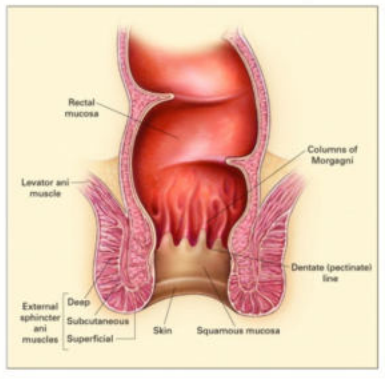
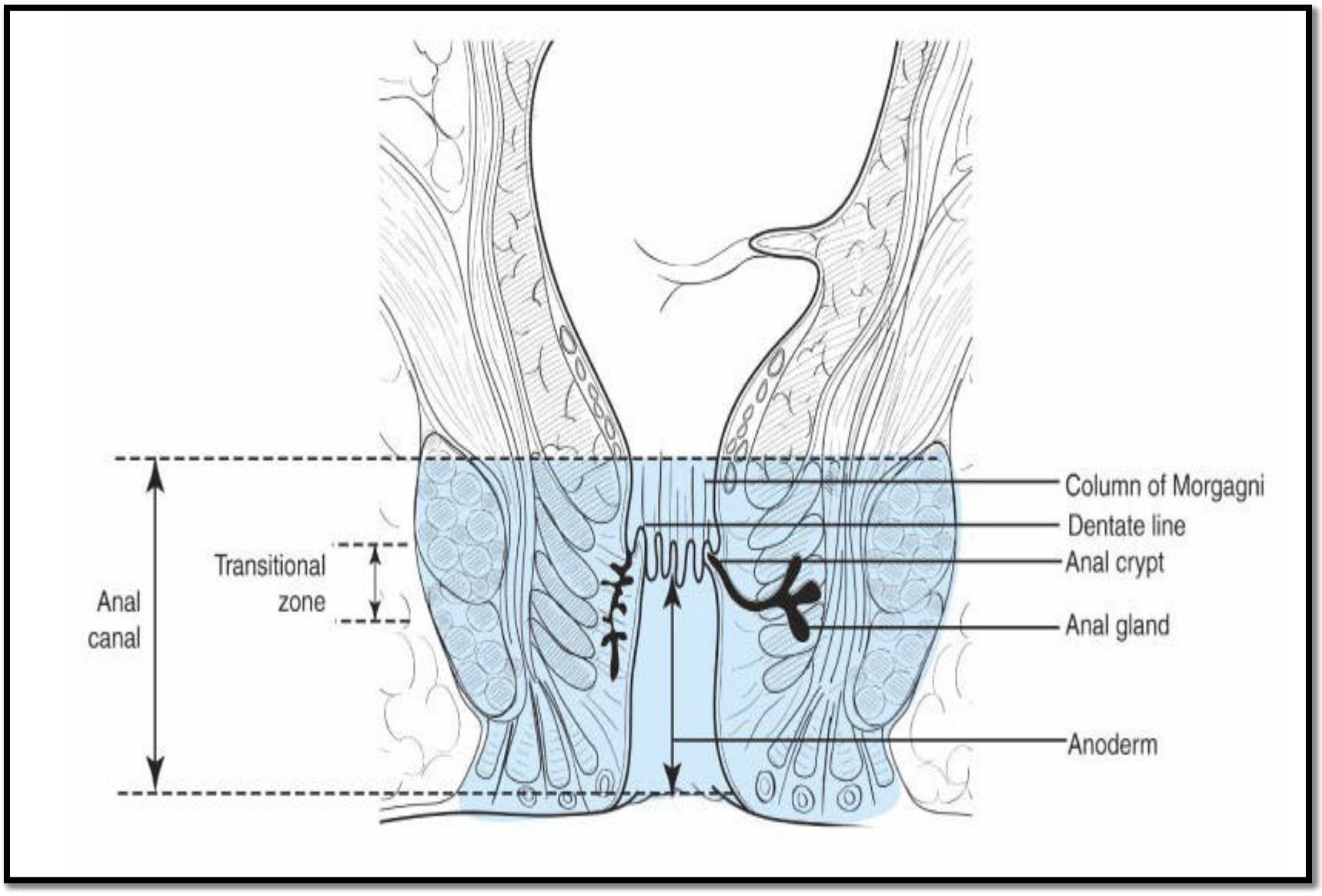
Anal Canal – Surgical anatomy, Pilonidal sinus, Perianal abscess, fistula In Ano

