Anal and perianal conditions

Dr.Mahmoud Awaysheh
General & Colorectal Surgery.

Objectives

- Understand the anatomy of the anus and anal canal and their relation to common perianal pathologies
- Know well the common anal and perianal pathologies, their diagnosis and treatment
- Know the differential diagnosis of common perianal pathological presentations
- Have an idea about the less frequent perianal pathologies

Anal canal

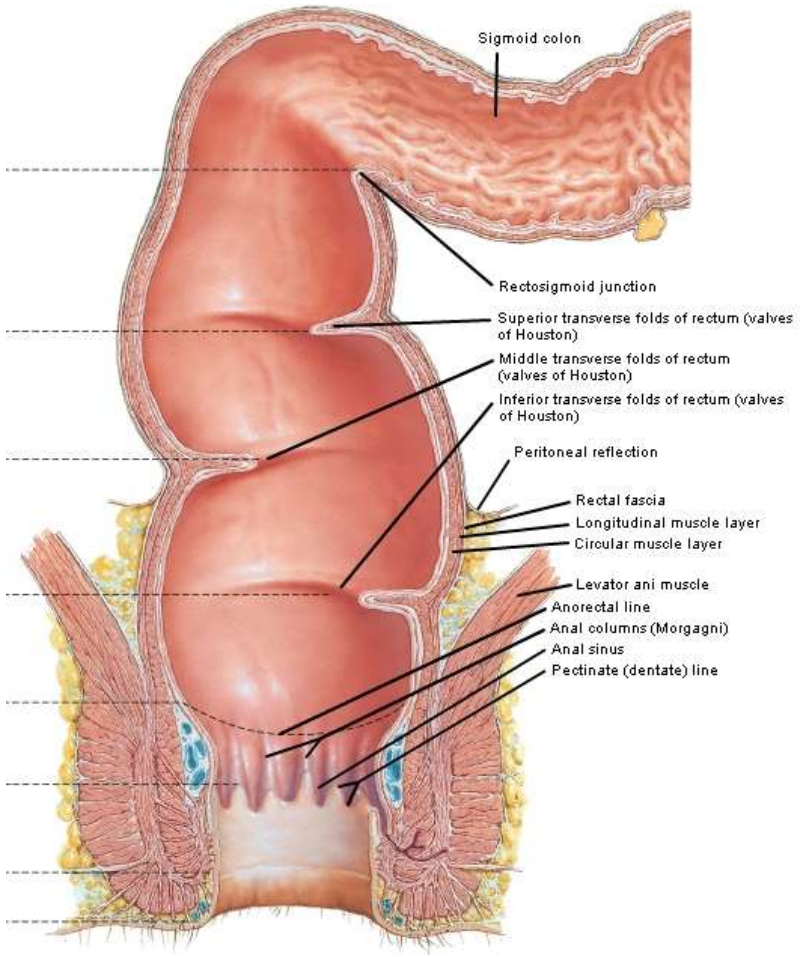
- **Beginning: 2.5 cm** below and anterior to the tip of the coccyx at the recto-anal junction**.**

- **Length: 4 cm** long

- **Course:** It runs down and backwards.

- **Termination:** It ends at the anus.

- **Relations:**
- **Laterally:** Ischioanal fossae.
- **Posteriorly:** Anococcygeal raphe between it and tip of coccyx.
- **Anteriorly:** Perineal body between it and bulb of penis in males.
  Perineal body between it and vagina in females.


Sigmoid colon
Rectosigmoid junction
Superior transverse folds of rectum (valves of Houston)
Middle transverse folds of rectum (valves of Houston)
Inferior transverse folds of rectum (valves of Houston)
Peritoneal reflection
Rectal fascia
Longitudinal muscle layer
Circular muscle layer
Levator ani muscle
Anorectal line
Anal columns (Morgagni)
Anal sinus
Pectinate (dentate) line

Anal sphincters:

Internal anal sphincter:

-It is the thickened **inner involuntary circula**r muscle layer of the anal canal.

-Surrounds the upper **3/4th** of the anal canal, extending from ano-rectal junction till the white line (Hilton's line).

Nerve supply: autonomic

External anal sphincter:

-Striated voluntary muscle fibers.

-Surrounds th**e whole length** of the anal canal **outside** the internal anal sphincter**.**

-Parts: I) Subcutaneous Part:

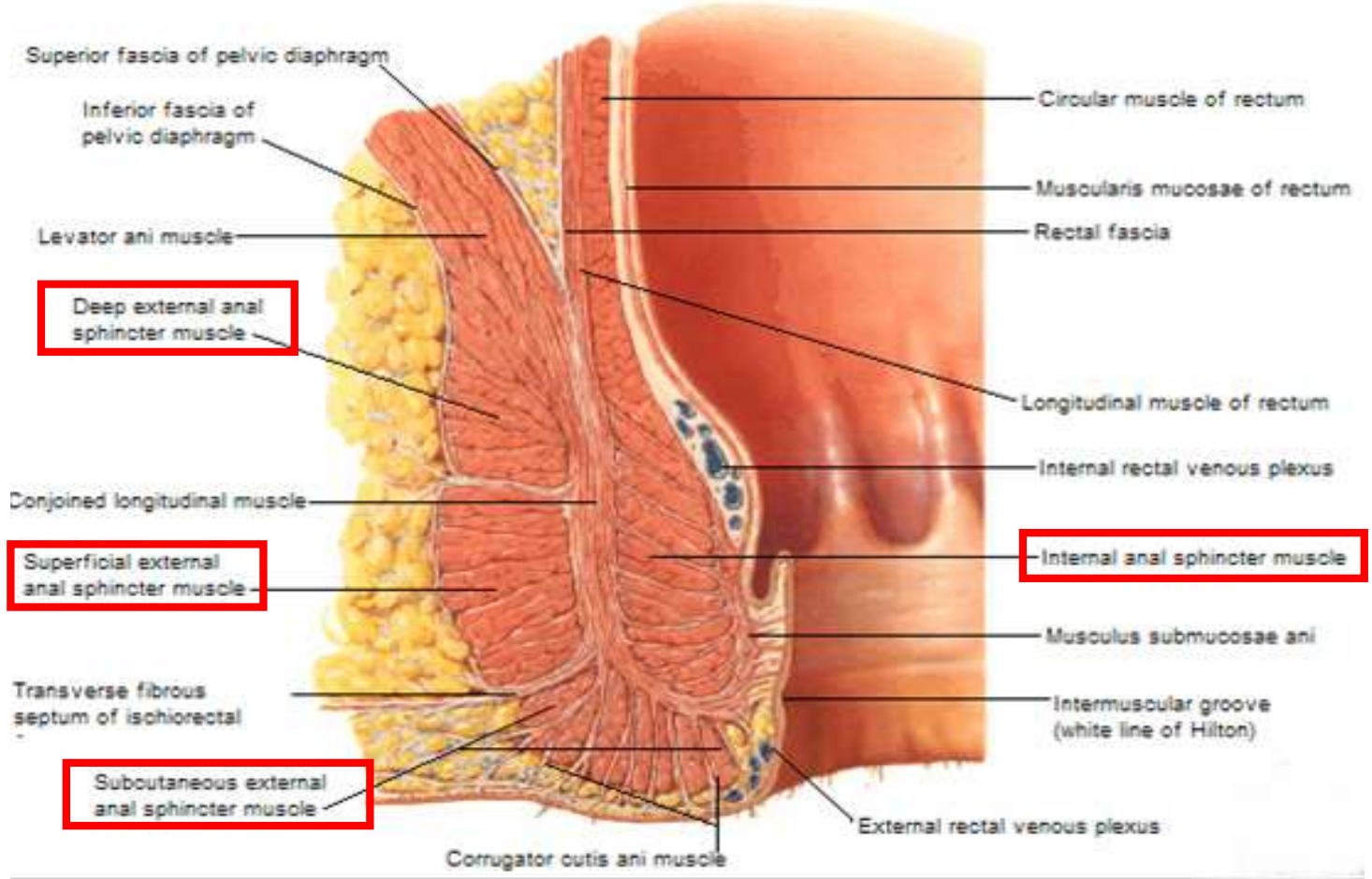
-Surrounds the anus just under the perianal skin.

-Attached to perineal body &anococcygeal raphe.

