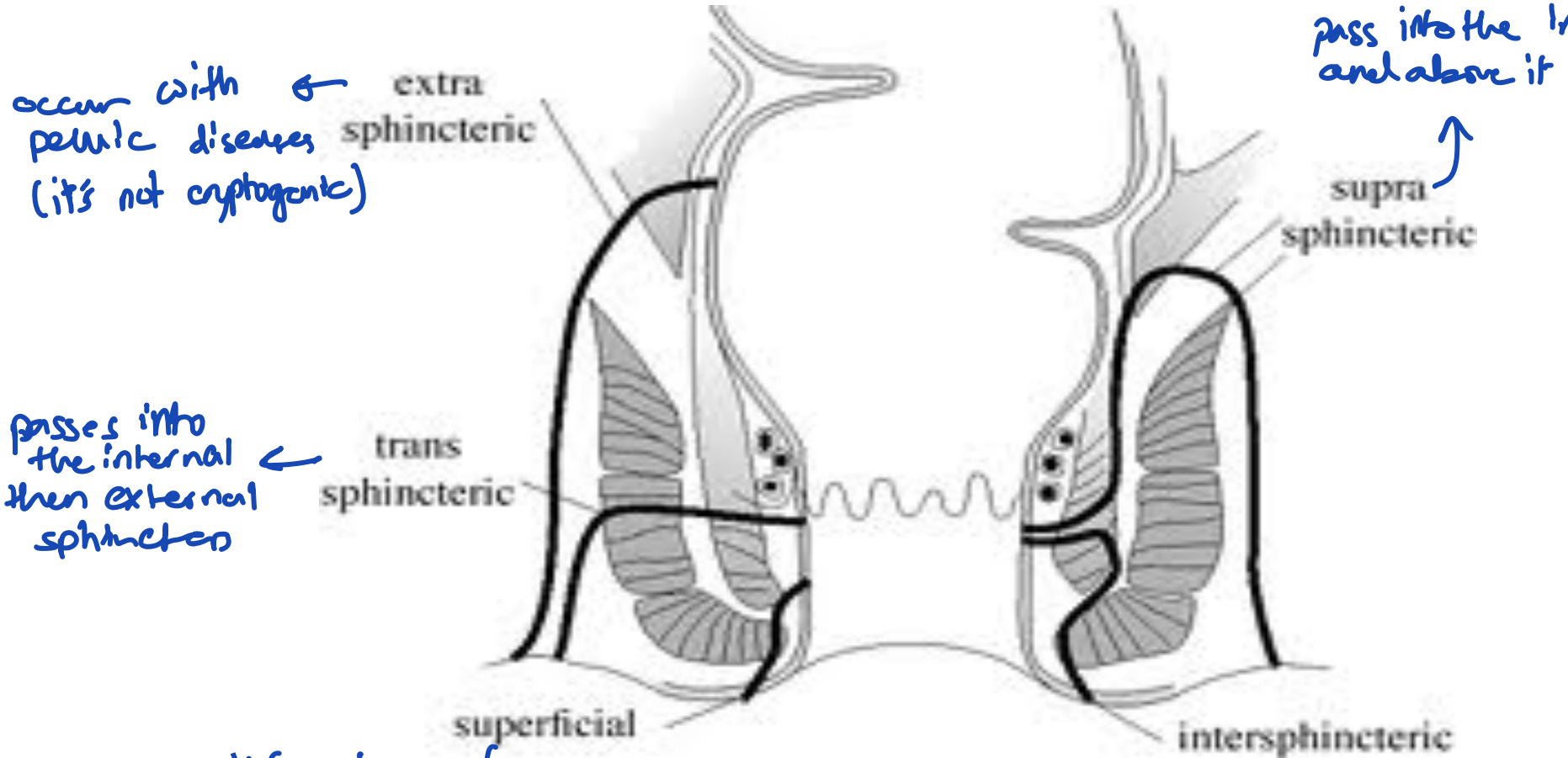
FISTULA-IN-ANO DEFINTIONS

- COMPLEX; more than one tract (branching)
- HIGH; the main tract or a branch passes to the level of anorectal ring (anorectal junction) → so dangerous if treated in the original way → if cut most patients will become incontinence
- HORSE-SHOE; the tract passes on both sides of the midline

INCIDENCE

- Intersphincteric, 70%
- Transsphincteric, 23%; } → low type
- suprasphincteric, 5% → high type
- extrasphincteric, 2%. → not cryptogenic + high type

