BENIGN ANO-RECTAL DISORDERS

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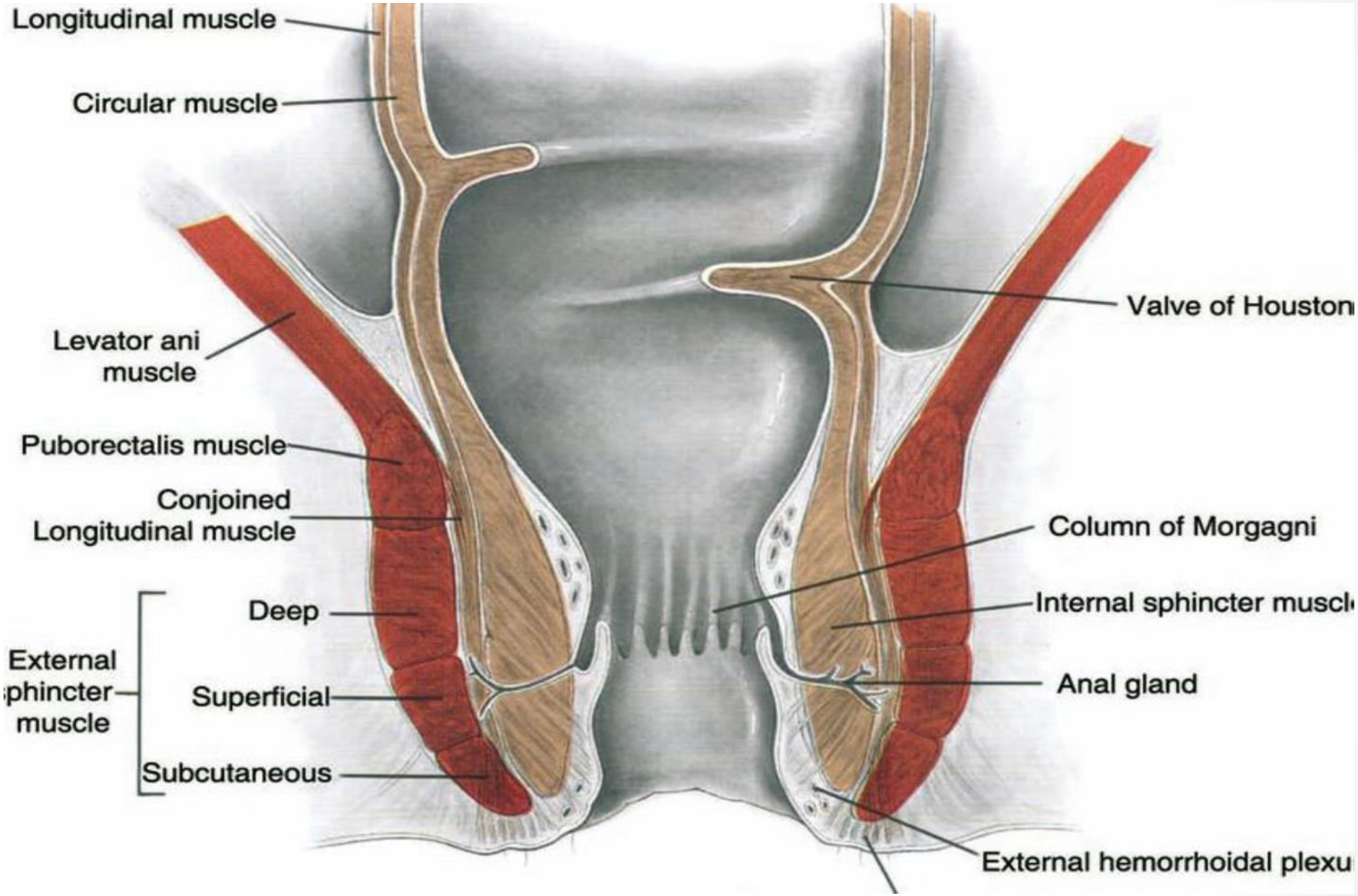
Anatomy of Rectum And Anus

- The origin of the rectum to the level of the third sacral vertebra.
- It descends along the curvature of the sacrum and coccyx and ends by passing through the levator ani muscles.
- It measures 12–1 5cm in length and lacks a mesentery, sacculations, and appendices epiploicae.

- The rectum describes three lateral curves: the upper and lower curves are convex to the right, and the middle is convex to the left.
- On their inner aspect these infoldings into the lumen are known as the valves of Houston.


Longitudinal muscle
Circular muscle
Levator ani muscle
Puborectalis muscle
Conjoined Longitudinal muscle
External sphincter muscle
Deep
Superficial
Subcutaneous
Valve of Houston
Column of Morgagni
Internal sphincter muscl
Anal gland
External hemorrhoidal plexu

Anatomy of anal canal :

- The anal canal may be defined in two ways, as follows:

1) Functional (or surgical) anal canal

2)Anatomic anal canal.

Cont.

- The surgical anal canal is approximately 4 cm long, and arises from: anorectal junction
  terminates at: anal verge.

- The anatomic anal canal is approximately 2 cm long, begins from: pectinate line (dentate line)
  terminates at : anal verge.

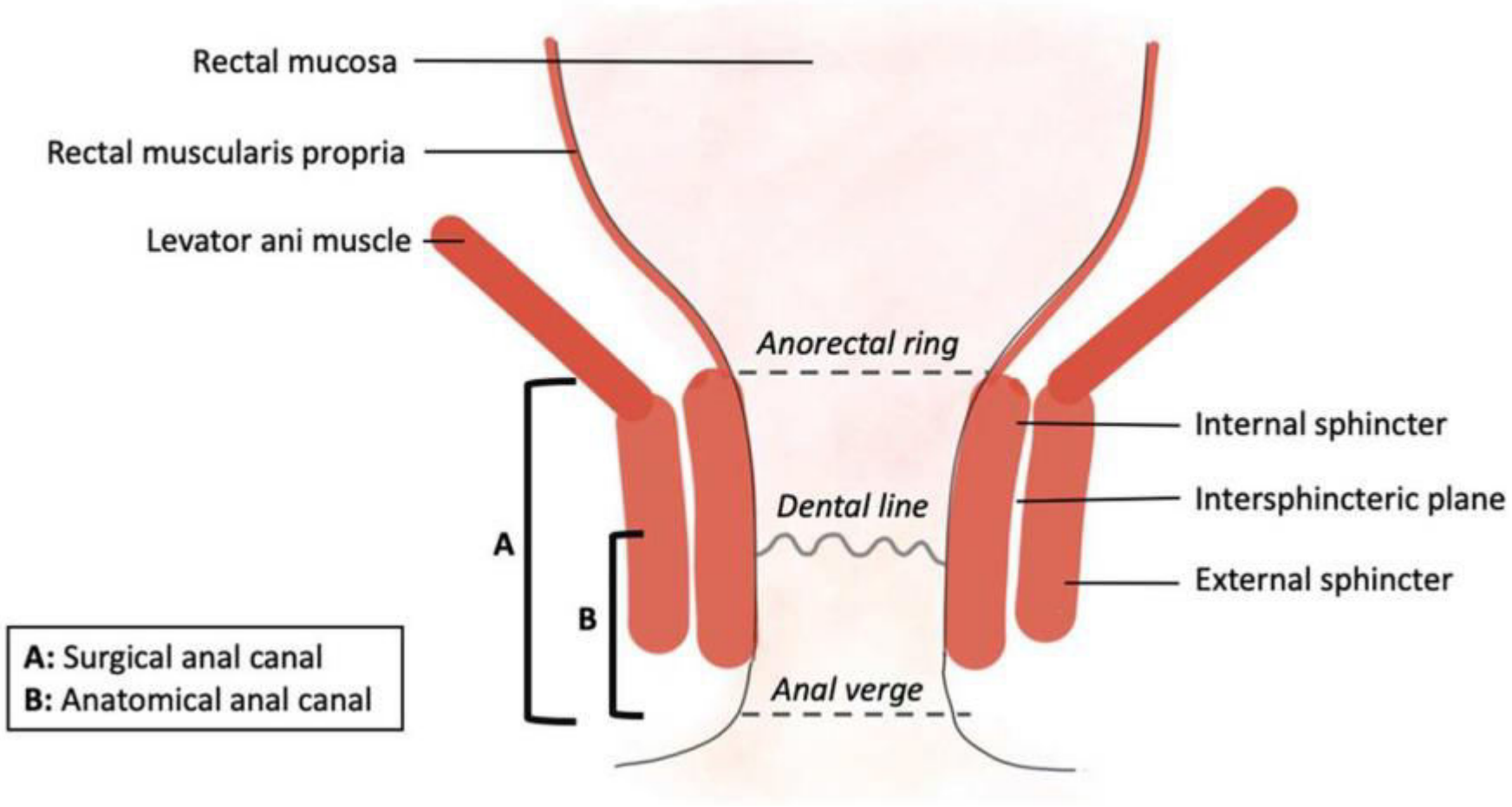
Cont.