II) Superficial Part:

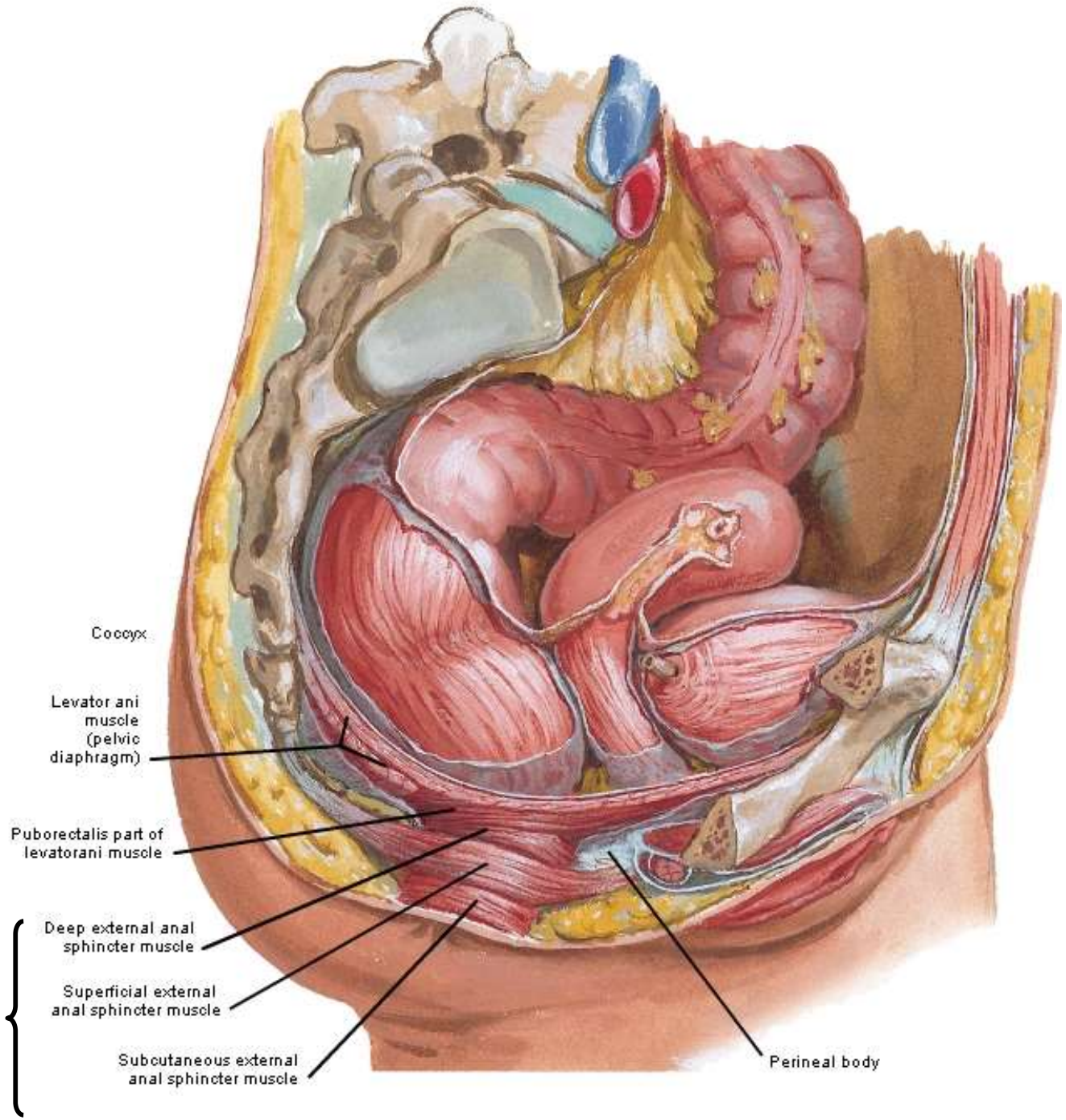
-Surrounds the lower part of the internal sphincter above the subcutaneous part.

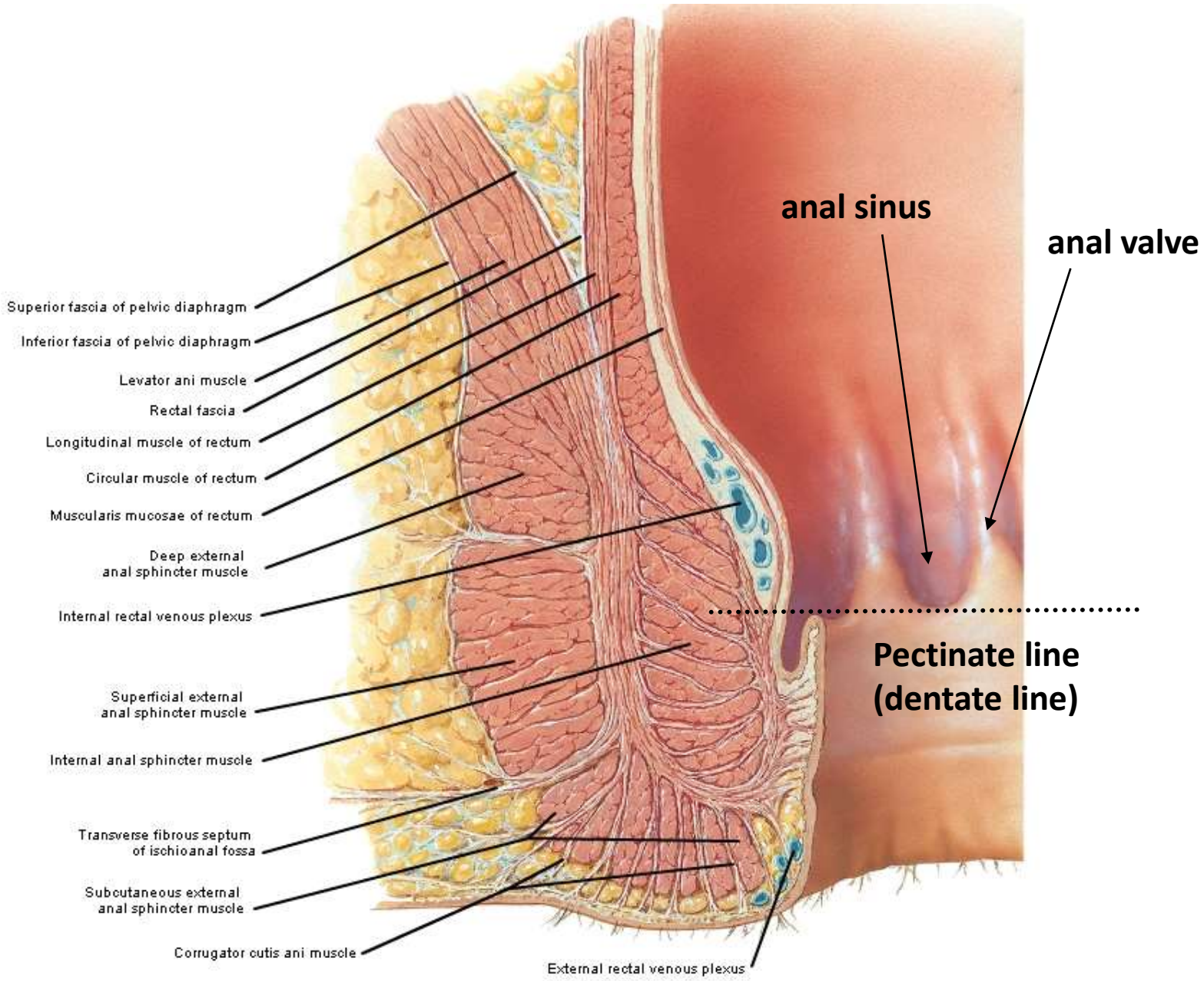
III) Deep Part


Superior fascia of pelvic diaphragm
Inferior fascia of pelvic diaphragm
Levator ani muscle
Deep external anal sphincter muscle
Conjoined longitudinal muscle
Superficial external anal sphincter muscle
Transverse fibrous septum of ischiorectal
Subcutaneous external anal sphincter muscle
Corrugator cutis ani muscle
Circular muscle of rectum
Muscularis mucosae of rectum
Rectal fascia
Longitudinal muscle of rectum
Internal rectal venous plexus
Internal anal sphincter muscle
Musculus submucosae ani
Intermuscular groove (white line of Hilton)
External rectal venous plexus
{2}
{1}

The external sphincter

(voluntary)