FISTULA-IN-ANO types



occur with pelvic diseases (it's not cryptogenic)

passes into the internal then external sphincters

pass into the intersphincteric and above it

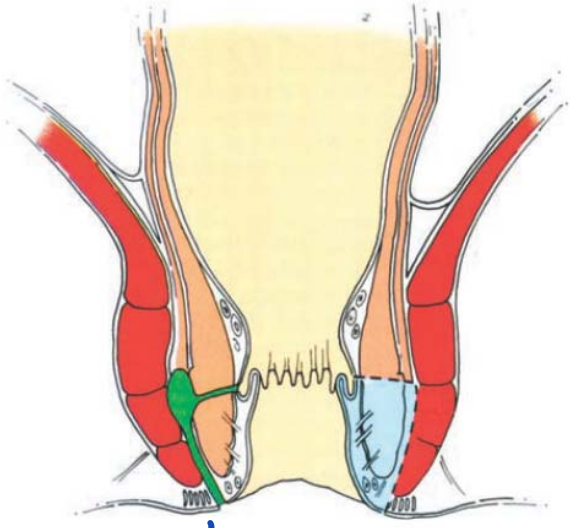
also it's not cryptogenic → related to fistula healing

most common

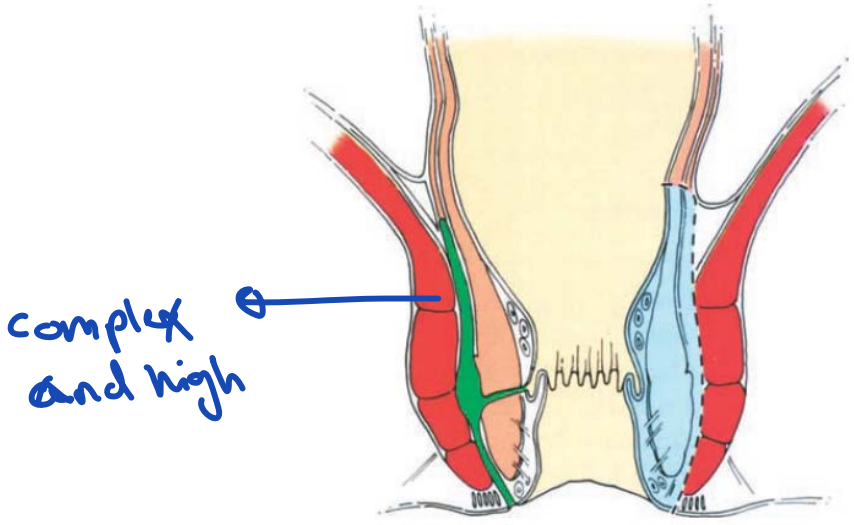
FISTULA-IN-ANO
principles of management

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

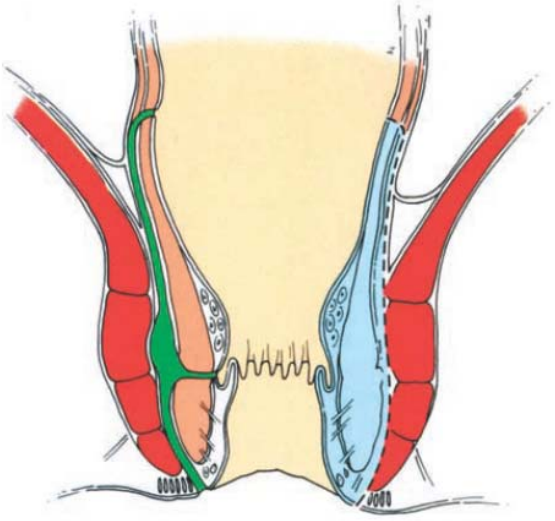
Intersphincteric fistula: simple low tract



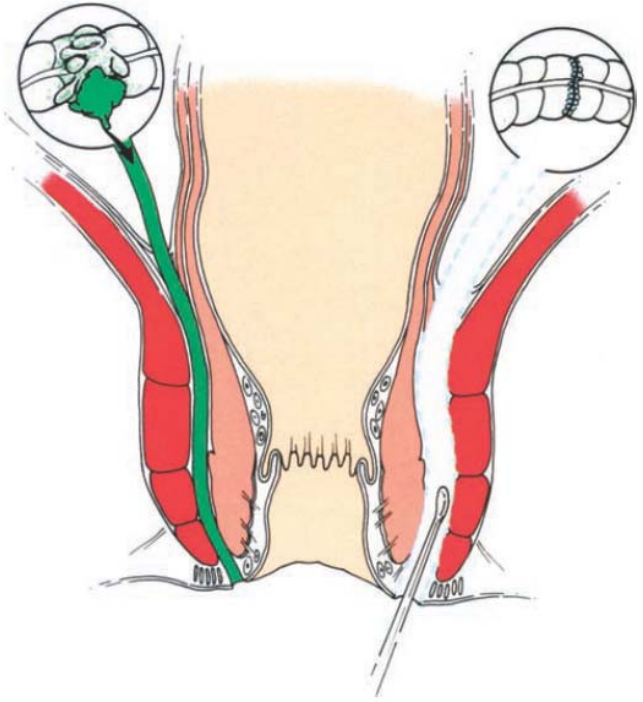
Intersphincteric fistula: high blind tract