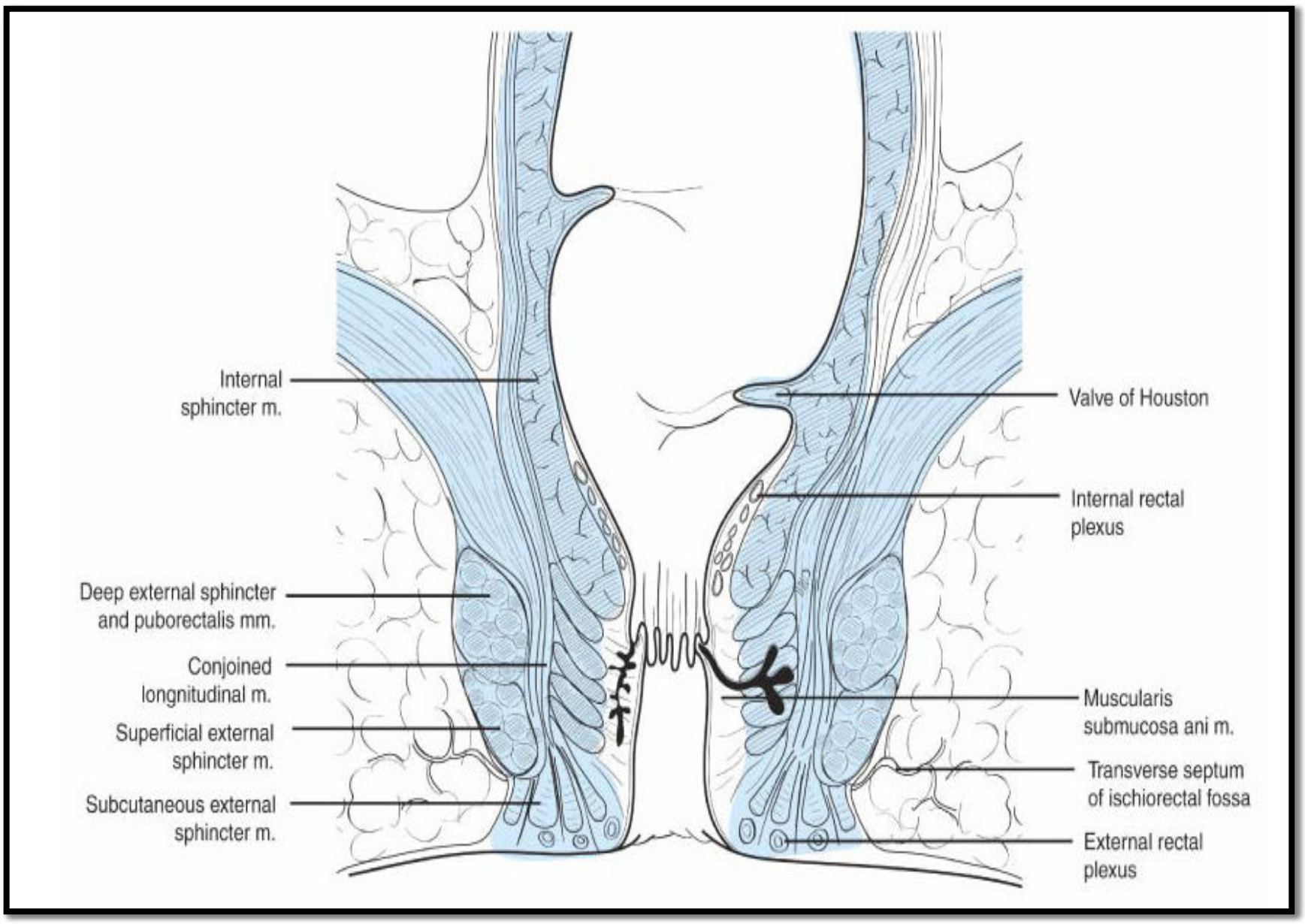


Dept Of Surgery

- Measures 2 to 4 cm in length
- longer in men than in women.
- The dentate or pectinate line marks the transition point between columnar rectal mucosa and squamous anoderm.
- The 1 to 2 cm of mucosa just proximal to the dentate line shares histologic characteristics of columnar, cuboidal, and squamous epithelium and is referred to as the anal transition zone.
- The dentate line is surrounded by longitudinal mucosal folds, known as the columns of Morgagni, into which the anal crypts empty.
- These crypts are the source of cryptoglandular abscesses