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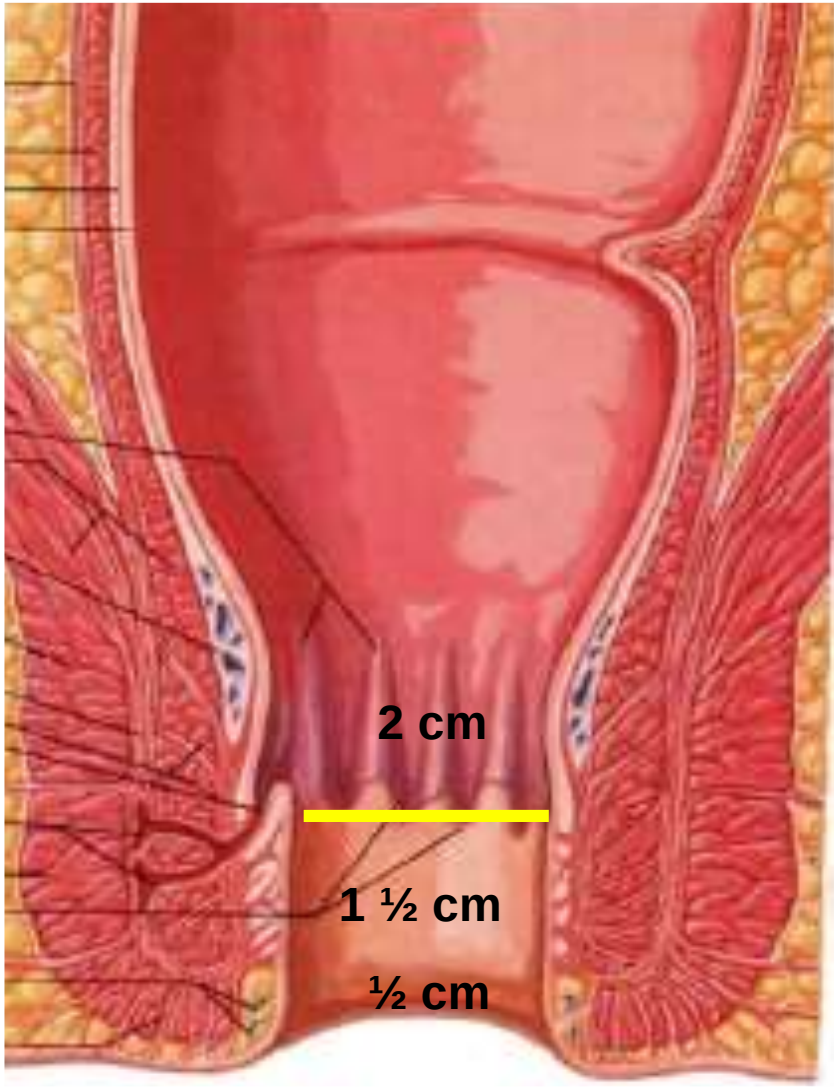
Internal anal sphincter muscle
Transverse fibrous septum of ischioanal fossa
Subcutaneous external anal sphincter muscle
Corrugator cutis ani muscle
External rectal venous plexus
anal sinus
anal valve
Pectinate line
(dentate line)

Vessels and nerves of the anal canal



Blood supply, nerve supply and lymph drainage of anal canal:

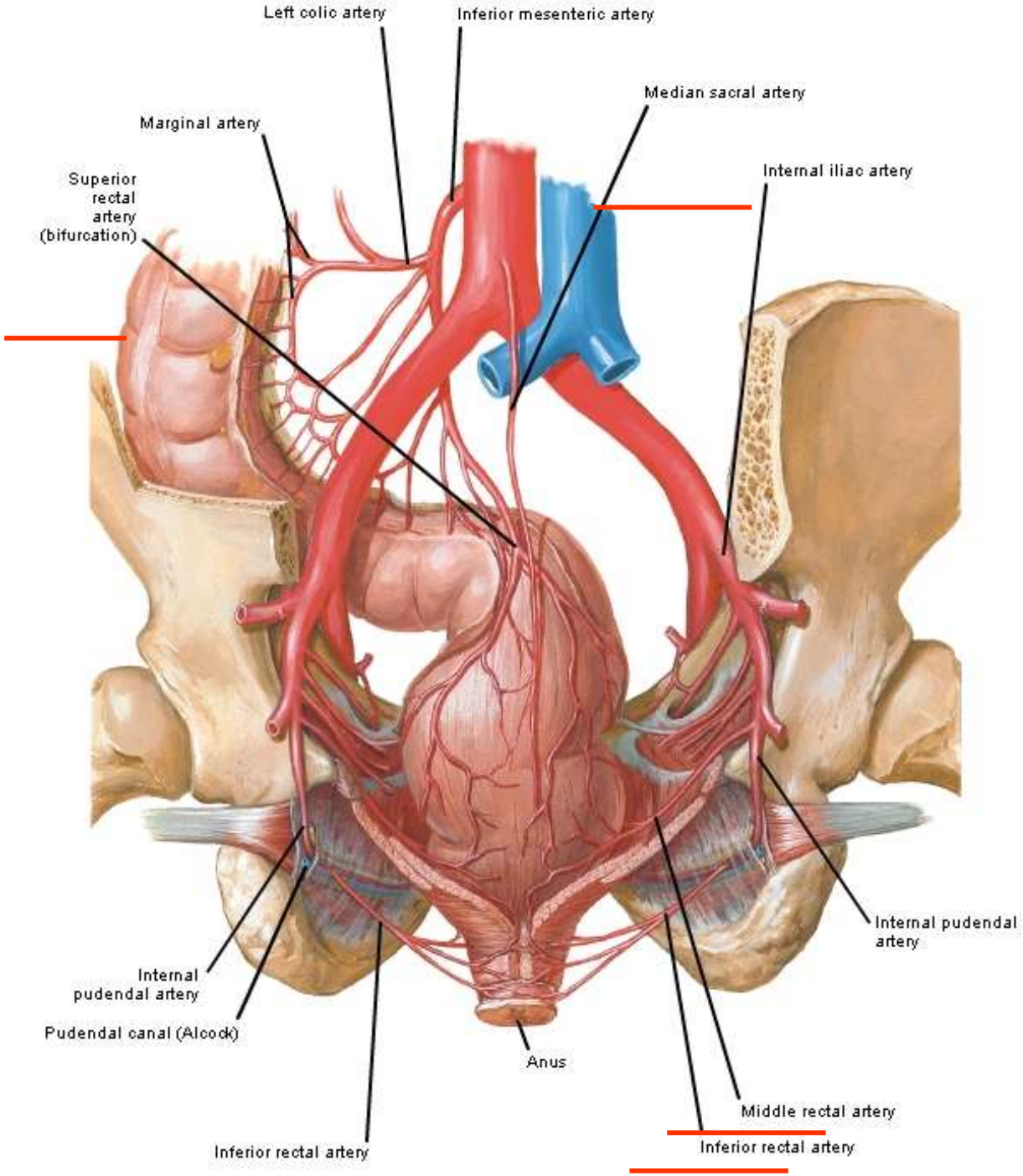
	Upper part	Lower part
Blood supply	-It is supplied by superior rectal artery. - It is drained by superior rectal vein **(portal circulation**).	-It is supplied by: 1- Middle rectal artery of internal iliac artery. 2. Inferior rectal artery of internal pudendal artery. -The corresponding veins drain into internal iliac vein (**systemic circulation**.)
Nerve supply	Above pectinate line by autonomic nerve fibers.	Below pectinate line by inferior rectal nerve **(Sensitive to pain &touch**).
Lymphatic drainage	**Above** pectinate line into **internal iliac LNs**.	**Below** the pectinate line into **superficial inguinal LNs.**

Arterial supply of the rectum and anal canal

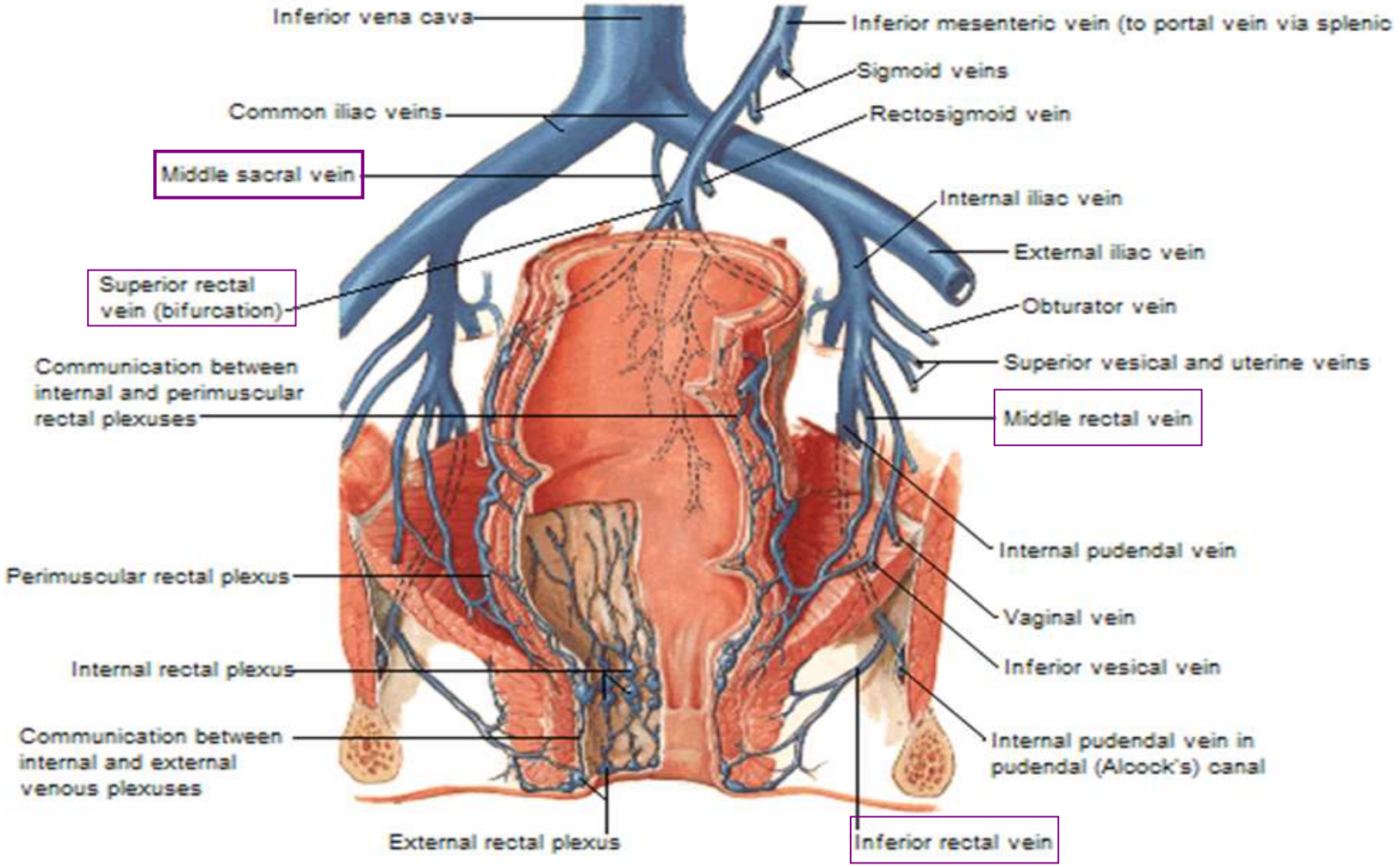
superior rectal artery (inferior mesenteric)