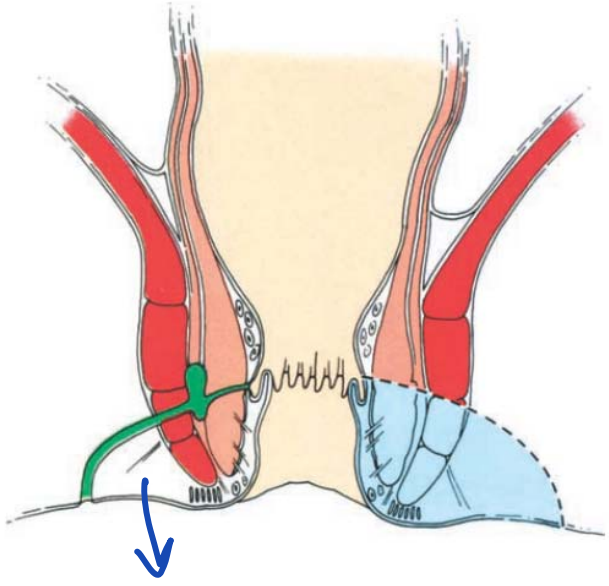
Intersphincteric fistula: high tract with a rectal opening



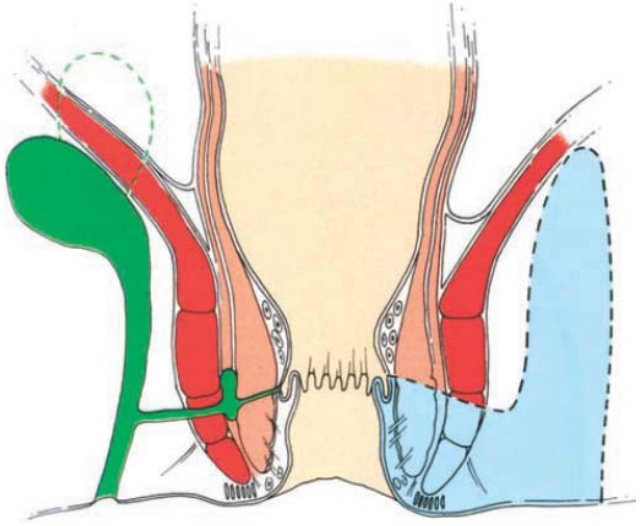
Intersphincteric fistula: secondary to pelvic disease



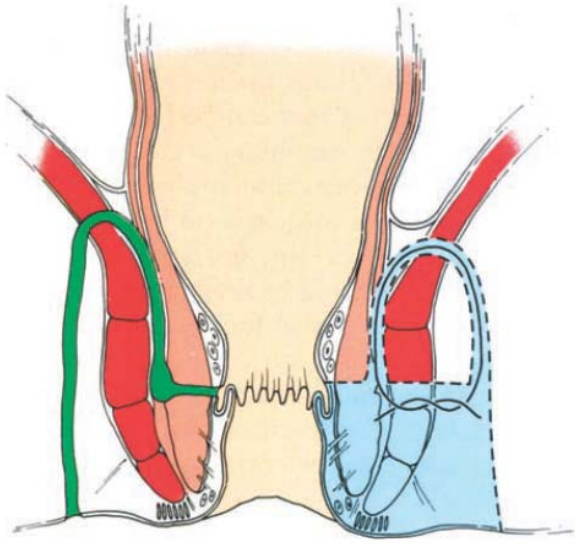
Transsphincteric fistula: uncomplicated type