Lining of the anal canal





Anorectal Anatomy

Arterial Supply

Inferior rectal
A middle rectal A

Venous drainage

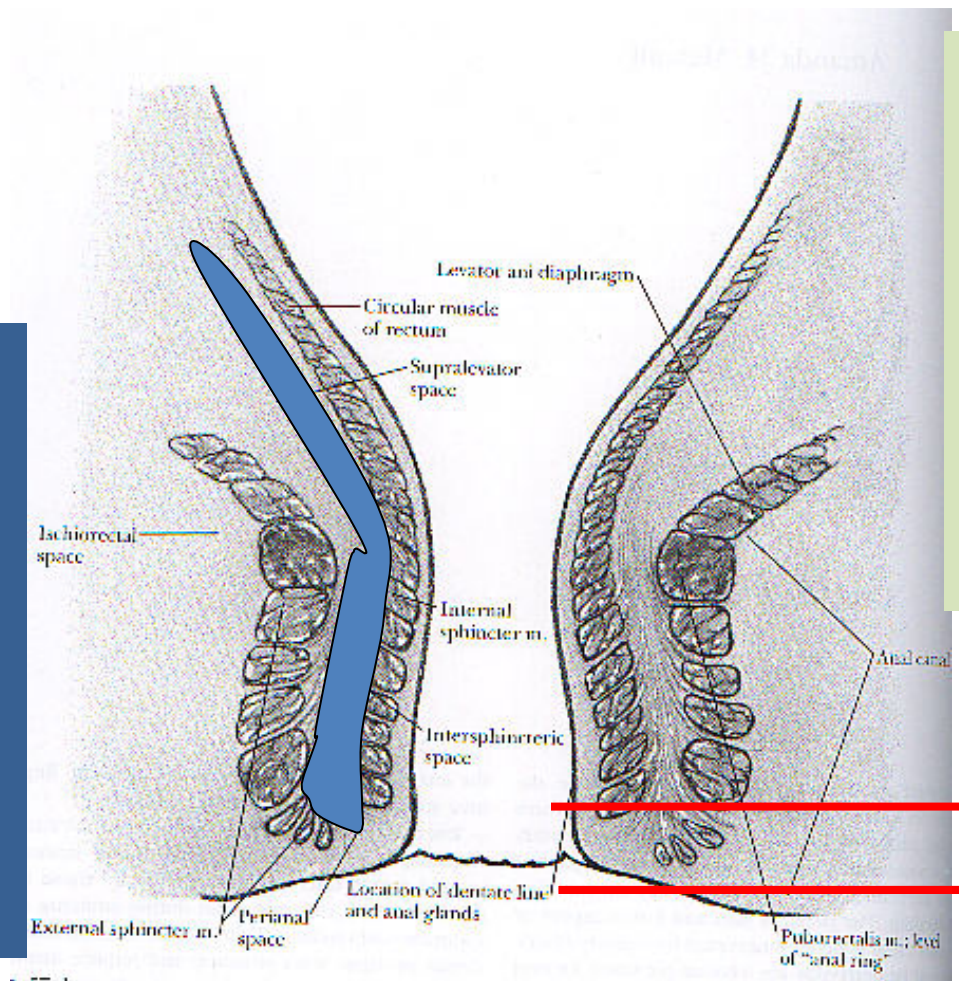
Inferior rectal V
middle rectal V

3 hemorrhoidal complexes

L lateral

R antero-lateral

R posterolateral



Nerve Supply

Sympathetic: Superior hypogastric plexus

Parasympathetic:

S234 (nerviergentis

Pudendal Nerve:

Motor and sensory

Lymphatic drainage

Above dentate: Inf. Mesenteric

Below dentate: internal iliac

Pilonidal sinus

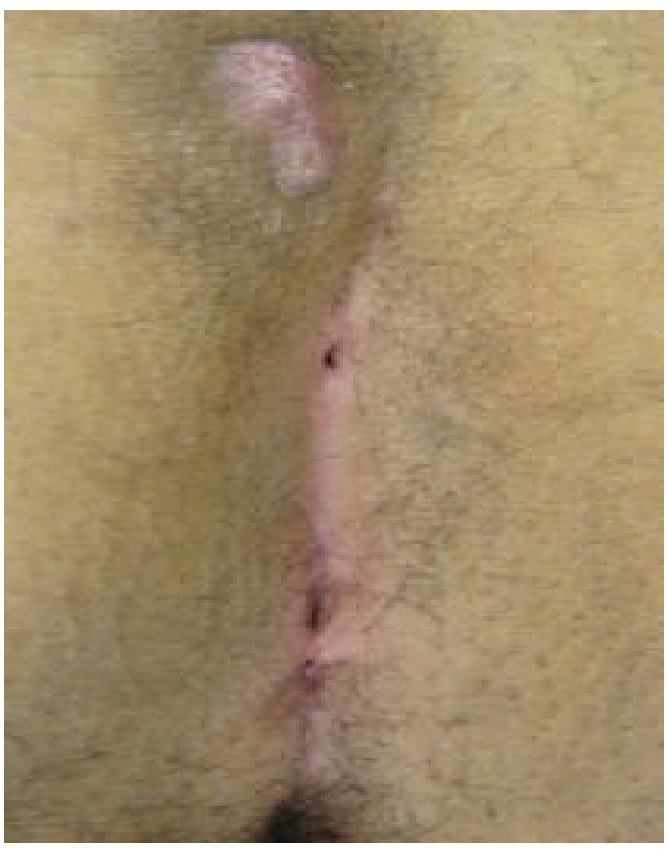
Pathogenesis:

A sinus tract at natal cleft resulting from:

- Blockage of hair follicle
- Folliculitis
- Abscess followed by sinus formation.
- Hair trapping
- Foreign body reaction
- The sinus tract is cephald

Associated with:

- Caucasians
- Hirsute
- Sedentary occupations
- Obese
- Poor hygeine



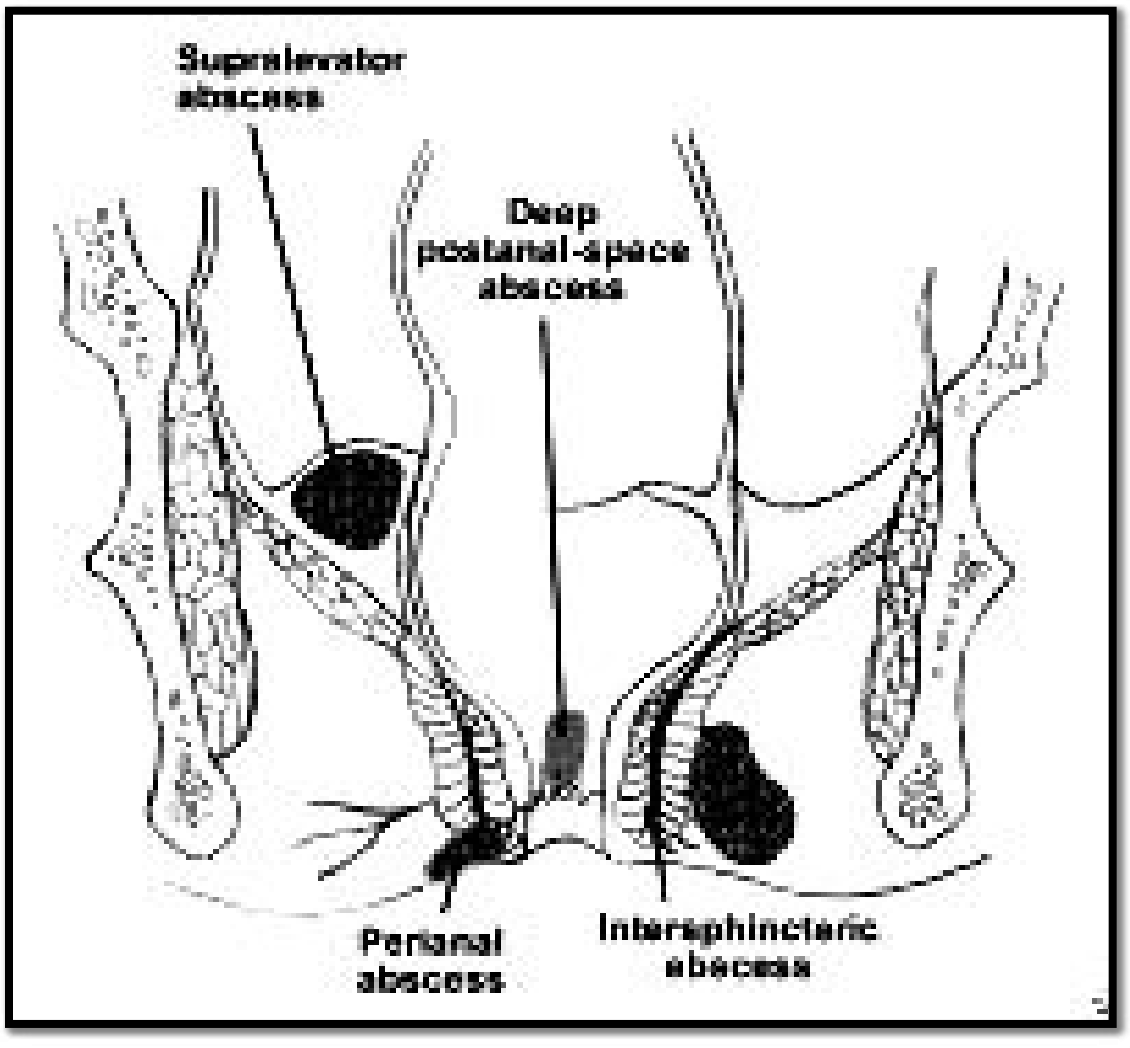
Presentation & Treatment

Acute	abscess	Incision and drainage Recurrence: 40%
Chronic	Pain and discharge	Wide local excision • with primary closure or • closure by secondary intension Recurrence: 8-15%

Perianal Abscess

- Infection originates in the intersphincteric plane, most likely in one of the anal glands.

- This may result in
  - simple intersphincteric abscess
  - extend vertically either upward
  - downwards horizontally
  - circumferentially resulting in varied clinical presentations.