middle rectal artery (internal iliac)

inferior rectal artery (internal pudendal)

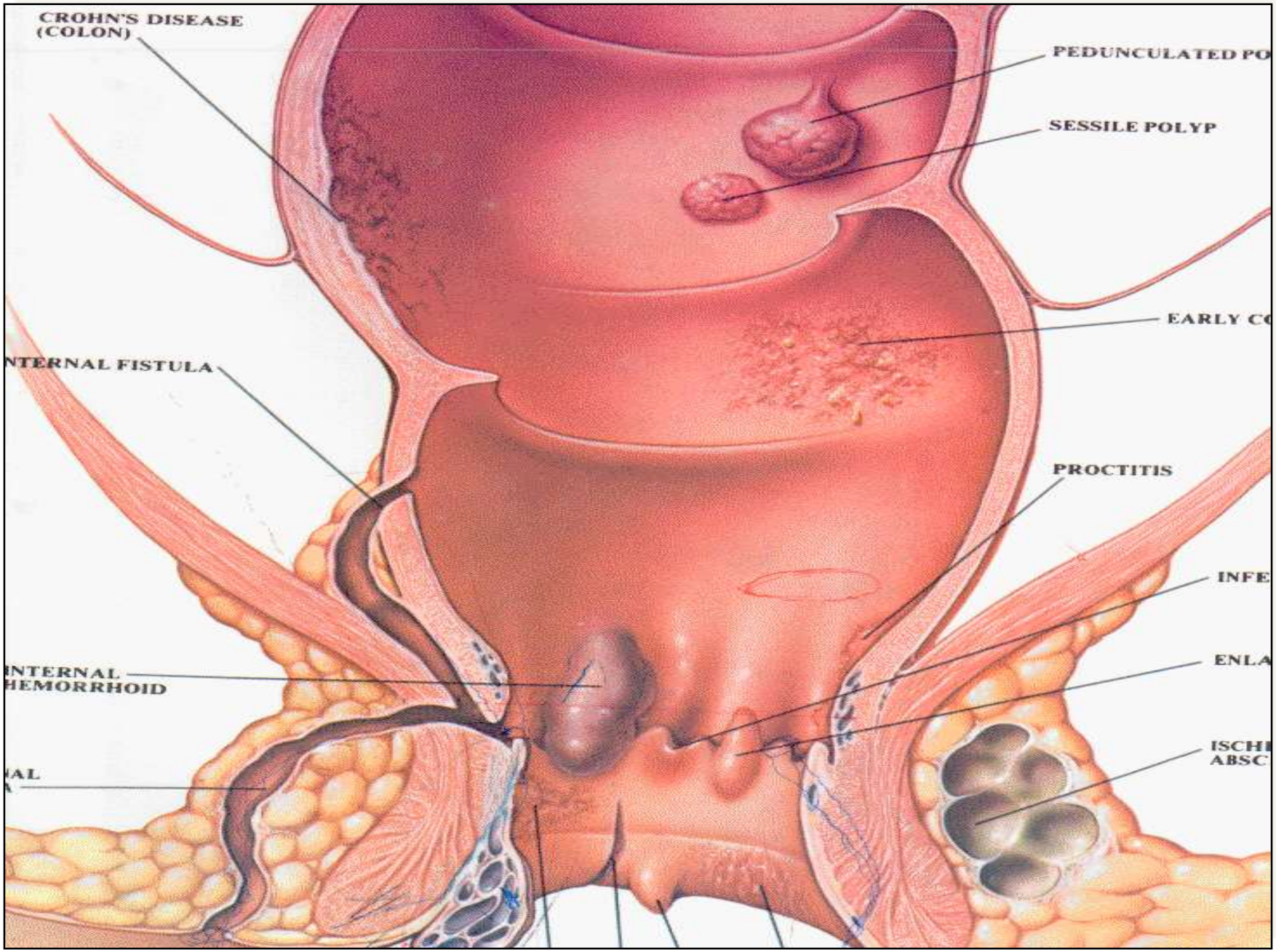


Veins of the rectum



Common anal and perianal conditions

- Hemorrhoids
- Perianal abscesses and fistulas
- Anal fissure


CROHN'S DISEASE
(COLON)
PEDUNCULATED PO
SESSILE POLYP
EARLY C
NTERNAL FISTULA
PROCTITIS
INFE
ENLA
INTERNAL
HEMORRHOID
ISCH
ABSC

EXAMINATION OF THE ANUS

- inspection
- digital examination with index finger
- proctoscopy
- sigmoidoscopy

HAEMORRHOIDS

Piles may be internal or external according to whether they are internal or external to anal orifice.

The internal Haemorrhoids:

They are dilation of the superior haemorrhoidal veins above the denate line each pile consists of mass of dilated vein, artery, some connected tissues and mucosal investment.

External Haemorrhoids: (Perianal Haematoma)

due to rupture of dilated anal vein as result of sever straining.

- sudden onset of painful lump at the anus.
- swelling tense & tender, bluish in colour covered with smooth shining skin.
- Treatment: LA evacuation if the patient come within 48h^{0,} if patient come late conservative treatment.

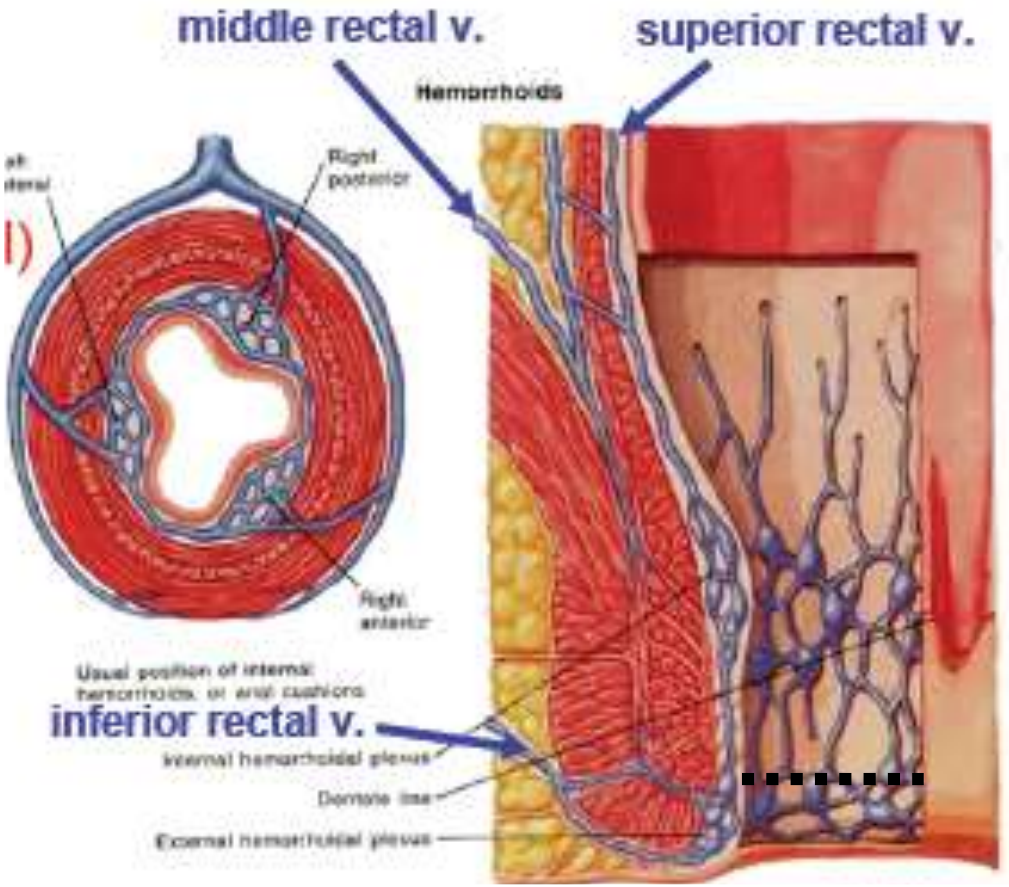
- if untreated the haematoma undergoes:
  - resolution
  - ulceration
  - supporation
  - fibrosis which give rise to skin tag