Trans-sphincteric fistula: high blind tract

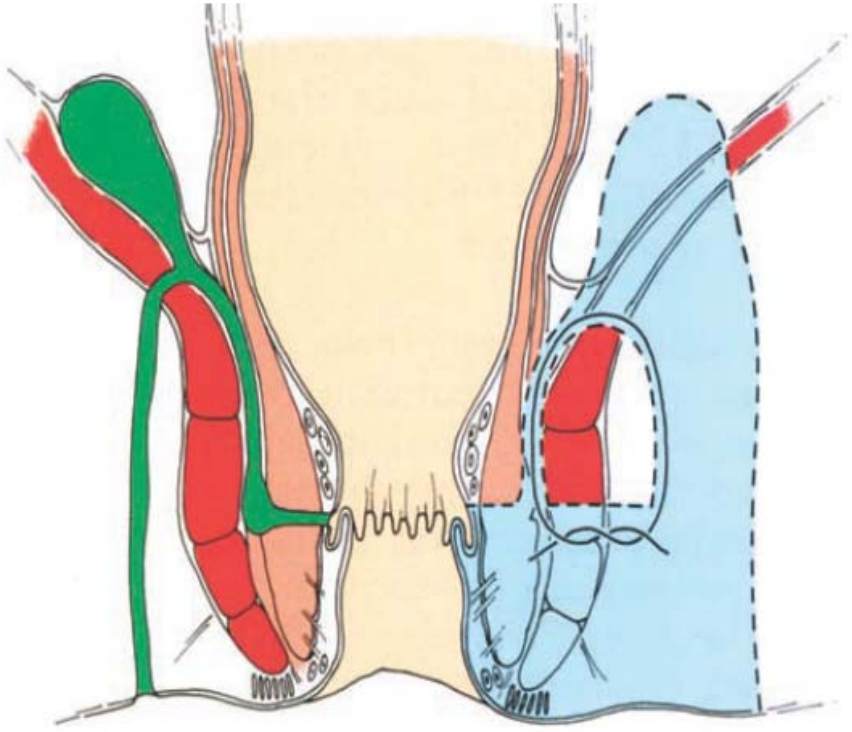


Supraspincteric fistula: uncomplicated type

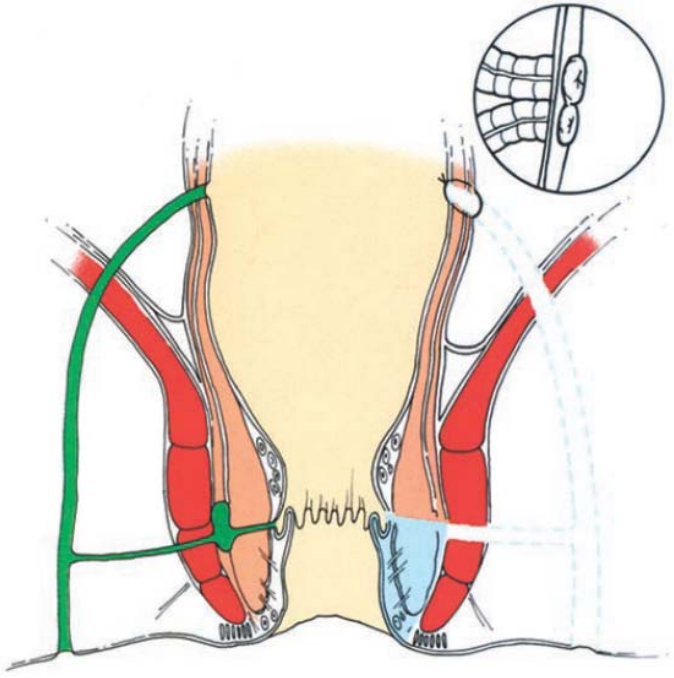


not complex but high

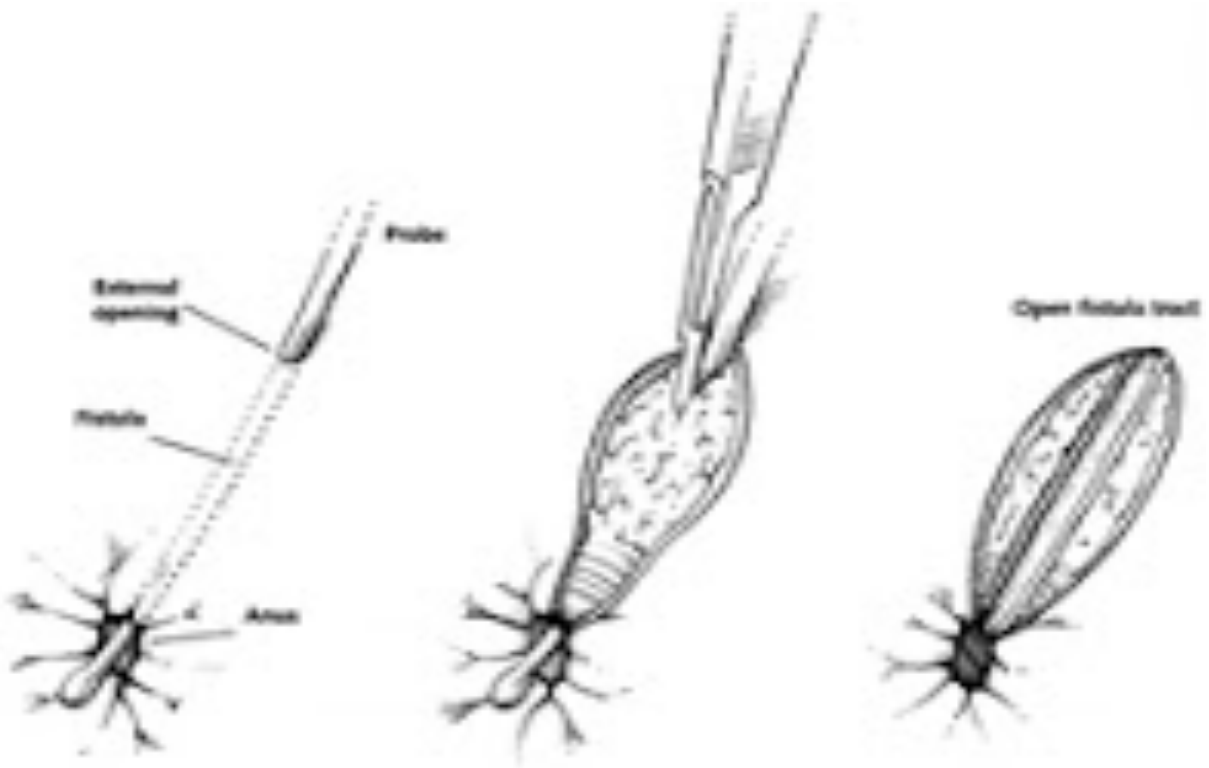
Supraspincteric fistula: high blind tract