Aetiology & Pathogenesis:

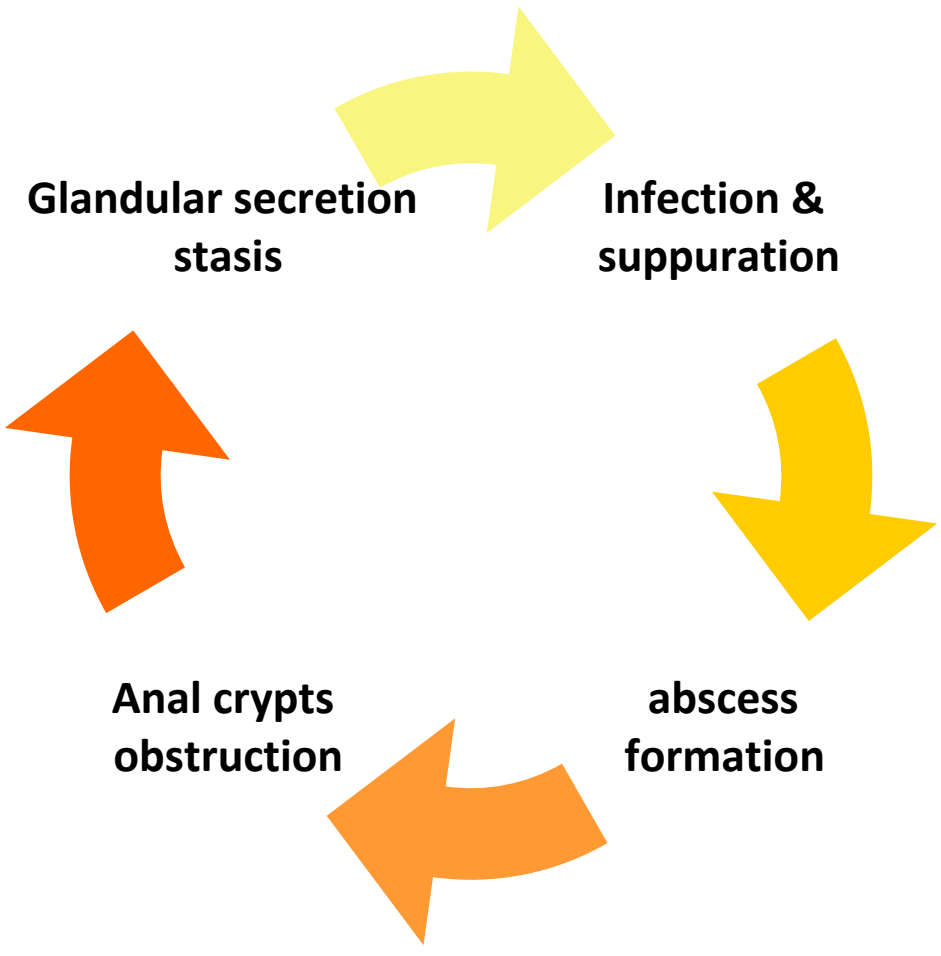
- 4-10 glands at dentate line.
- Infection of the cryptglandular epithelium resulting from obstruction of the glands.
- Ascending infection into the intersphincteric space and other potential spaces.
- Bacteria implicated:

E.Coli., Enterococci, bacteroides

Other causes:

- Crohn
- TB
- Carcinoma, Lymphoma and Leukaemia
- Trauma
- Inflammatory pelvic conditions (appendicitis)