Internal hemorrhoids

- Tributary of sup rectal
- Above white line
- Generally painless

External hemorrhoids

- Tributary of inf rectal
- Below white line
- Generally painful



External hemorrhoid

Origin below dentate line
(external rectal plexus)

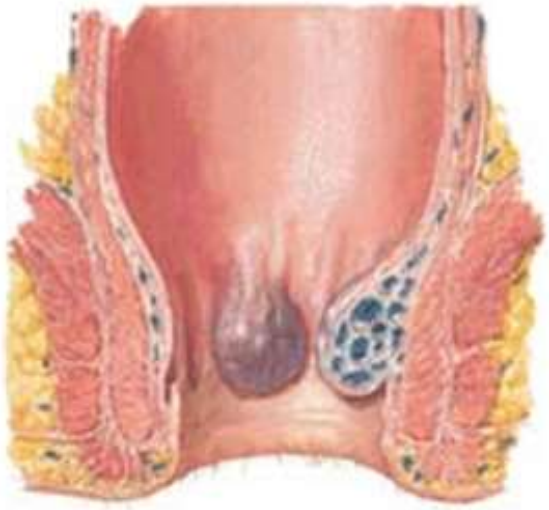
Internal hemorrhoid

Origin above dentate line
(internal rectal plexus)

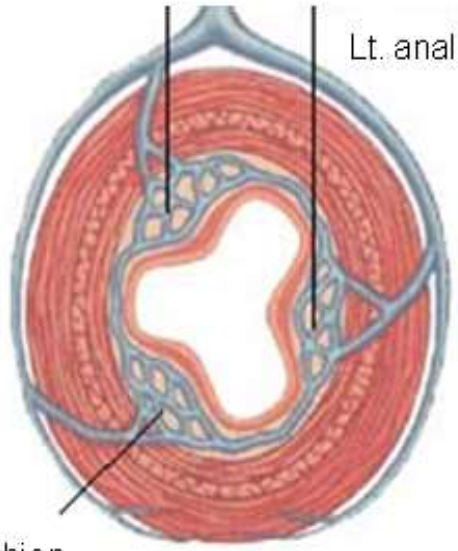
Mixed hemorrhoid

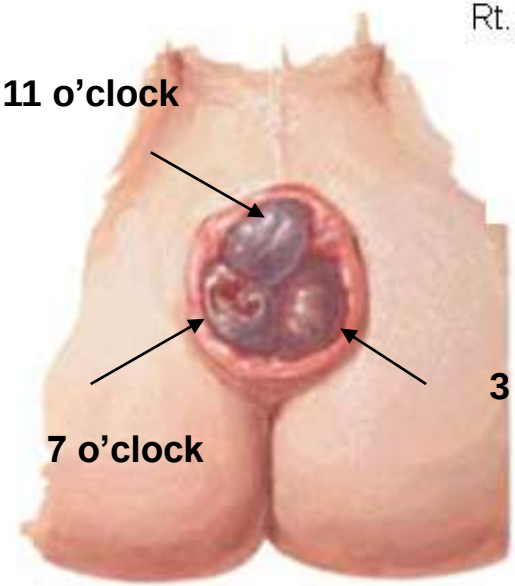
Origin above and below dentate line
(internal and external rectal plexus)

location of piles



Enlarged anal cushions





Prolapsed "rosette" of internal hemorrhoids

Usual position of anal cushions and sites of prolapse for internal hemorrhoids

Internal Hemorrhoids

Grades

I- Hemorrhoids only bleed

II- Prolapse and reduce spontaneously

III- Require replacement

IV- Permanently Prolapsed

Aetiology of Haemorrhoids

- **Primary Causes:**

These are attributed to several predisposing causes:

- Hereditary factors e.g, structural weakness of the vein.
- Anatomical factors.
- Partial congestion.
- Chronic constipation.
- Sphincteric relaxation.

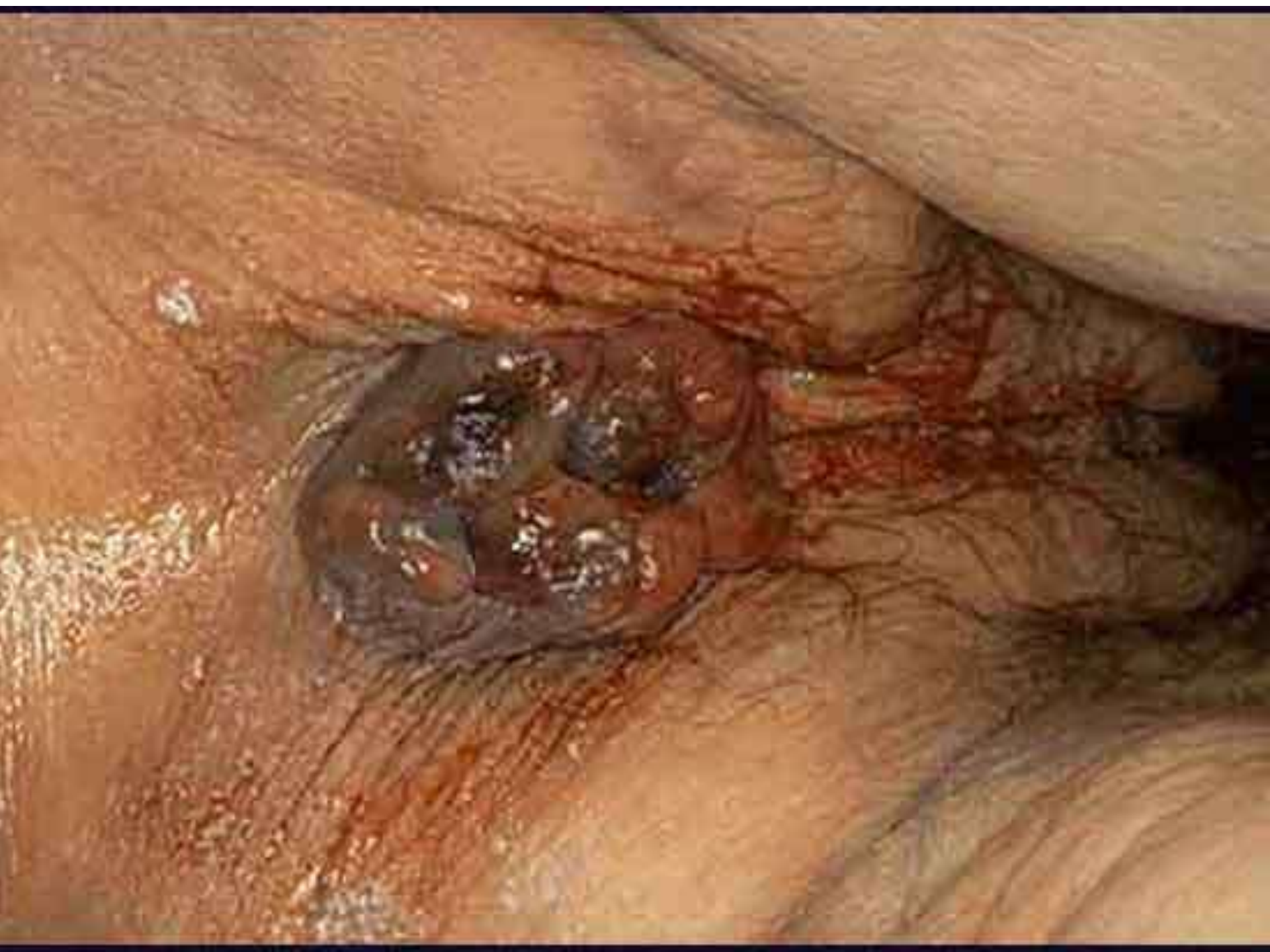
- **Secondary Causes**

These are due to underlying organic cause such as;

- pregnancy
- venous obstruction
- straining on micturation
- venous congestion
- carcinoma of the rectum

Symptoms

- Rectal Bleeding
- Red blood in stool
- Pain during bowel movements
- Anal Itching
- Rectal Prolapse
- Thrombus



Prevention

- High fiber diet
- Drink Plenty of Liquids
- Fiber Supplements
- Exercise
- Avoid long periods of standing or sitting
- Don’t Strain
- Go as soon as you feel the urge

TREATMENT

- varies from simple reassurance to operative hemorrhoidectomy.