Extrasphincteric fistula: secondary to anal fistula

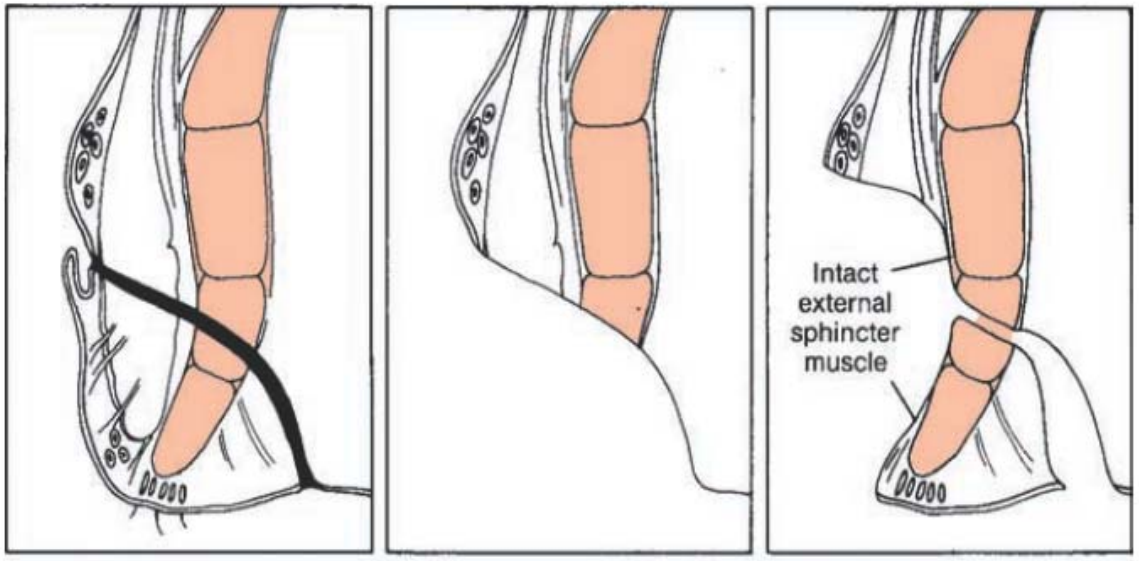


Fistulotomy → opening (putting a probe in the fistula) and then cutting of the fistula tract



Fistulotomy vs. fistulectomy

more damage to sphincter



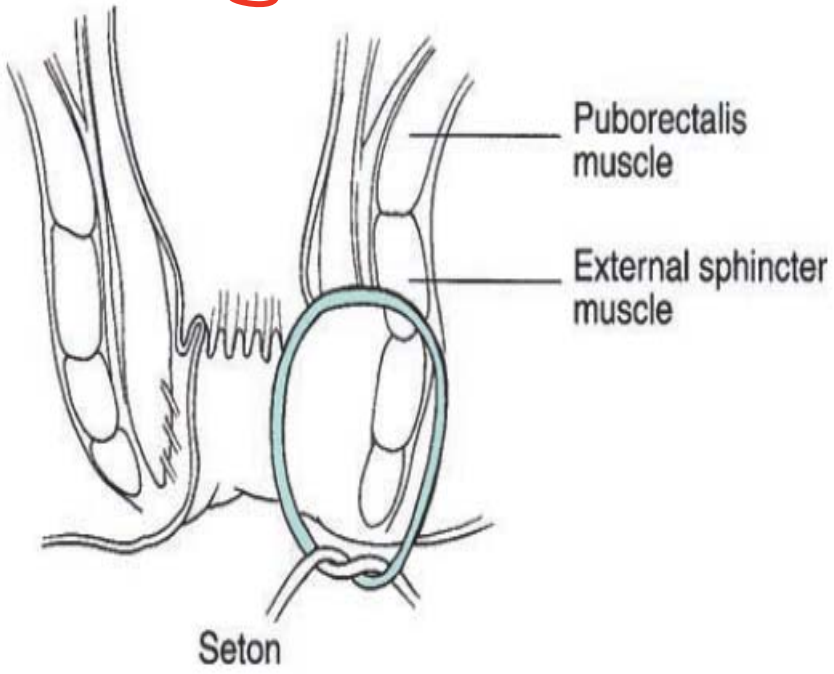
Fistula-in-ano | Lay-open method | Parks fistulectomy