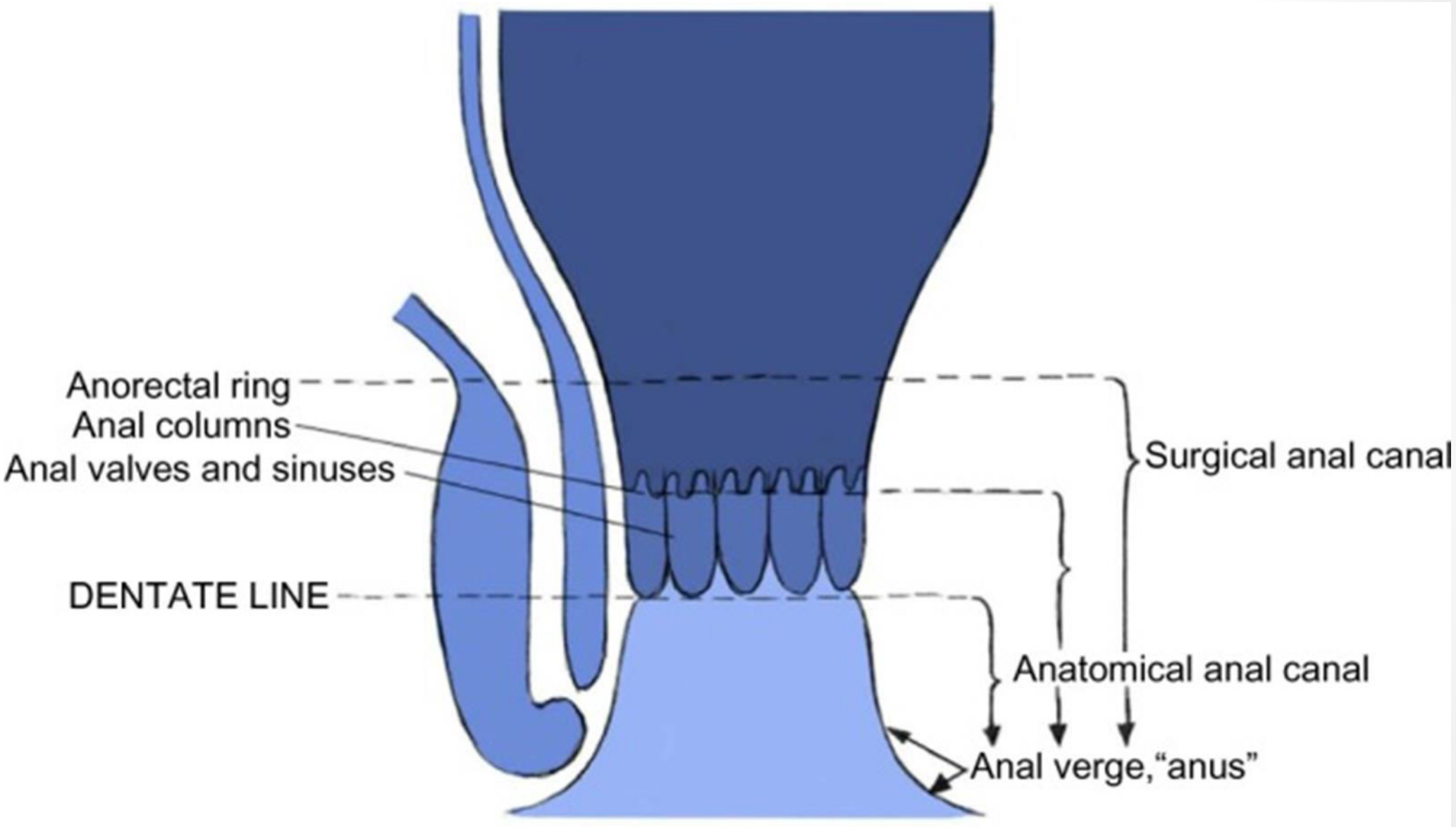
- The anal canal is divided into two unequal sections:

1) upper 2/3

2) lower 1/3

divided by dentate line


Rectal mucosa
Rectal muscularis propria
Levator ani muscle
Anorectal ring
Internal sphincter
Intersphincteric plane
Dental line
External sphincter
A
B
Anal verge
A: Surgical anal canal
B: Anatomical anal canal


Anorectal ring
Anal columns
Anal valves and sinuses
DENTATE LINE
Surgical anal canal
Anatomical anal canal
Anal verge,“anus”

	Above the dentate line	Below the dentate line
Epithelium	Columnar	Squamous
Color	Pink	Skin Colour
Nerve	Parasympathetic: painless	Spinal nerves: very painful
Blood supply	Superior rectal artery	Middle & inferior rectal artries
Venous Drainage	Portal System	Systemic-Ext iliac vein
Lymphatic Drainage	Para-aortic	Superficial & Deep inguinal LN

➢ HEAMORRHOIDS

- Haemorrhoids or piles are symptomatic anal cushions.
- They are more common when intra-abdominal pressure is raised, e.g. in obesity, constipation and pregnancy
- Classically, they occur in the 3, 7 and 11 o'clock positions
- Symptoms of haemorrhoids:

bright-red, painless bleeding

mucous discharge

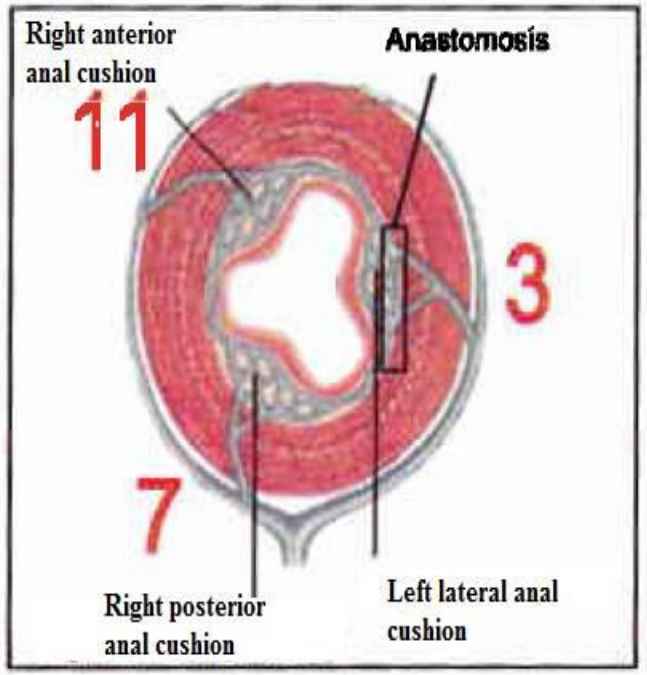
prolapse

pain only on prolapse

Anal cushions

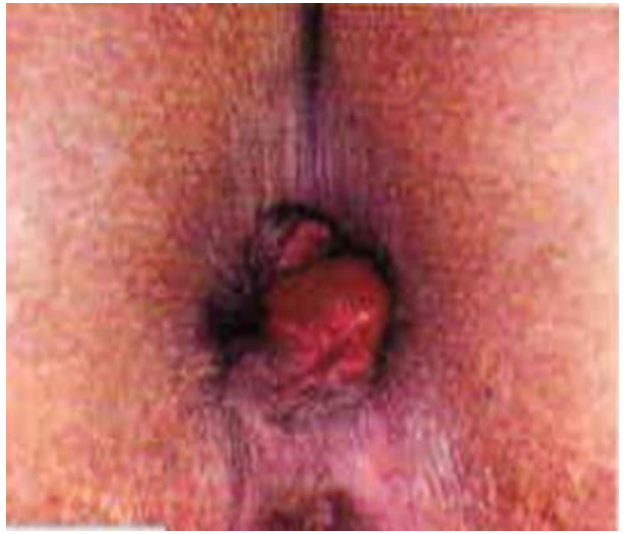
- Anal cushions are a part of normal human anatomy, There are three main cushions present in the normal anal canal These are located classically at left lateral, right anterior, and right posterior positions. They are composed of blood vessels called hemorrhoidal plexus, connective tissue, and smooth muscle. Because of their rich vascular supply, highly sensitive location and tendency to engorge and prolapse .
- Function:
- 1) control & maintaining anal continence.
- 2) Aid in complete closure of anal canal at rest.
- 3) protect the internal and external anal sphincter muscles