Pathophysiology

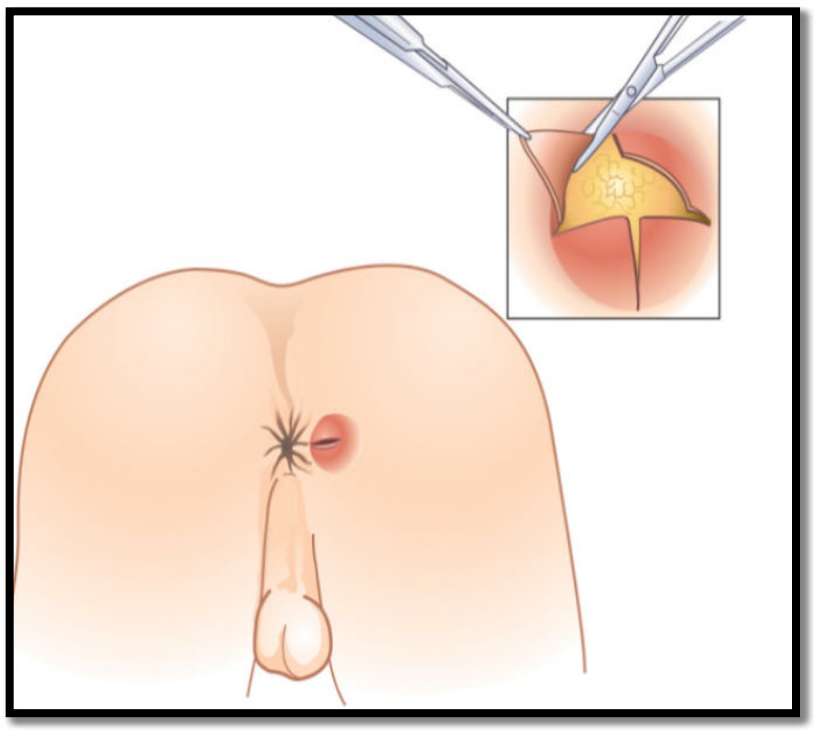


Clinical presentation

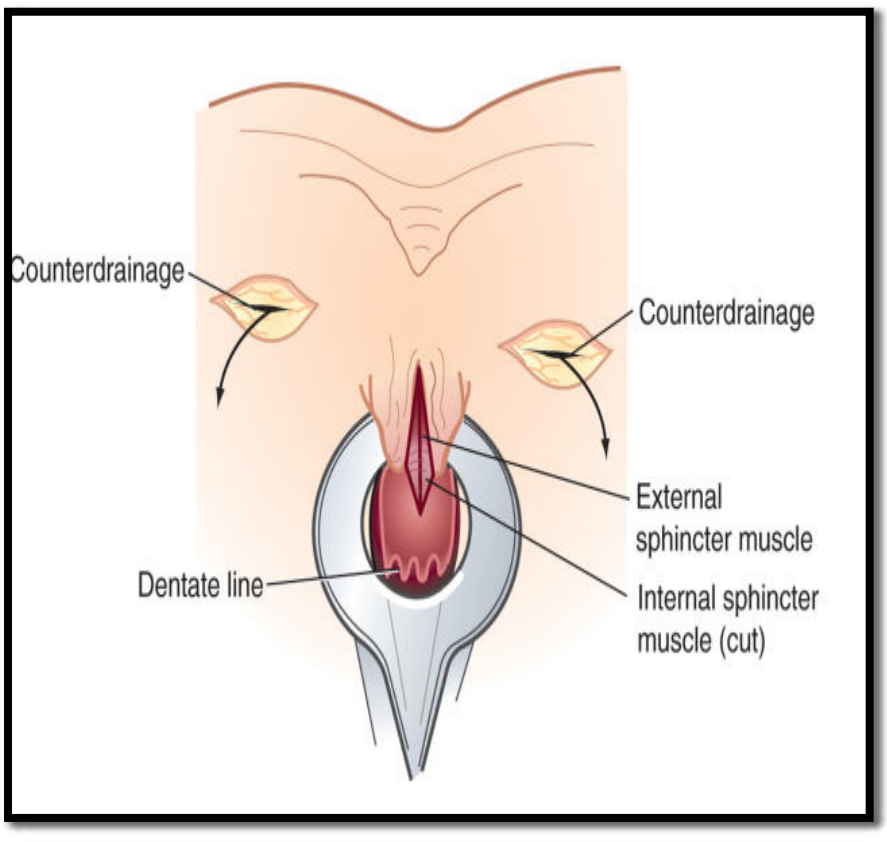
Abscess	Clinical presentation
Perianal	•Perianal pain, discharge (pus) and fever •Tender, fluctuant, erythematous subcutaneous lump
Ischio-rectal	•Chills, fever, ischiorectal pain •Indurated, erythematous mss, tender
Intersphincteric Supralevator	•Rectal pain, chills and fever, discharge •PR tender. Difficult to identify are. EUA needed

Treatment

- Abscesses should be drained when diagnosed.
- Simple and superficial abscesses can most often be drained under local anesthesia
- Patients who manifest systemic symptoms, immunocompromised and those with complex, complicated abscesses are best treated in a hospital setting.
- An intersphincteric abscess is drained by dividing the internal sphincter at the level of the abscess



Incision and drainage of anorectal abscess



Modification of Hanley's technique for incision and drainage of horseshoe abscess

Fistula in Ano

- In anorectal abscess 50% develop a persistent fistula in ano.

- The fistula usually originates in the infected crypt (internal opening) and tracks to the external opening, usually the site of prior drainage.

The course of the fistula can often be predicted by the anatomy of the previous abscess.