used sometime to prevent abscess formation and extension

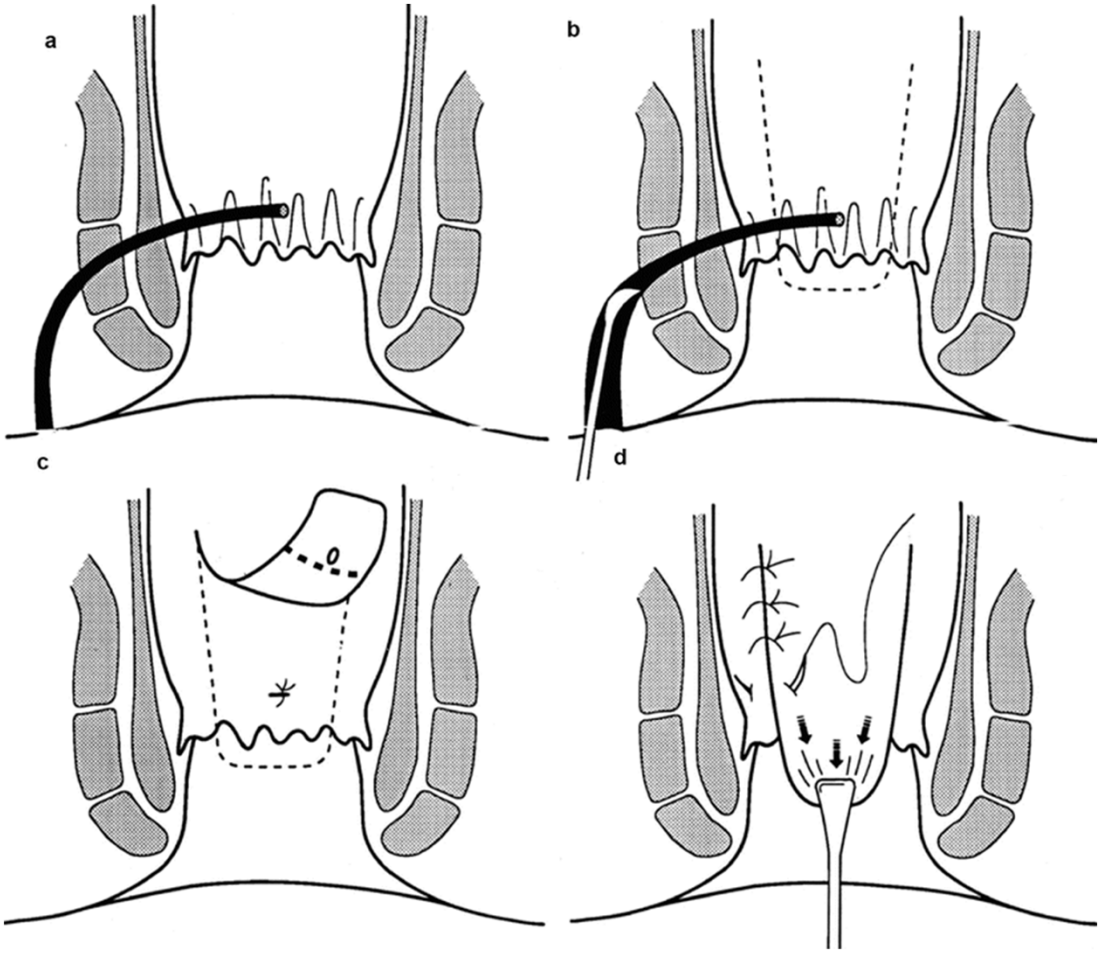
Seton insertion (draining)