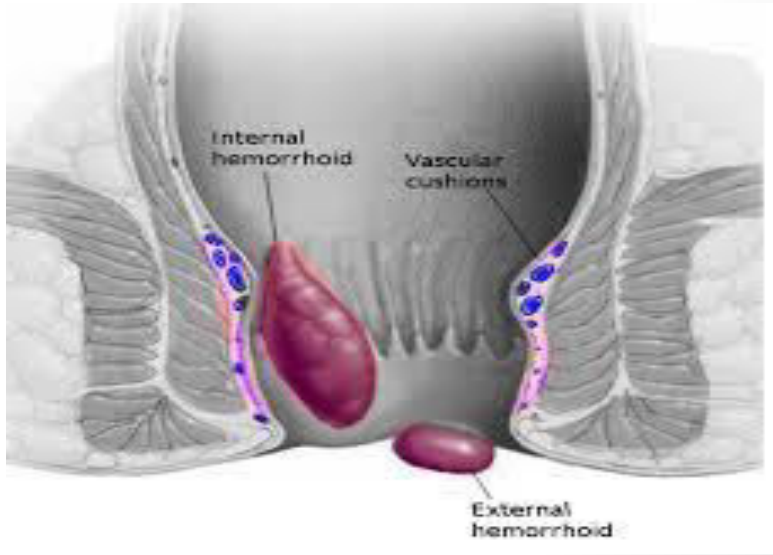
during the passage of stool.



Pathophysiology:

Engorgement and dilatation of the blood vessels leading to stretching of overlying mucosa and formation of lumps that may prolapse and leading to rectal bleeding .



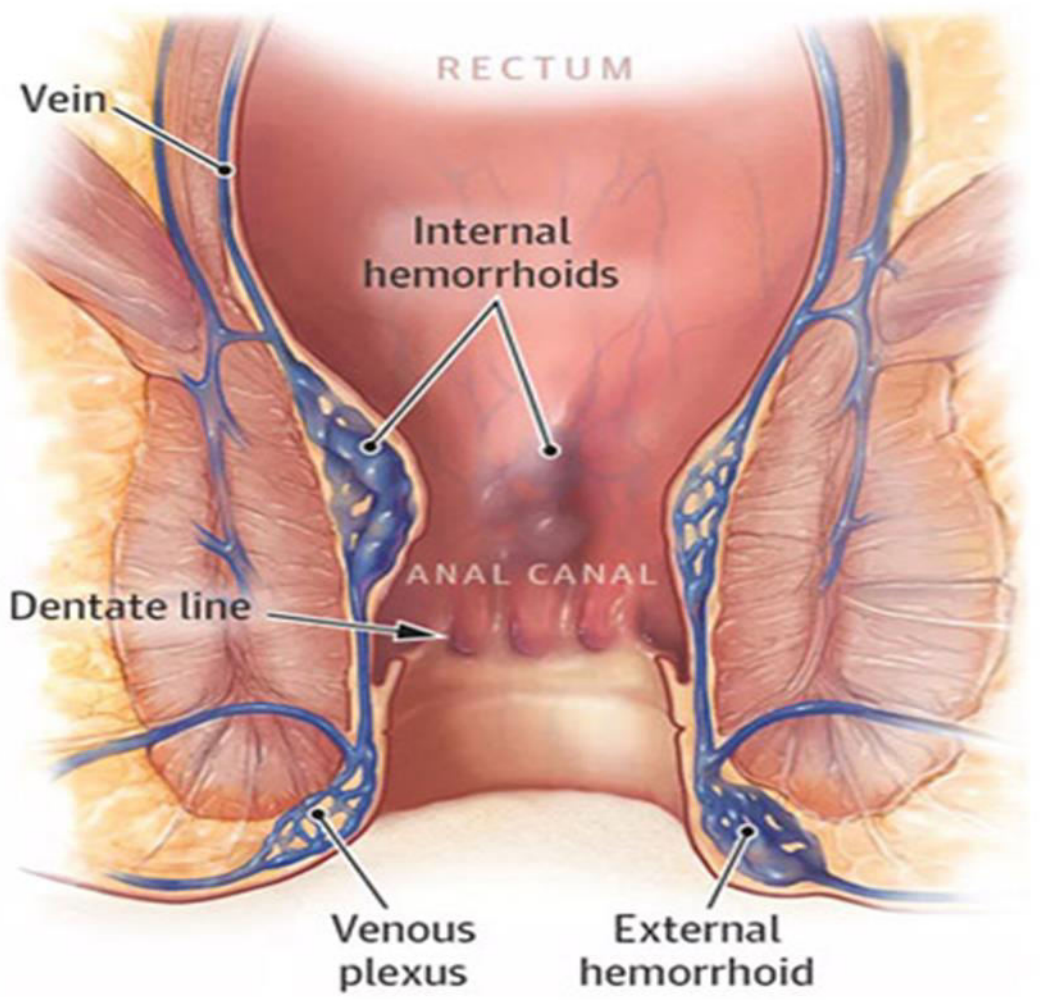


Types of hemorrhoids :

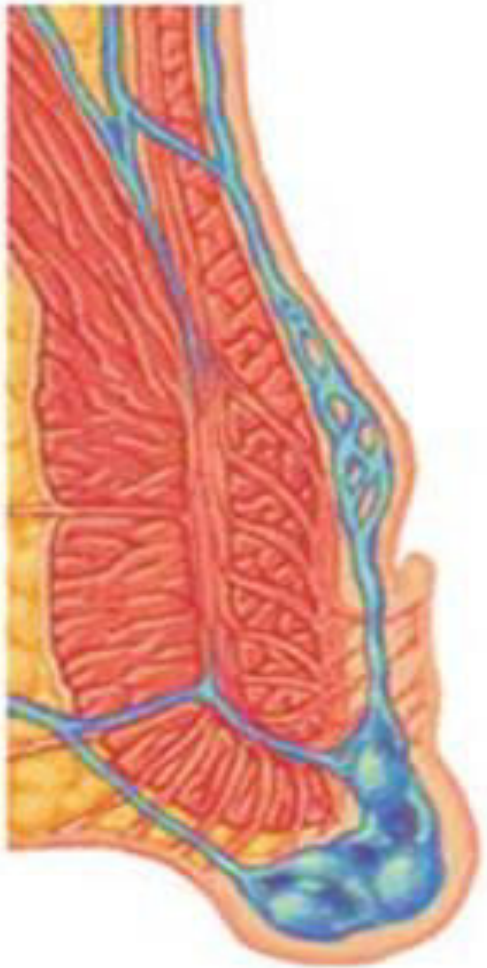
1-External hemorrhoids .

2-Internal hemorrhoids .

3-Combined internal and external .