- Treatments are classified into three categories:
  1) Dietary and lifestyle modification.
  2) Non operative/office procedures.
  3) Operative hemorrhoidectomy.

Treatment Non-surgical

- Mild cases (GI &II) are controlled by:
  - Preventing constipation
  - Drinking Fluids
  - High-fiber diet
  - Use of Fiber supplements
  - Stool softeners

Treatments

- For painful or persistant hemorrhoids:(III & IV)
  - Tying off a hemorrhoid
  - Sclerotherapy
  - Infered Light
  - Laser Therapy
  - Freezing
  - Electrical Current
  - Surgery (hemorrhoidectomy)

ANORECTAL ABSCESSES AND FISTULA-IN-ANO

INTRODUCTION

- Both abscess and fistula-in-ano can be considered simultaneously.

- The abscess is an acute manifestation, and the fistula is a chronic condition.

ETIOLOGY

- Nonspecific :
  Cryptoglandular in origin.

- Specific :
  Crohn's
  Ulcerative colitis
  TB
  Actinomycosis
  Carcinoma
  Trauma
  Radiation
  Foreign body
  Lymphoma
  Pelvic inflammation
  Leukemia

PATHOGENESIS

- The *cryptoglandular* hypothesis states that infection of the anal glands associated with the anal crypts is the primary cause of anal fistula and abscess.

Perianal Abscess

- Remains one of the more common anorectal conditions encountered in practice
- Abscesses are classified into:
  - Perianal 60%
  - Ischiorectal 20%
  - Intersphincteric
  - Supralevator

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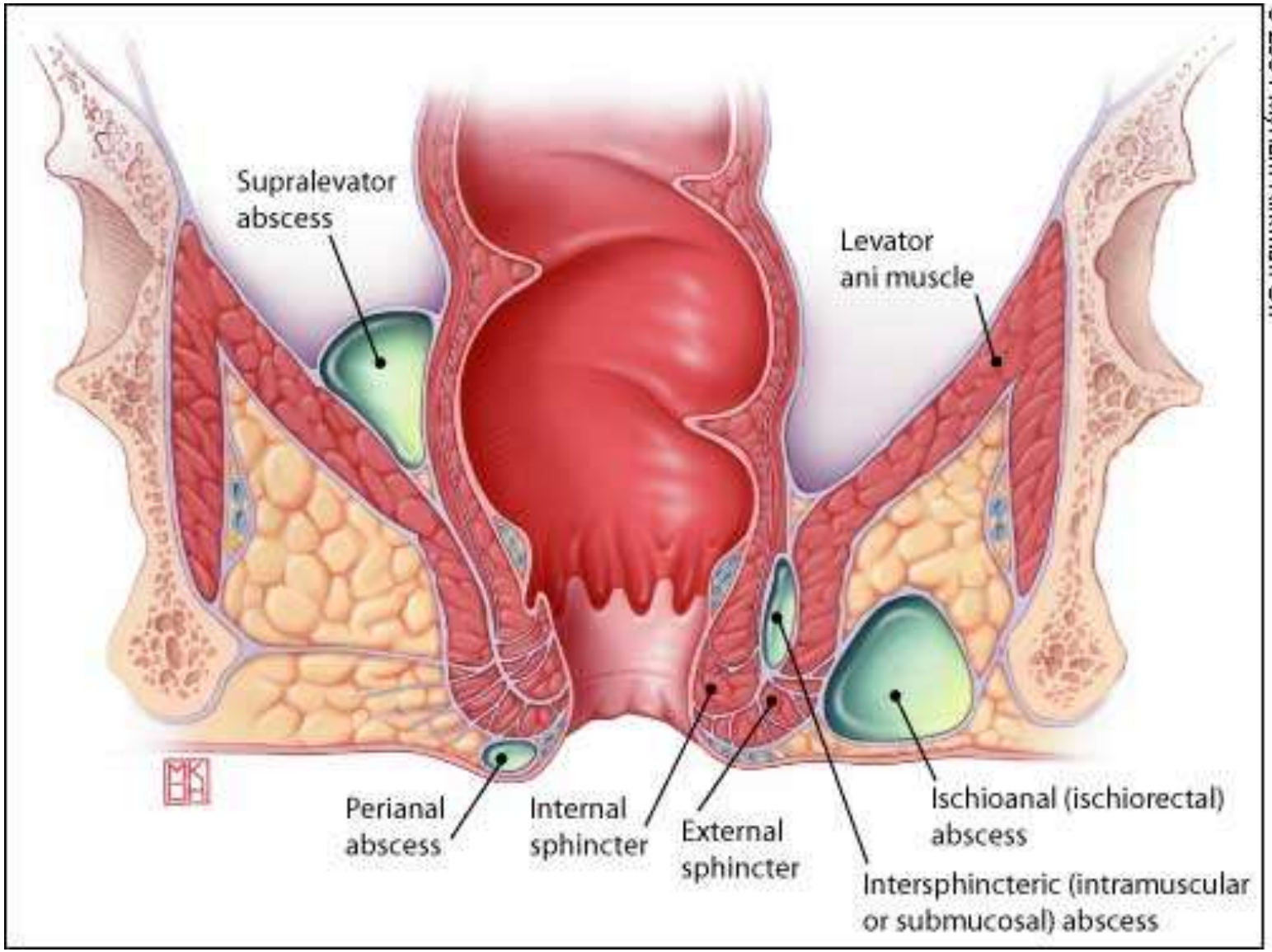
CLASSIFICATION



TREATMENT

- Incision and drainage.
- Determine the most tender point, a 2 cm area of skin is injected with local freezing.
- Eliptical or cruciate incision.
- Drainage of pus. Destroy all loculations.

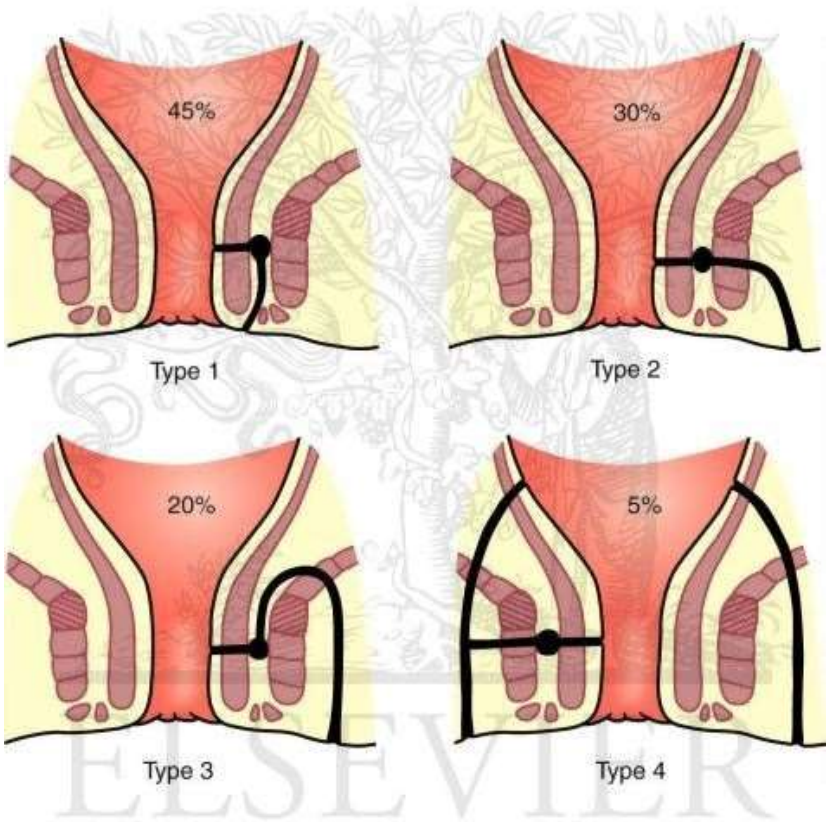
ANTIBIOTICS

- Immunosuppression.
- Valvular disease.
- Diabetics.
- Extensive disease
- Systemic manifestation.

Fistula-in-Ano

- In approximately 30% to 50% of patients with an anorectal abscess fistula-in-ano, develops
- No definitive way to predict:
  - Who will develop one
  - Or how to prevent one
- Fistulas are categorized based on their anatomical course relative to the sphincter complex: (Parks)
  - Intersphincteric
  - Transsphincteric
  - Suprasphincteric
  - extrasphincteric

Anatomical Classification



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Fistula-in-Ano

- Fistulas can also be classified as “simple” or “complex”
- Simple fistulas includes:
  - Low transsphincteric
  - Intersphincteric fistulas that cross 30% of the external sphincter
- Complex fistulas includes:
  - High transsphincteric fistulas with or without a high blind tract
  - Suprasphincteric
  - Extrasphincteric fistulas
  - Horseshoe fistulas
  - Associated with inflammatory bowel disease, radiation, malignancy, preexisting incontinence, or chronic diarrhea
  - Fistulas in the anterior sphincter complex in women may be considered complex as well.