sometime used for cutting by tightening gradually to cut the sphincter

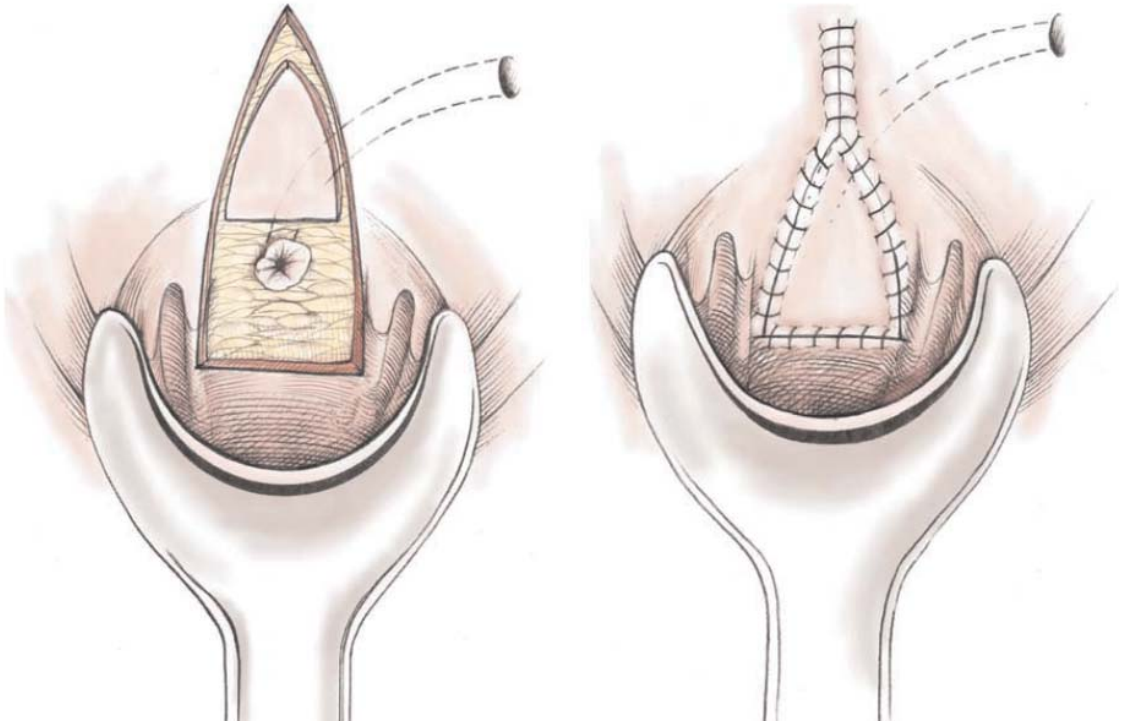
(high incidence of cutting)



Advancement rectal flap



Dermal Island Flap Anoplasty



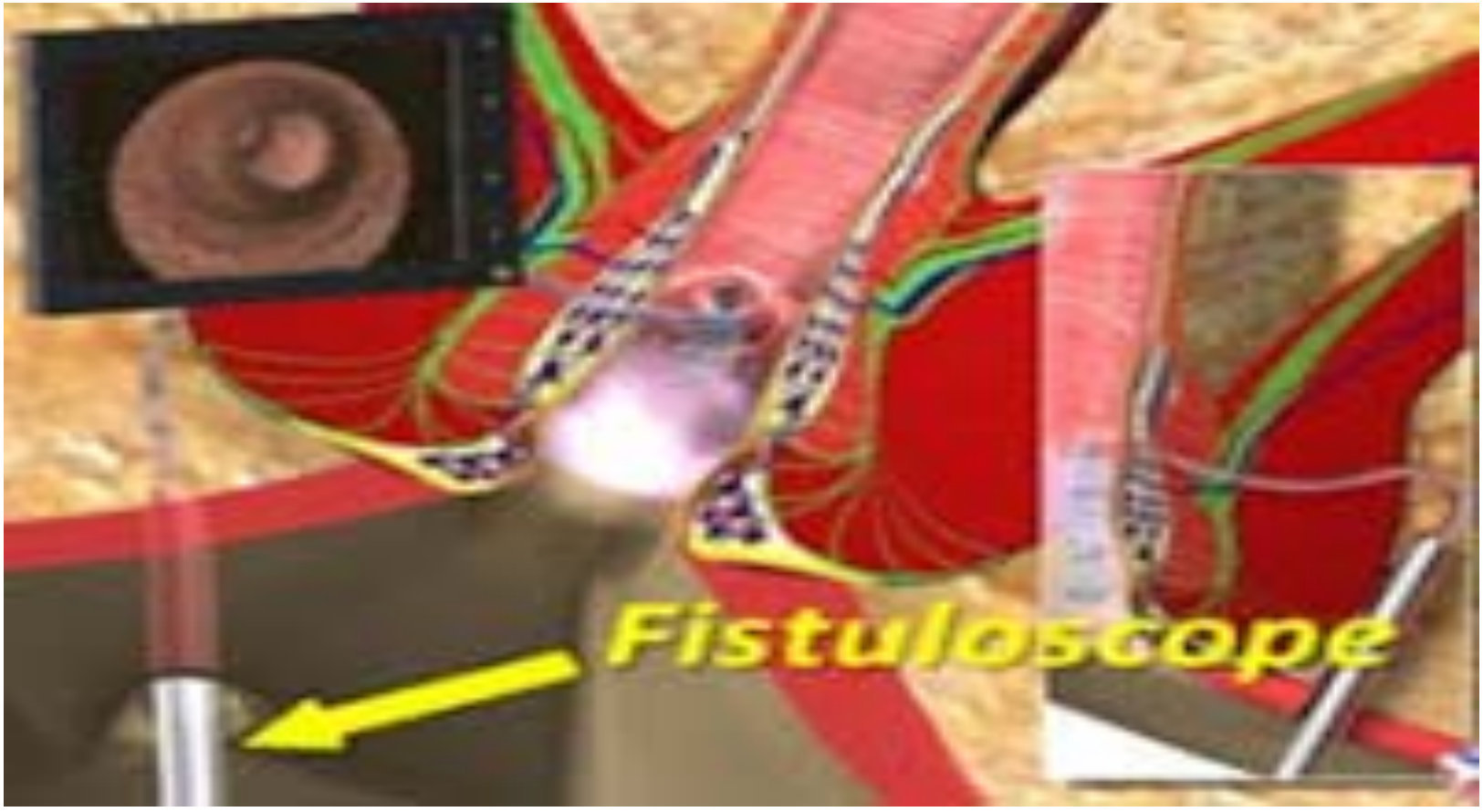
Other procedures

- Fistulectomy and Primary Closure
- Video assisted anal fistula treatment
- Cutting Seton
- Fibrin Glue
- Anal Plug
- Lift Technique → ligation of intersphincteric fistulous tract
- ablation: laser and cautery