External hemorrhoid

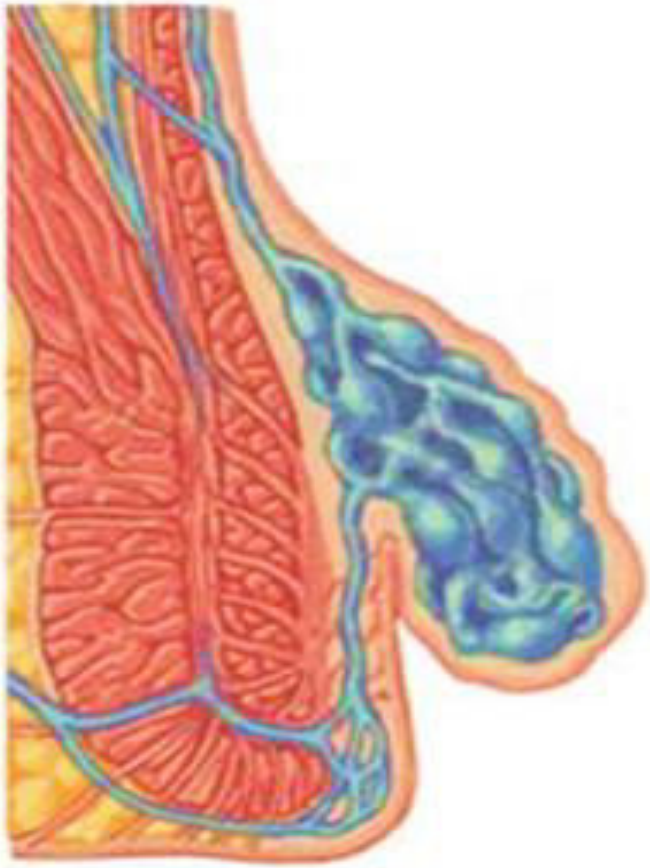


Origin below dentate line
(external rectal plexus)

covered by skin

Tributary of inf rectal plexus

Internal hemorrhoid

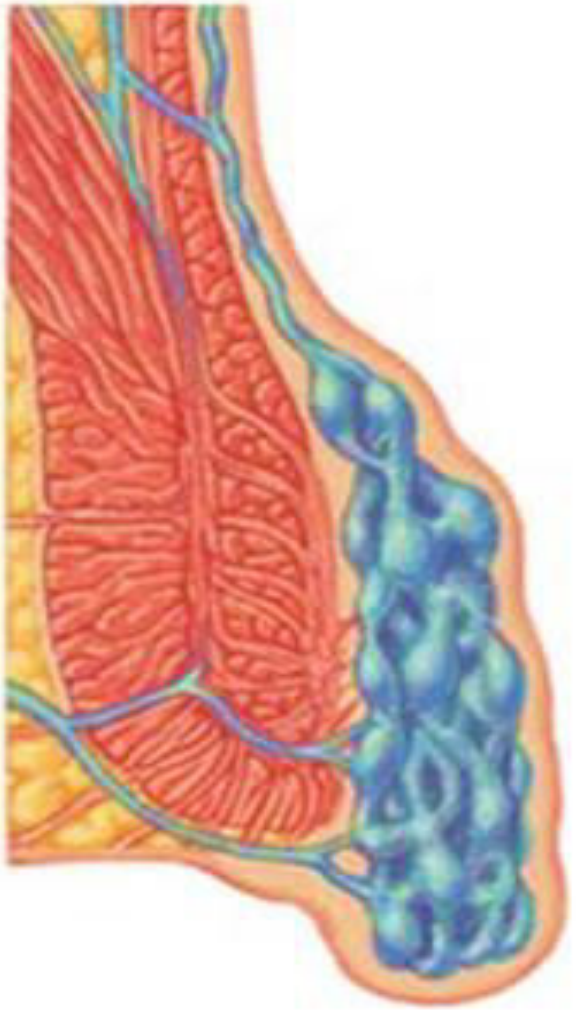


Origin above dentate line
(internal rectal plexus)

covered by mucosa

Tributary of sup rectal plexus

Combined hemorrhoid



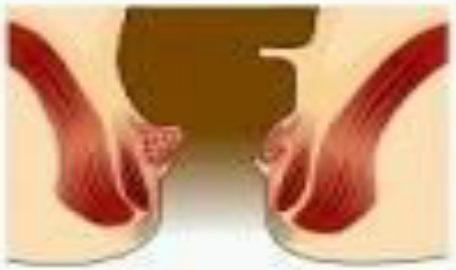
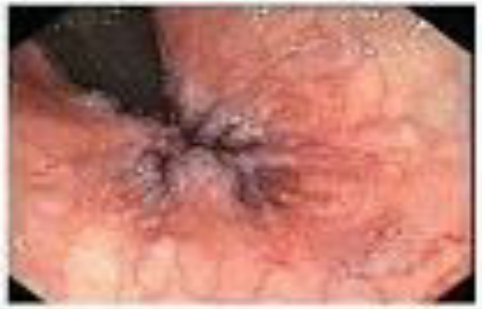
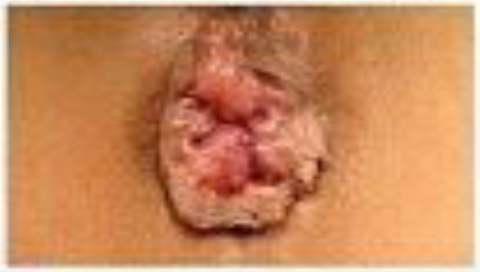
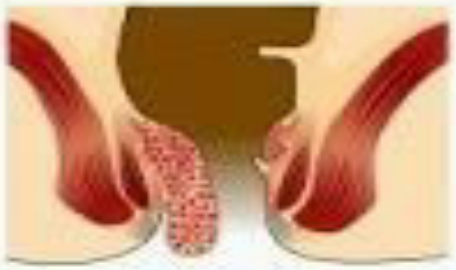
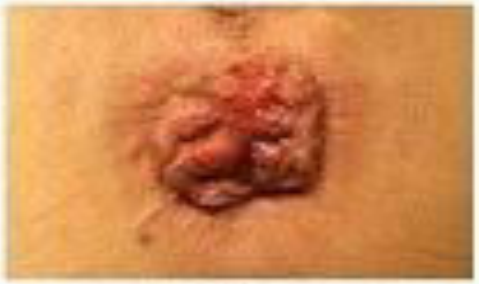
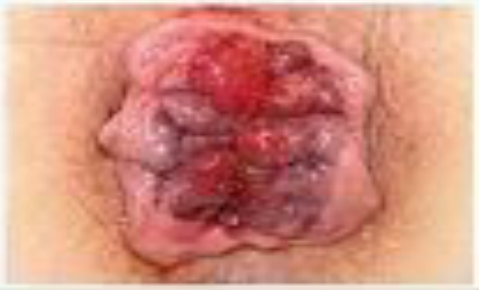
Origin above and below dentate line
(internal and external rectal plexus)

Straddle the dentate line

Complications of hemorrhoids:

- Strangulation and thrombosis
- Ulceration
- Gangrene
- Portal pyemia
- Fibrosis