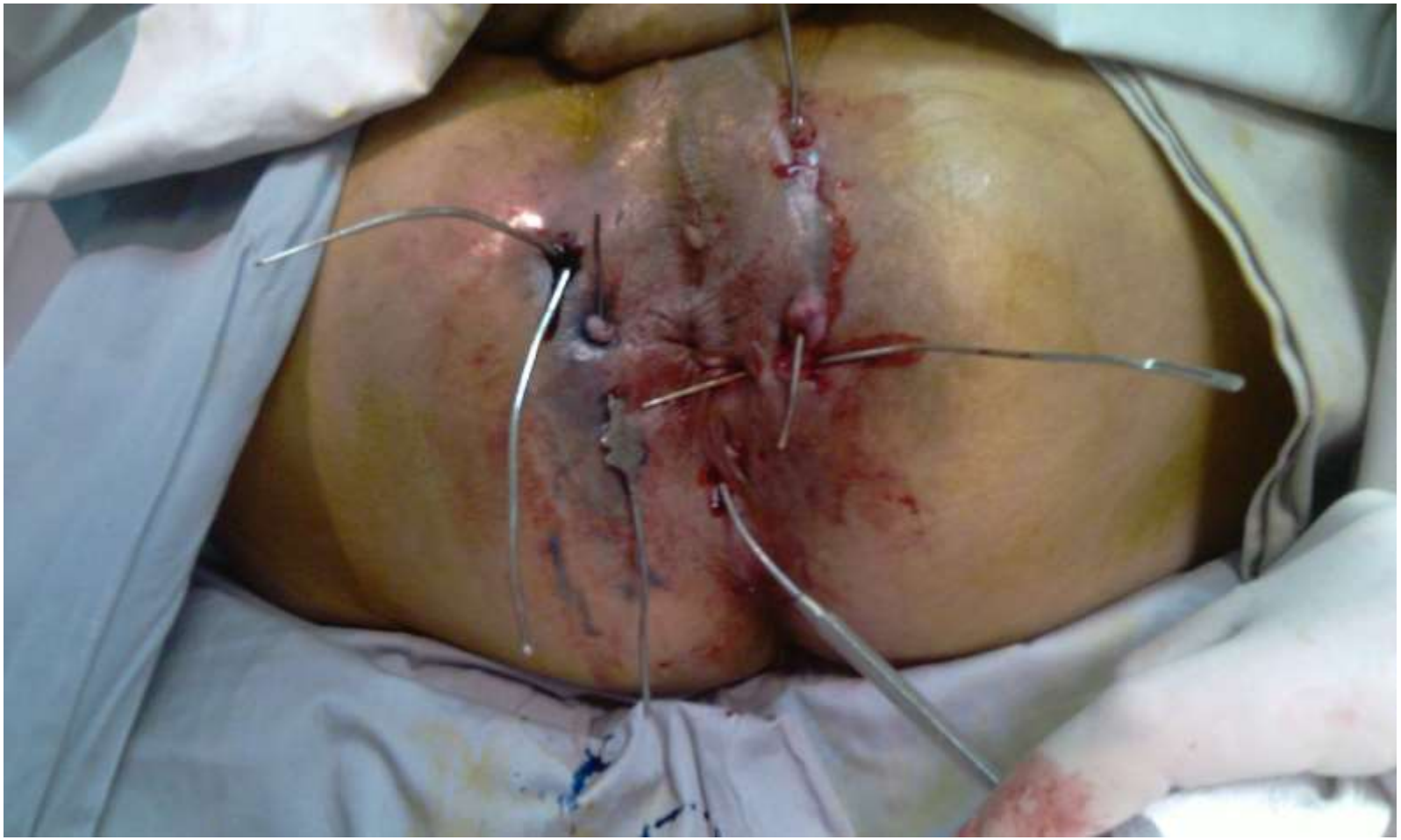
- Types of Anal Fistulas

According to whether their natural opening is below or above the anorectal ring

Low level e.g., subcutaneous, low anal, sub mucous.

High level – open into anal canal at or above the anorectal ring e.g., high anal, pelvirectal

Complex Fistula Malignancy

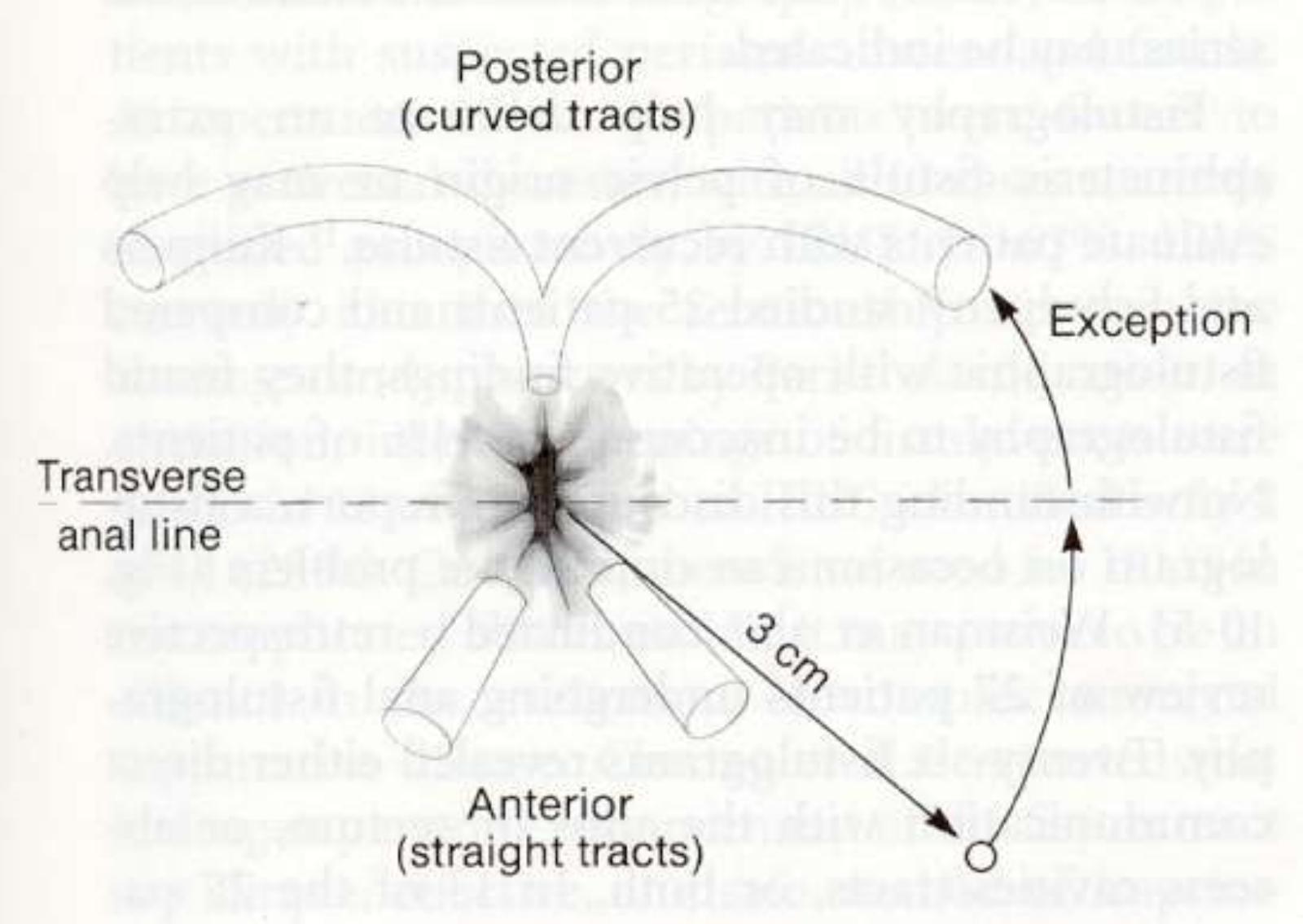


Evaluation of Anal Fistula

- An accurate preoperative assessment of the *anatomy* of an anal fistula is very important.

- *Five essential points* of a clinical examination of an anal fistula :
  (1) location of the *internal* opening.
  (2) location of the *external* opening.
  (3) location of the *primary* track .
  (4) location of any *secondary* track.
  (5) determination of the presence or absence of underlying disease .

Goodsall's rule



TREATMENT

- The objective is to cure with lowest possible recurrence rate and minimal, if any, alteration in continence, shortest period.

- The principles are:

  1- Identification of the primary opening.
  2- Relationship to puborectalis
  3- Least amount of muscles should be divided.
  4- Side tracts should be sought,
  5- Presence of underlying disease.