Fibrin Glue

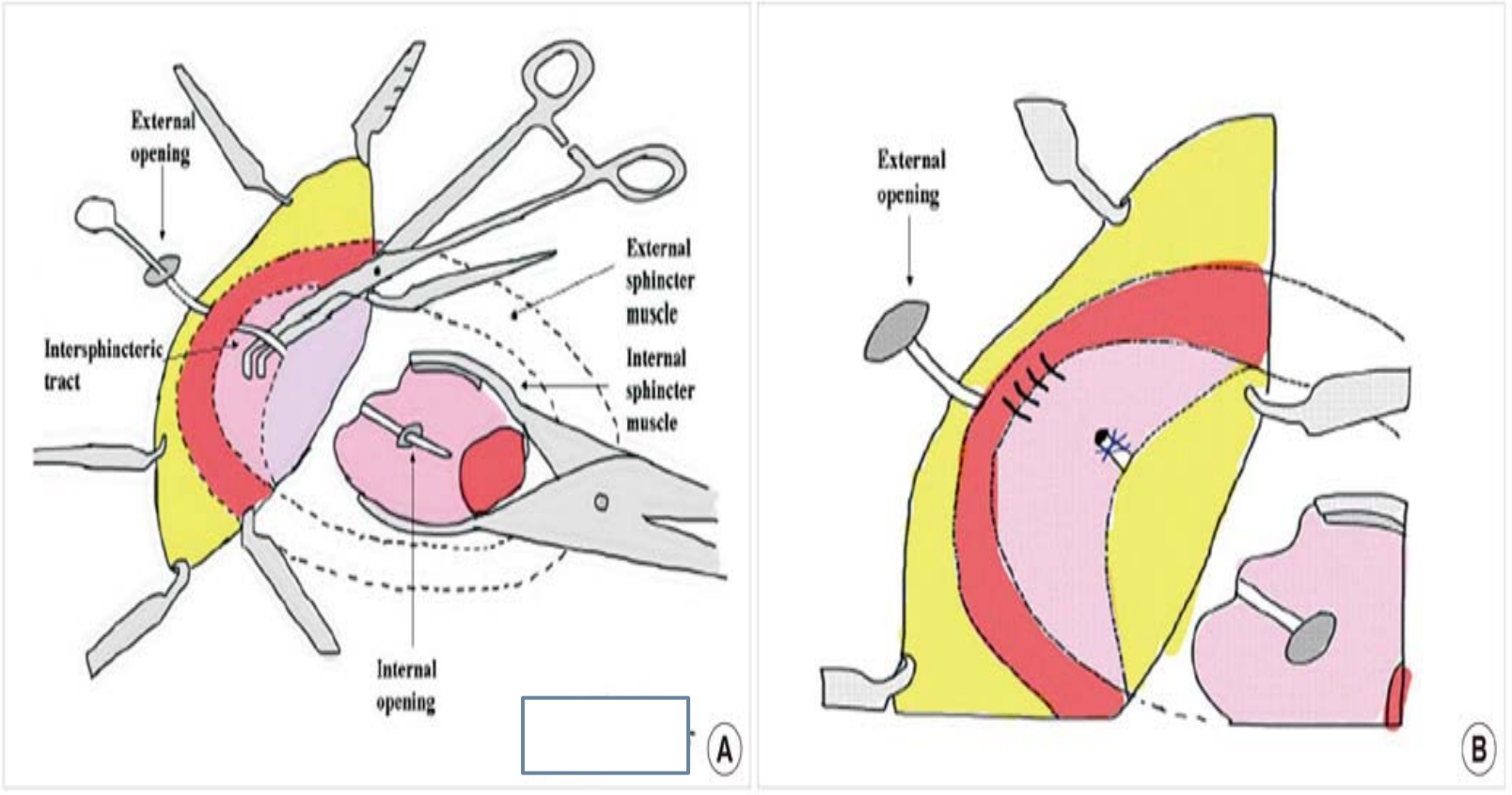
→ proceeded by insertion of Seton

Video assisted anal fistula treatment



Anal Plug → not for perianal fistula

Intersphincteric fistula tract removal



Laser closure

→ burn of the fistula tract → fibrosis and obliteration