Internal Hemorrhoid Grades

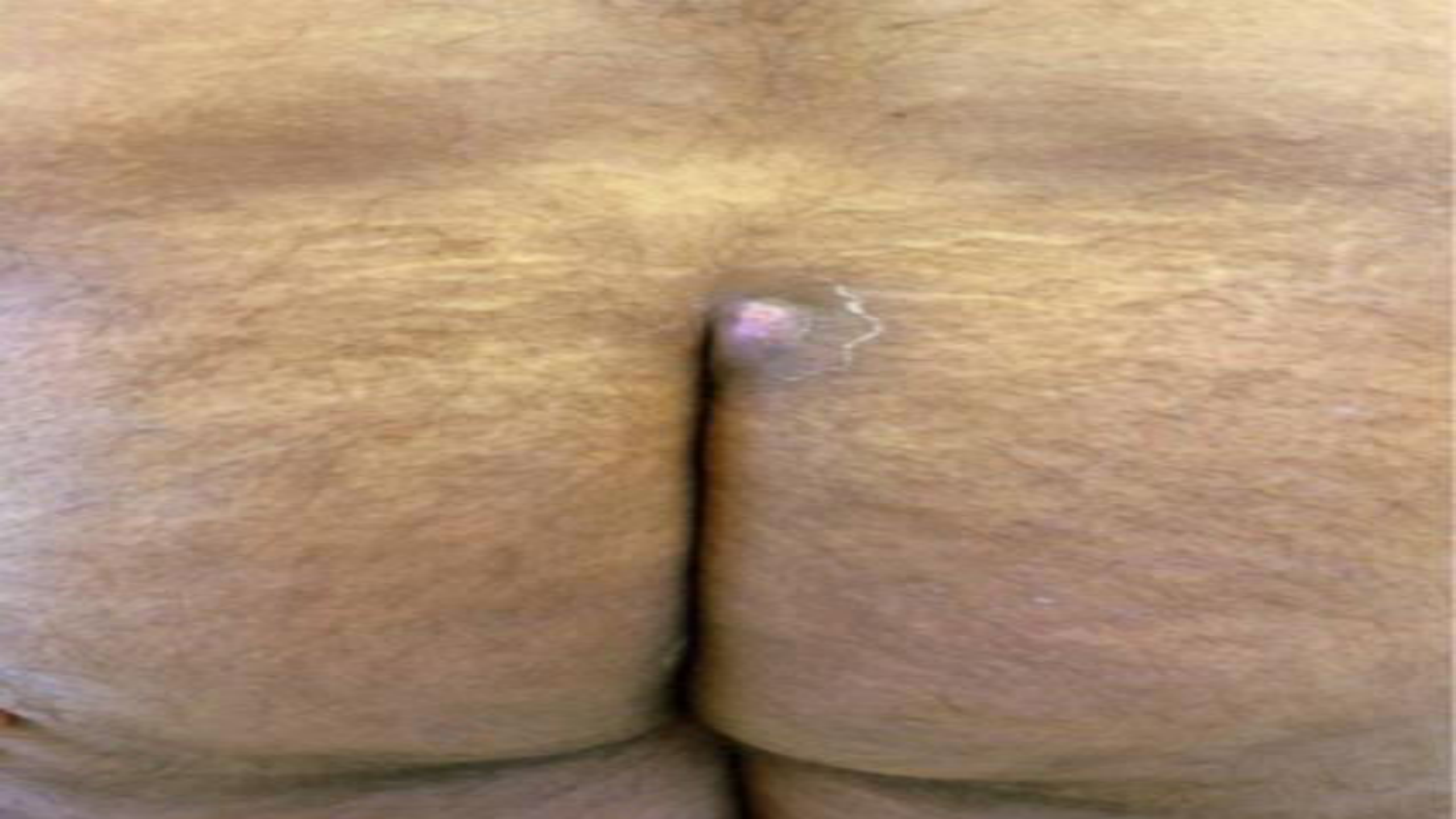
Grade	Diagram	Picture
1		
2		
3		
4		

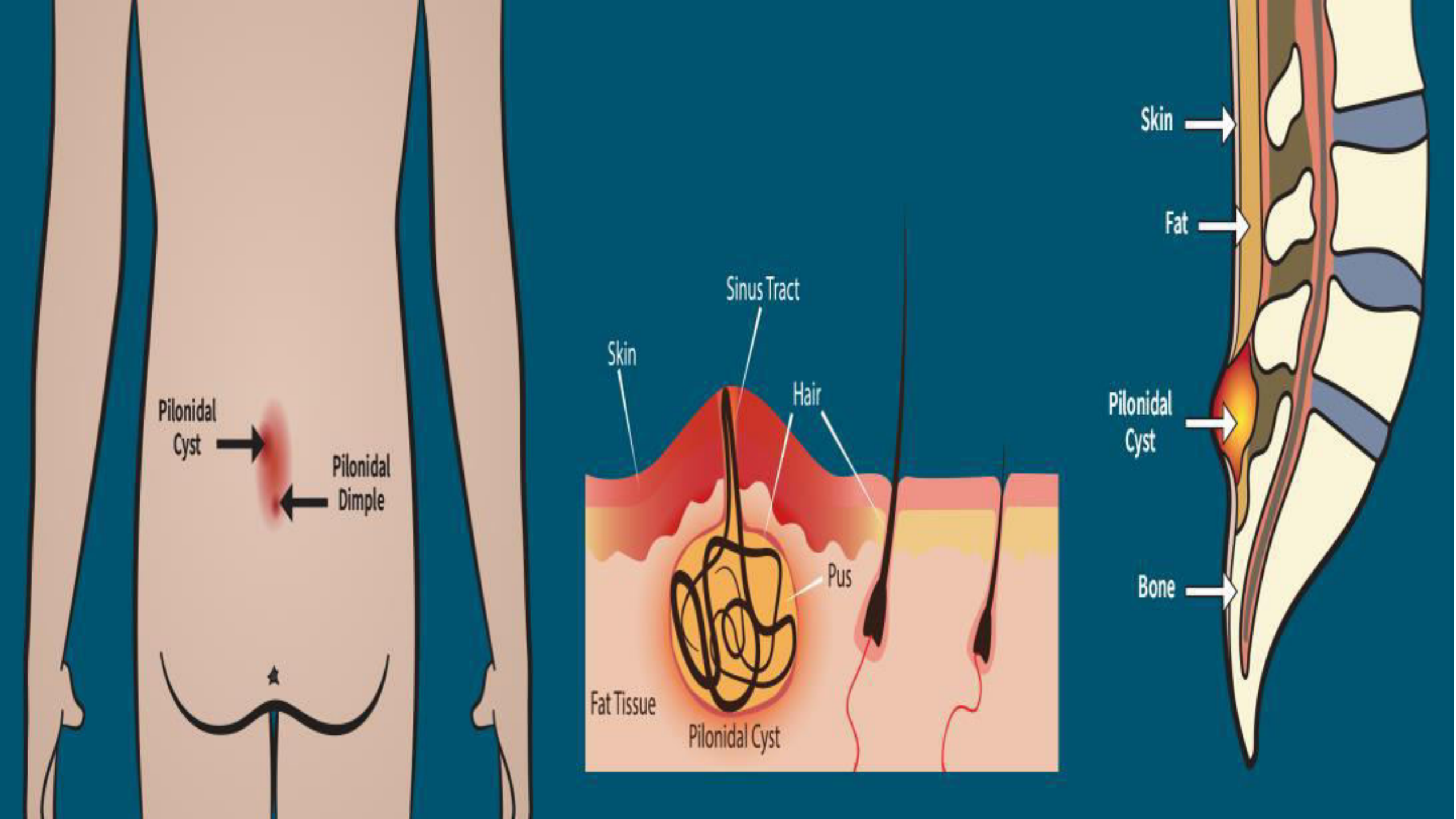
- No prolapse, just prominent blood vessels
- Prolapse upon bearing down, but spontaneous reduction
- Prolapse upon bearing down requiring manual reduction
- Prolapse with inability to be manually reduced

Management :

- In general three types of management
- 1) **conservative** treatment typically consists of foods rich in dietary fiber, , avoid constipation and straining , laxative , sitz baths
- 2) Nonsurgical **Procedures** (Rubber band ligation, Sclerotherapy infrared radiation, laser surgery,or cryosurgery.)
- 3) **Surgery** (Excisional hemorrhoidectomy, Doppler-guided transanal hemorrhoidal dearterialization, Stapled hemorrhoidectomy

Pilonidal disease (PD)




Pilonidal
Cyst
Pilonidal
Dimple
Sinus Tract
Skin
Hair
Pus
Fat Tissue
Pilonidal Cyst
Skin
Fat
Pilonidal
Cyst
Bone

- - Pilonidal sinus is a chronic subcutaneous abscess in the natal cleft, which spontaneously drains through the openings.

- **Etiology :** Pilonidal disease most frequently affects males age 15-30 particularly obese individuals, those with sedentary lifestyles or occupations, and those with deep gluteal clefts.

- - PD develops when an edematous, infected hair follicle in the intergluteal region becomes occluded. The infection spreads subcutaneously and forms an abscess, which can rupture and create a pilonidal sinus tract.
- As the patient sits or stands, hair and debris are forced into the sinus tract, resulting in recurrent infections and foreign-body reactions.

- The most common presenting manifestations include a painful, mass 4-5 cm cephalad to the anus in the intergluteal region with associated mucoid, purulent, or bloody drainage.