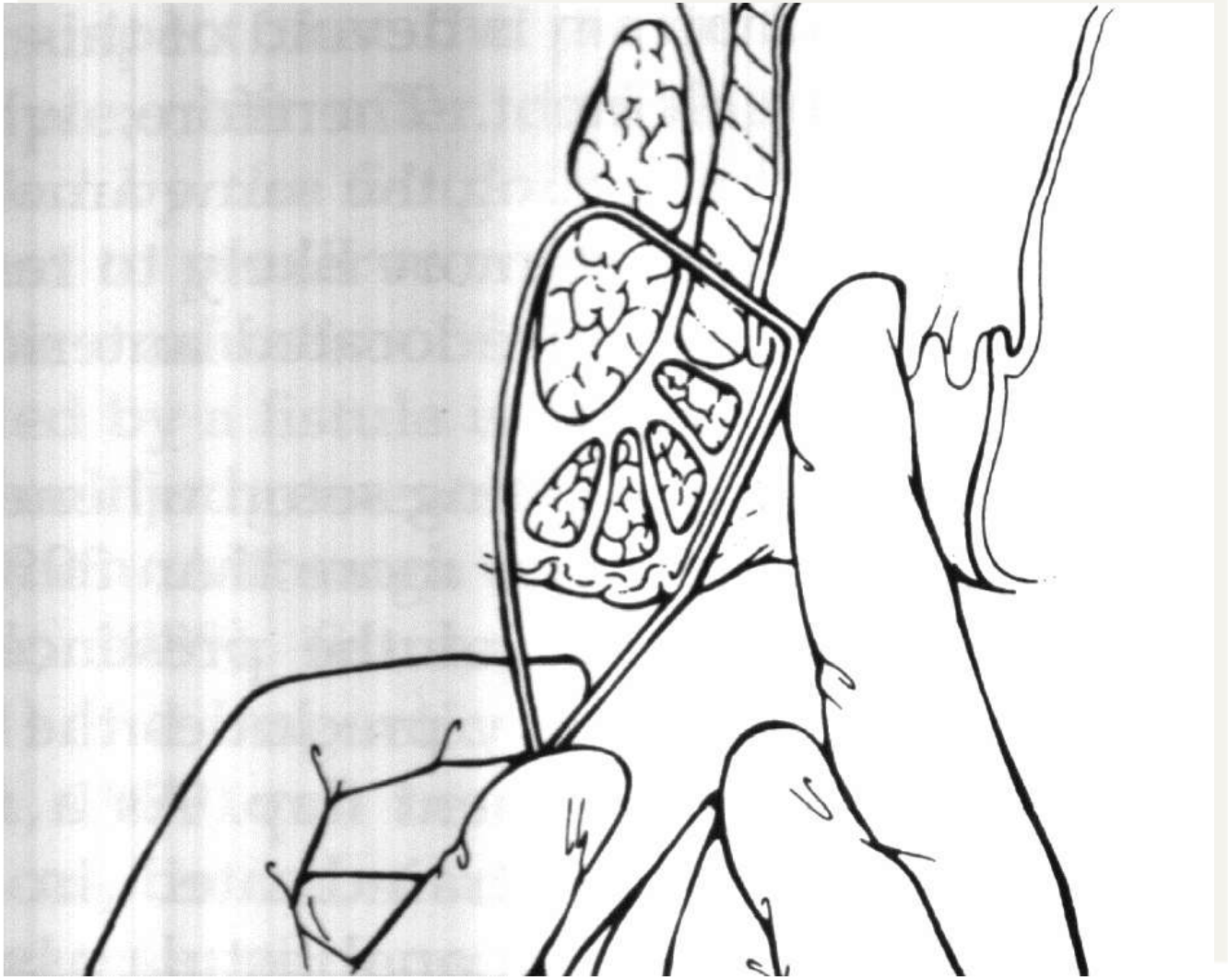
Fistulotomy/fistulectomy

- The laying-open technique (fistulotomy) is useful for 85-95% of primary fistulae .

- Curettage is performed to remove granulation tissue.

- Marsupialization of the edges to improve healing times.

Setons in the Management of Difficult Fistulas



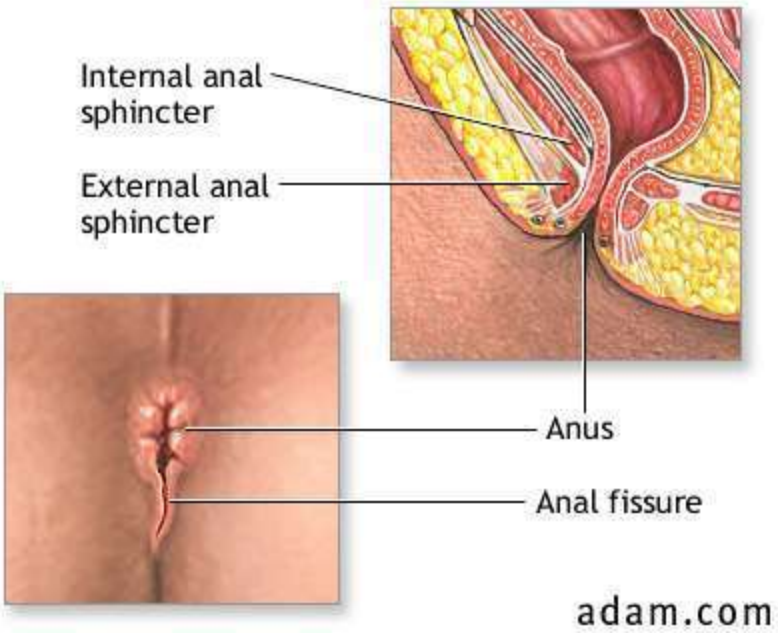
Anal fissure

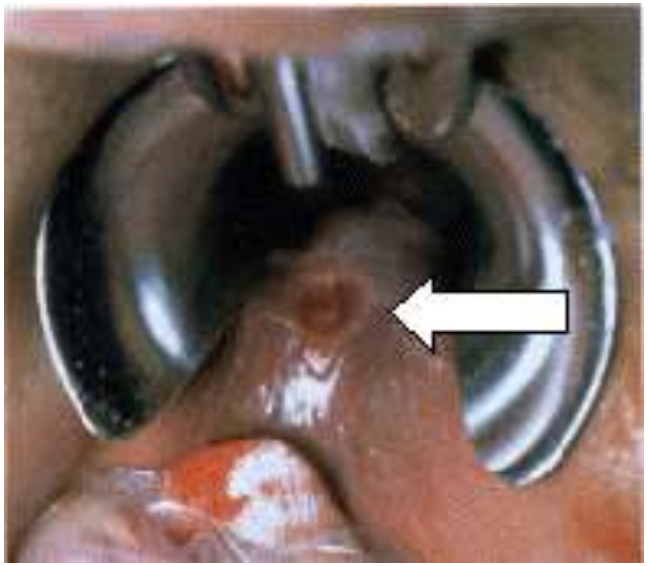
Anal Fissure

- an unnatural crack or longitudinal tear in the mucosa and skin of the anal canal, usually extending from the anal opening and located posteriorly in the midline.

(This location is probably because of the relatively unsupported nature of the rectal wall in that location.)

Lateral fissures are so rare there presence suggest specific lesions such as, Crohn's disease, UC, TB or malignancy.


Internal anal sphincter
External anal sphincter
Anus
Anal fissure
adam.com



Etioloogy / Pathophysiology

- Most anal fissures are caused by stretching of the anal mucosa beyond its capability. Various causes of this fissure include:
- Straining to defecate, especially if the stool is hard and dry
- Severe and chronic constipation
- Severe and chronic diarrhea

Etioloogy / Pathophysiology

- Crohn's disease and Ulcerative colitis
- Anal sex
- Anal stretching
- Insertion of foreign objects into the anus
- Tight sphincter muscles
- Excessive anal probing

Clinical Mainfestations

- Pain during, and even hours after, defecation
- Visible tear in the anus
- Blood on the stool or on toilet paper or toilet bowl
- Constipation
- Burning, possibly painful, itch

Medical Management

- Most anal fissures are shallow or superficial. These fissures self-heal within 2 weeks.

  topical or suppository containing anti-inflammatory agents and local anesthetic can be used.

  high-fiber diet, using stool softener, taking pain killer and having a sitting bath

Medical Management

- Painful deep fissures, on the other hand cut through the sphincter muscle thus making it prone to spasm, which exacerbates the fissure and aborts the healing process. Medications such as nitroglycerine and nifedipine ointments can relax the sphincter muscle
- Surgical intervention anal fissures unresponsive to the above conservative measures. Procedures include: Internal lateral sphincterotomy

What is the differential diagnoses for each of the following common anal symptoms ?

- Anal bleeding
- Anal pain and discomfort
- Perianal itching and irritation
- something coming down
- perianal discharge

Other anal conditions

- Rectal prolapse
- PNS
- Congenital abnormalities
- Anal incontinence
- Pruritus ani
- Non malignant strictures
- Anal neoplasms

Thank you