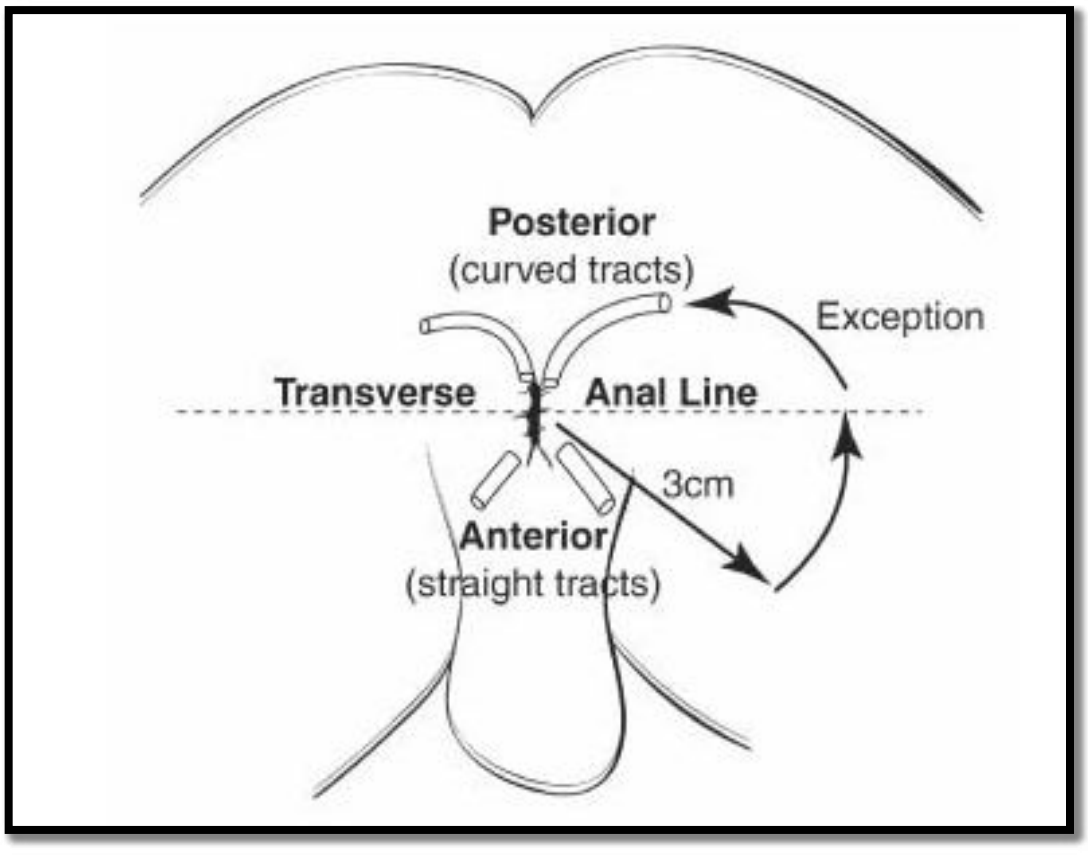
- Majority of fistulas are cryptoglandular in origin, trauma, Crohn's disease, malignancy, radiation, or unusual infections (tuberculosis, actinomycosis, and chlamydia) may also produce fistulas.
- A complex, recurrent, or non healing fistula should raise the suspicion of one of these diagnoses.

Diagnosis

- Patients present with persistent drainage from the internal and/or external openings.
- An indurated tract is often palpable.
- Goodsall's rule can be used as a guide in determining the location of the internal opening
- Fistulas with an external opening anteriorly connect to the internal opening by a short, radial tract.
- Fistulas with an external opening posteriorly track in a curvilinear fashion to the posterior midline.

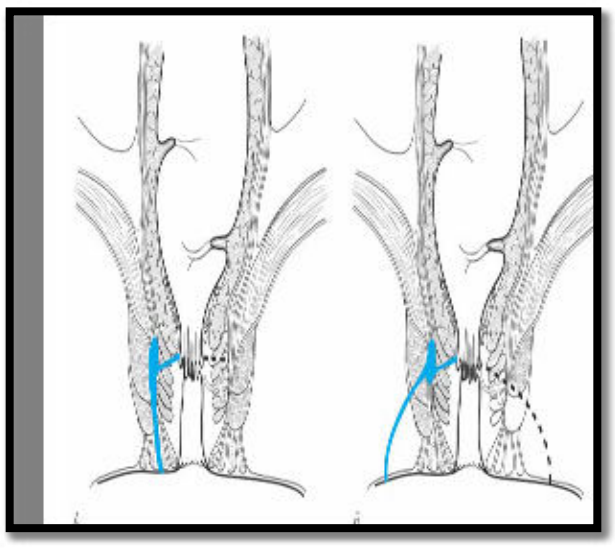
Exceptions: Anterior external opening is greater than 3 cm from the anal margin. Such fistulas usually track to the posterior midline.