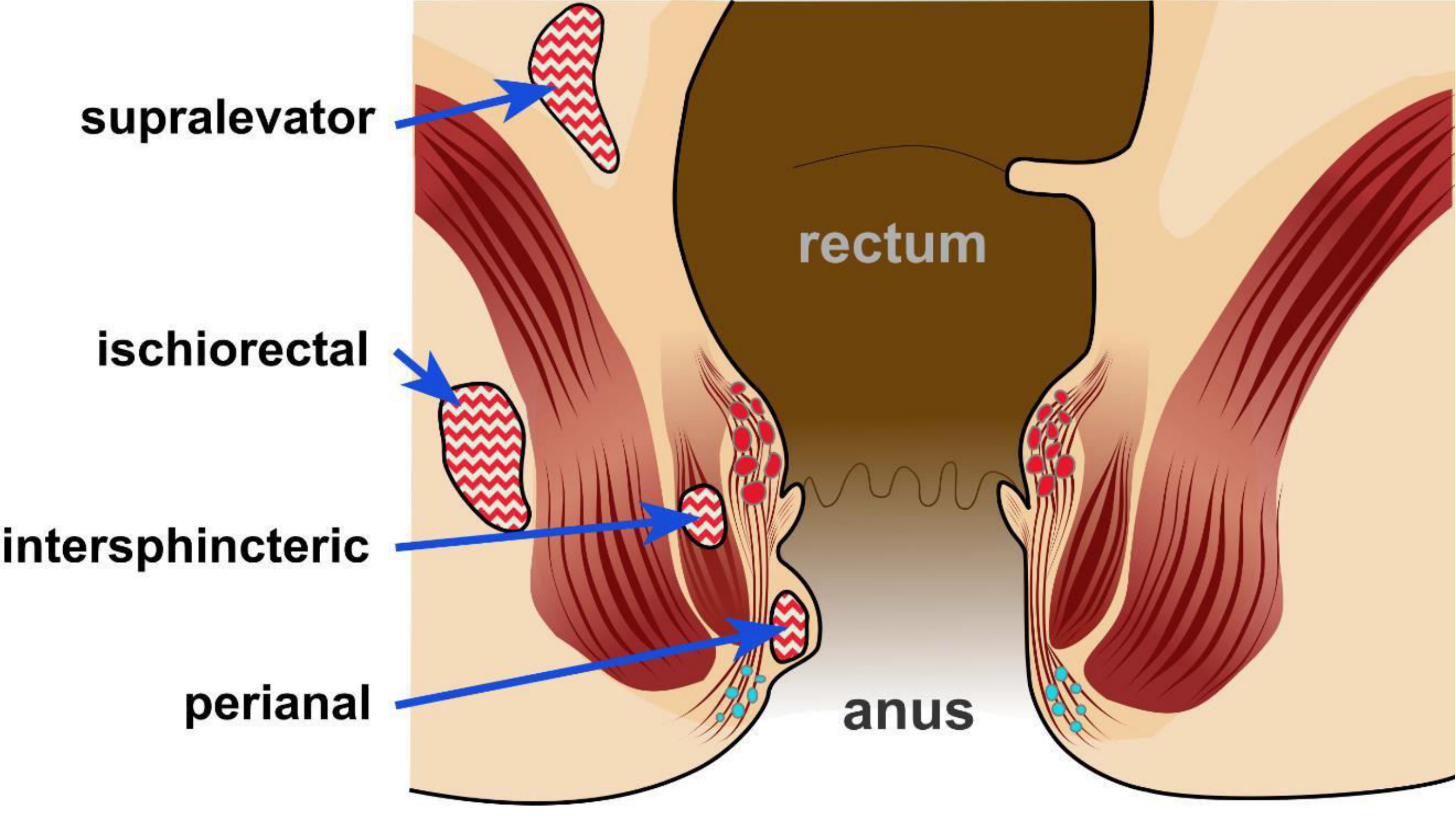
- Treatment is drainage of abscesses and collected debris followed by excision of sinus tracts. Despite longer healing times, open closure is preferred due to decreased recurrence rates.

Case

A 28-year-old man presents to the emergency department complaining of anal and lower-back pain for the previous 36 h. He has tried taking simple analgesics with no benefit. The pain is progressively getting worse and he is now finding it uncomfortable to walk or sit down. He is otherwise fit and well and smokes 10 cigarettes a day. On Examination Inspection of the anus reveals a 3*3 cm swelling at the anal margin. The swelling is warm, exquisitely tender and fluctuant. There is no other obvious abnormality.

What is the diagnosis?

Anorectal Abcess


supralevator
ischiorectal
intersphincteric
perianal
rectum
anus


Abscess

- It is due to occlusion of an anal crypt gland which allows for bacterial infection.
- Abscesses can form relatively acutely following gland obstruction due to the high levels of bacteria in the area.
- Anorectal abscesses are classified according to their anatomic location and the following are the most common types;

Perianal abscess, Ischiorectal abscess, Intersphincteric abscess and Supralevator abscess.

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 formation of (intersphincteric abscess)
- if the abscess remains there, the patients will present with (interspinchteric abscess)
- if the pus goes down the patient will present with (perianal abscess)
- if the pus goes up above levator ani muscle (supralevator abscess)
- if the pus can pass through the external sphincter to the ischiorectal space (ischiorectal abscess)

- **perianal abscess**

- The most common type of anorectal abscesses.
- Initially, a perianal abscess may cause pain only with defecation and mild pruritus, but as the infection progresses → the pain becomes constant and can be associated with systemic manifestations such as fever.
- Untreated perianal abscesses often progress to form anorectal fistulae communications between the abscess and perirectal skin or nearby organs (fistula in ano).
- Early recognition followed by Incision and drainage of the perianal abscess is essential to avoid such progression.

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:Rectal pain, chills and fever, discharge**
- **Supralevator:PR tender. Difficult to identify are. EUA needed**

Treatment

- The primary treatment of anorectal abscess is Incision and drainage under local anesthesia
- There is a chance around 50% of recurrence and 50% of fistula formation, even after we drain the abscess
- **Antibiotics** are prescribed after drainage to patient with:

1- Extensive perianal/perineal cellulitis

2- Signs of systemic infection

3- Diabetes

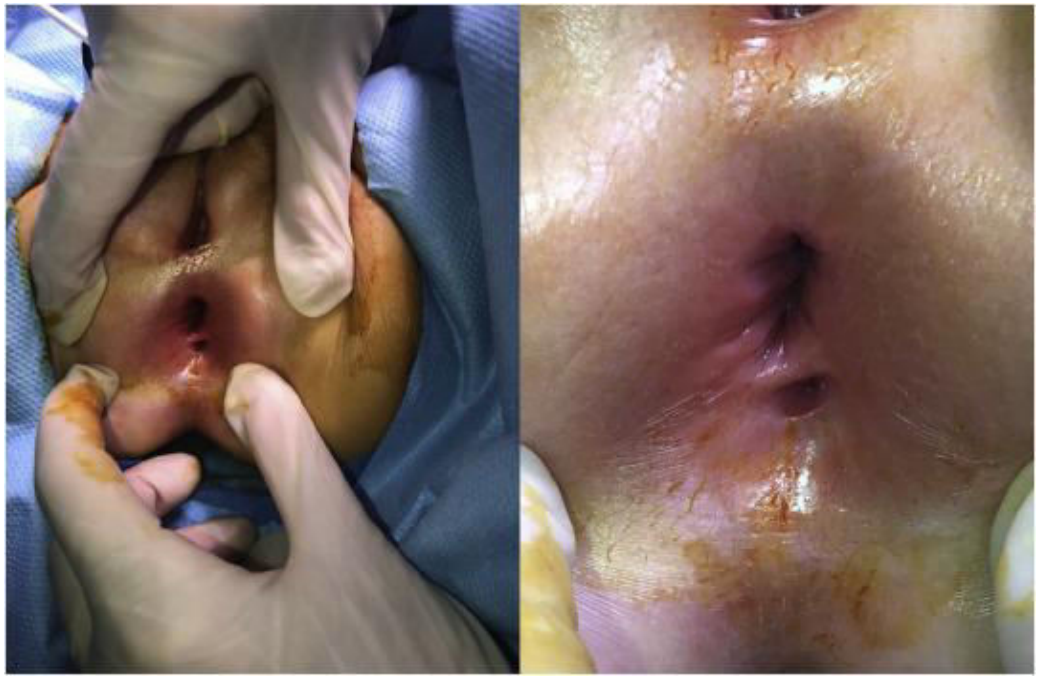
4- Valvular heart disease

5- Immunosuppression

FISTULA-IN-ANO

Definition

Is a chronic abnormal communication, usually lined to some degree by granulation tissue, which runs outwards from the anorectal lumen (the internal opening) to an external opening on the skin of the perineum or buttock (or rarely, in women, to the vagina).



Aetiology

* The majority are due to anal gland infection >> abscess >> draining into a fistula.

* May be found in association with specific conditions, such as Crohn's disease, tuberculosis, lymphogranuloma venereum, actinomycosis, rectal duplication, foreign body and malignancy.

Clinical presentation

- Intermittent purulent discharge (which may be bloody)

- Pain which increases until temporary relief occurs when the pus discharges).

- Itching

- History of Abscess

Parks' classification of anal fistulas

Defines the type of fistula which **influences management.**

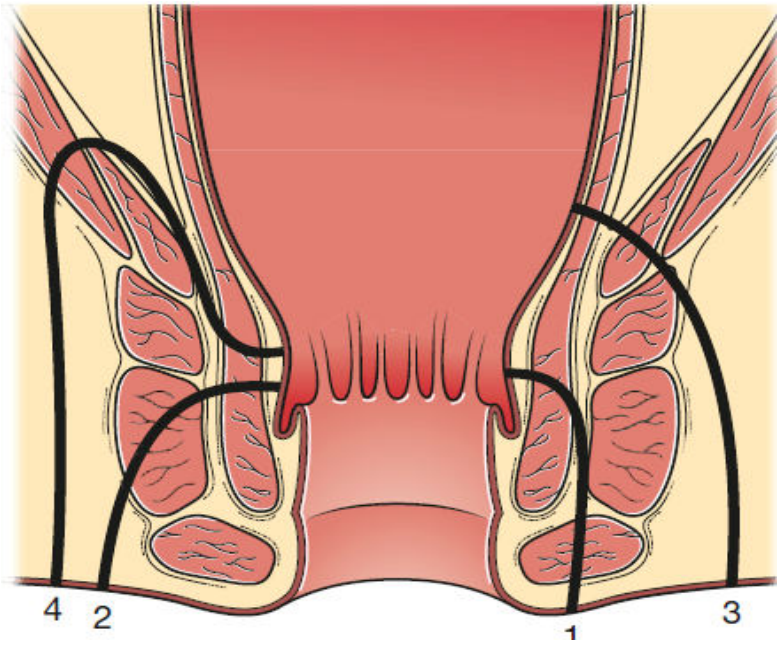
Types of anal fistula:

1- intersphincteric (45%)

2- trans-sphincteric (40%)

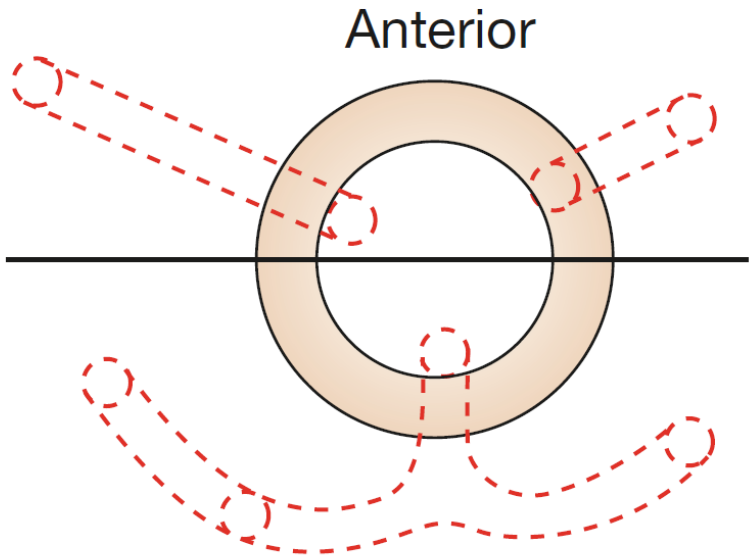
3- suprasphincteric

4- extrasphincteric primary tracks.

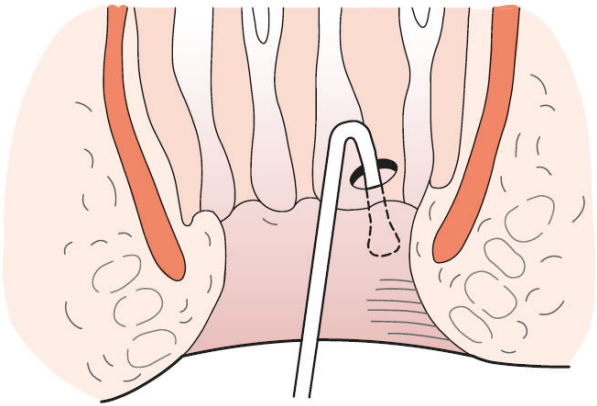


Goodsall's rule

To indicate the likely position of the internal opening according to the position of the external opening(s), is helpful but not infallible

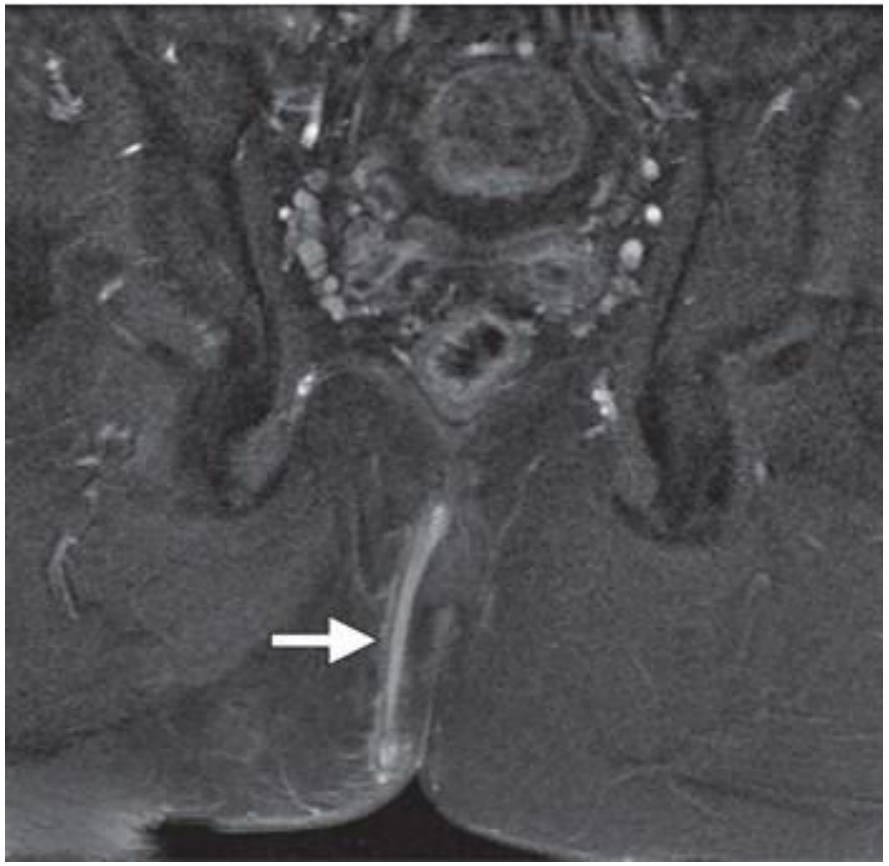


Full examination under anaesthesia should be repeated before surgical intervention.
gentle use of probes



Special investigations

MRI is the 'gold standard' for fistula imaging



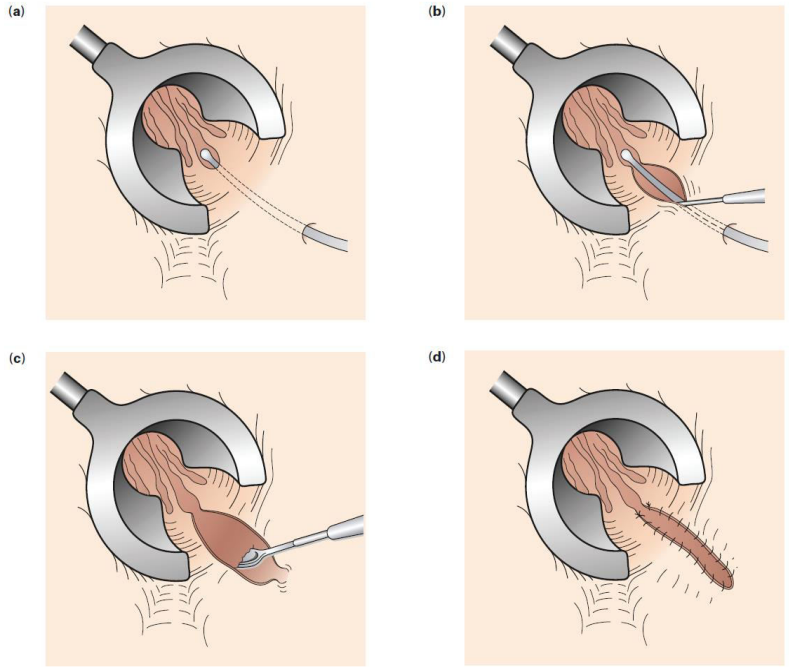
Surgical management

Fistulotomy (Laying open) is the surest method of eradication, but sphincter division may result in incontinence.