Goodsall's rule to determine location of internal opening

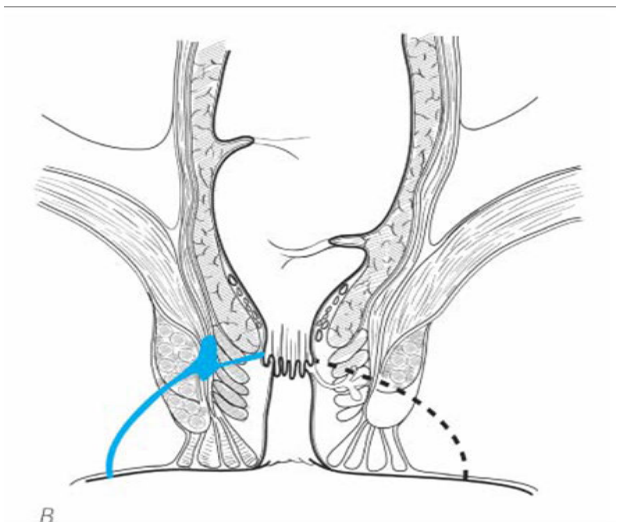


Fistulas are categorized based upon their relationship to the anal sphincter complex and treatment options are based upon these classifications:

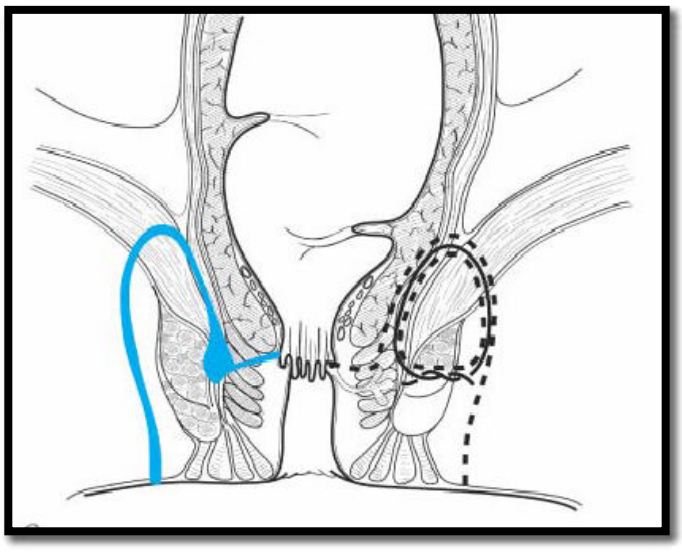
- Intersphincteric fistula tracks through the distal internal sphincter and intersphincteric space to an external opening near the anal verge.
- Transsphincteric fistula often results from an ischiorectal abscess and extends through both the internal and external sphincters
- Suprasphincteric fistula originates in the intersphincteric plane and tracks up and around the entire external sphincter
- Extrasphincteric fistula originates in the rectal wall and tracks around both sphincters to exit laterally, usually in the ischiorectal fossa



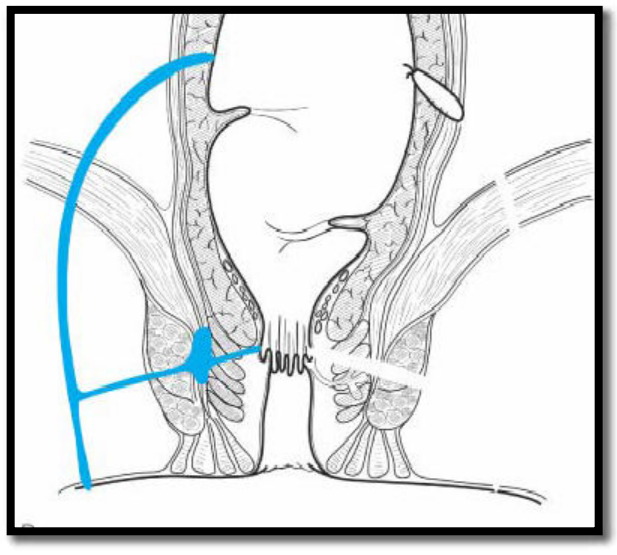
Intersphincteric



Transsphincteric



Suprasphincteric



Extrasphincteric

Treatment

- Goal of treatment of fistula in ano is eradication of sepsis without sacrificing continence
- The external opening is usually visible as a red elevation of granulation tissue with or without concurrent drainage.
- The internal opening may be more difficult to identify.
- Injection of hydrogen peroxide or dilute methylene blue may be helpful

- Simple intersphincteric fistulas can often be treated by *fistulotomy* ,curettage, and healing by secondary intention.

- Fistulas that include less than 30% of the sphincter muscles can often be treated by sphincterotomy without significant risk of major incontinence.

- High transsphincteric and suprasphincteric fistulas are treated by initial placement of a *seton*.

- Extrasphincteric fistulas are rare, and treatment depends upon both the anatomy of the fistula and its etiology.

- Complex and/or nonhealing fistulas may result from Crohn's disease, malignancy, radiation proctitis, or unusual infection.

- Proctoscopy should be performed in all cases of complex and/or nonhealing fistulas to assess the health of the rectal mucosa.

- Biopsies of the fistula tract should be taken to rule out malignancy.