Seton

Advancement flap

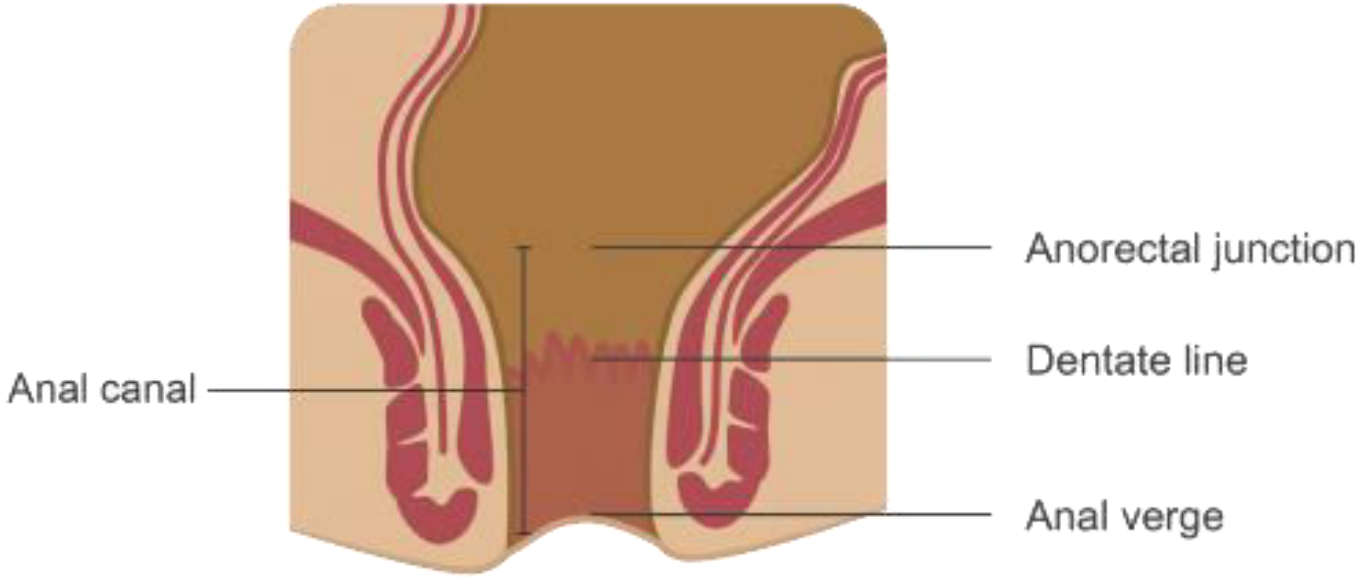
Laser

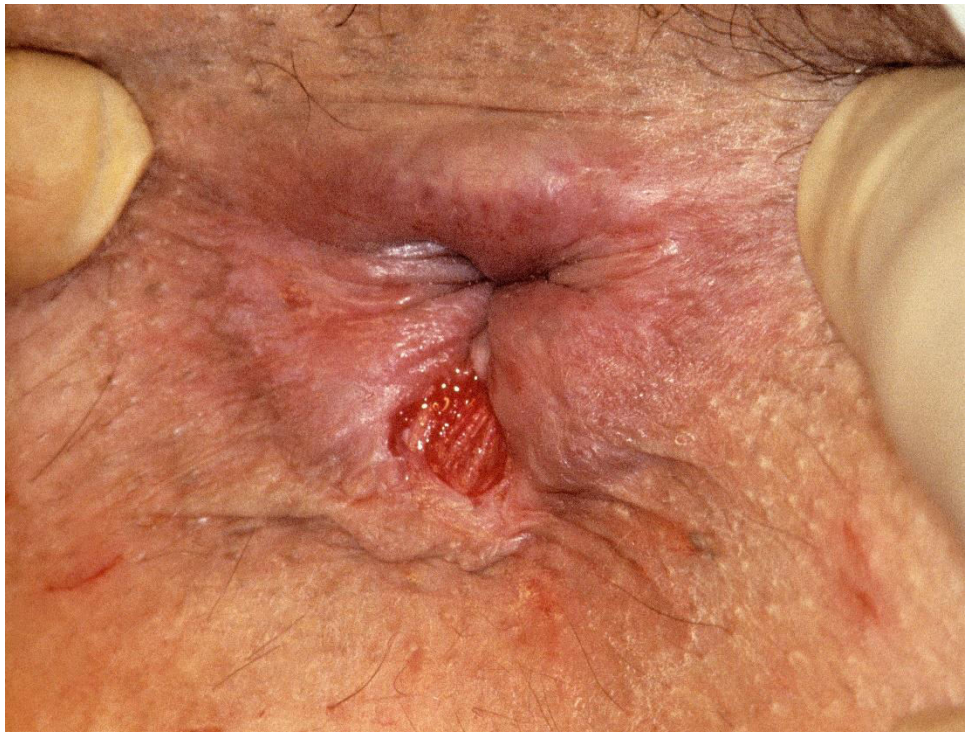


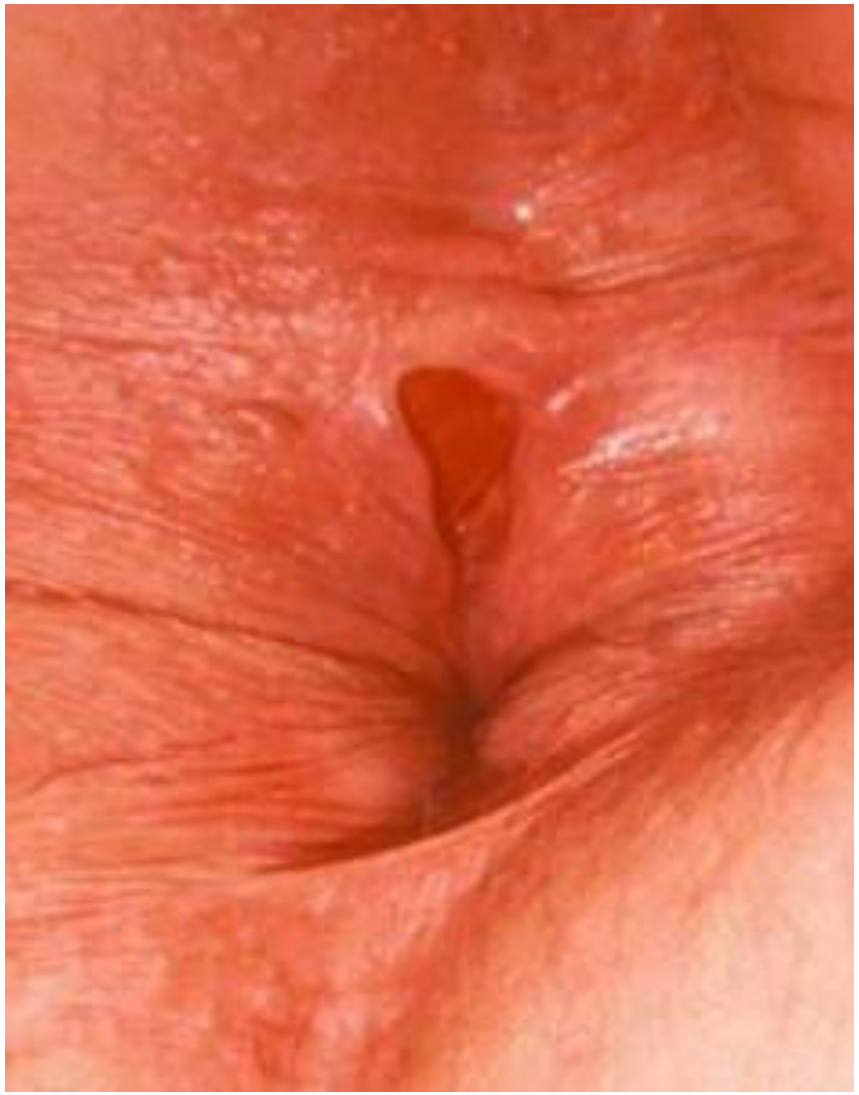
Anal Fissure

Definition

Is a longitudinal split in the anoderm of the distal anal canal, which extends from the anal verge towards, but not beyond, the dentate line.







Aetiology

Posterior midline	Anterior	Ectopic (lateral)
Most of cases	Usually in females	Other causes
Constipation	After vaginal delivery	Crohn's disease
Repeated diarrhoea		Cancer

Clinical presentation

- Pain on defaecation
- Bright-red bleeding
- Mucous discharge
- Constipation

Management

Conservative

Fiber diet, adequate water intake, laxatives, topical local anaesthetic, topical pharmacological agents to relax the internal sphincter

↓

Botox injection

↓

Operative measures

lateral internal Sphincterotomy
Anal advancement flap