



Round : General surgery

Group no : B3

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Anal and peri-anal conditions:

Anatomy:

- 🌸 The rectum differs from the colon in that the outer layer is entirely longitudinal muscles , it lacks a mesentry,sacculations and appendices epiploicae.
- 🌟 Anorectal ring formed by the joining of the puborectalis muscle , highest part of the internal sphincter , deep external sphincter, conjoined longitudinal muscle
- 🌟 The anal canal is about 4 cm long and terminate at the anal verge.
- 🌸 External sphincter is a skeletal red single somatic voluntary muscle(goligher) innervated by the pudendal nerve
- 🌸 Internal sphincter smooth muscle (weight in color) inervated by the autonomic nervous system
- 🌸 Puborectalis(levator ani) muscle derives it's nerve supply from the sacral somatic nerves
- 🌸 The dentate(pectinate) line represents the site of the crypts of morgangi (anal crypts or sinuses)

Arterial supply of the rectum and anal canal	
	median sacral artery
	superior rectal artery (inferior mesenteric)
	middle rectal artery (internal iliac)
	inferior rectal artery (internal pudendal)

- 🌟 Intersphinctereric anal glands are wildly considered to be the potential source of anal sepsis. they locate between the voluntary muscle of the external sphincter and the longitudinal muscle

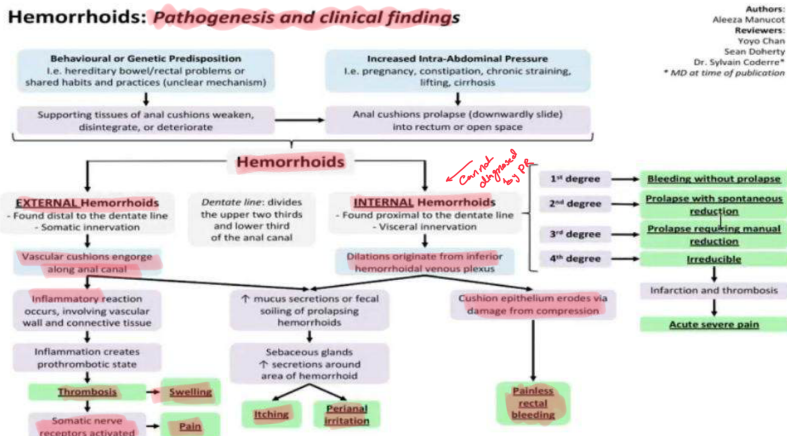
Distinction	Above pectinate line	Below pectinate line
Lymph drainage	internal iliac [1]	superficial inguinal lymph nodes (below Hilton's white line)
Epithelium	columnar epithelium (as is most of the digestive tract - the line represents the end of the part of the body derived from the hindgut)	stratified squamous epithelium, non-keratinized (until Hilton's white line, where the anal verge becomes continuous with the perianal skin containing keratinized epithelium.)
Embryological origin[2]	endoderm	ectoderm
Artery	superior rectal artery	middle and inferior rectal arteries
Vein	superior rectal vein draining into the inferior mesenteric vein and subsequently the hepatic portal system	middle and inferior rectal veins
Hemorrhoids classification	internal hemorrhoids (not painful)	external hemorrhoids (painful)
Nerves	inferior hypogastric plexus	inferior rectal nerves

- 🌟 Cushions(superior to dentate line 3,7,11 o'clock)are composed of a blood vessels Treitz' muscle and elastic connective tissue in the Submucosa(supplied by rectal arteries)

Hemorrhoids:



- 🌸 Hemorrhoids are not varicose veins



✨ The main etiology is chronic constipation but some studies show that the patient with hemorrhoids are not necessarily constipated but tend to have abnormal anal pressure

🌸 Pain per se is not a symptom of uncomplicated hemorrhoids. It may indicate associated disease, such as anal fissure, perianal abscess.

MC presentation is bleeding

✨ Management:

-Rubber Band Ligation **first- & second-** degree haemorrhoids

-Sclerotherapy: injection of sclerosing material: grade 1&2.

-Transanal haemorrhoidal dearterialisation: **second- & third- and fourth-**degree haemorrhoids

-Haemorrhoidectomy: **third- and fourth-**degree haemorrhoids

✖✖ 1st DEGREE → NO PROLAPSE

2nd DEGREE → PROLAPSE WHEN STRAINING

→ RETURN ON RELAXING

3rd DEGREE → PROLAPSE WHEN STRAINING

→ DO NOT RETURN ON RELAXING

→ CAN BE PUSHED BACK INSIDE

4th DEGREE → PERMANENTLY PROLAPSED

Anal Fissure:

Painful linear ulcer in the anal canal extending from **below** the dentate line to margins of the anus

🌸 Constipation (MC predisposing factor)

🌸 Burning pain

recurrence (MC complication)

🌸 90% located midline **posteriorly**

90% heal with medical treatment alone.

90% of patients who undergo an LIS (Lateral internal sphincterotomy) heal successfully.

Anorectal Abscess:

Infection originate in the **Intersphincteric** plane most likely in one of the anal glands

🌸 Throbbing pain

Management: drainage and IV antibiotics

most common Complication after treatment (drainage): Perianal Fistula

Anal fistula:

Opening between perianal skin and the cavity of anal canal

Low level fistula: the internal opening into the anal canal **below** the anorectal ring unlike **high-** level fistula (**above** the anorectal ring)

🌸 Extrasphincteric fistula is the worst

MRI is the imaging of Choice

Management:

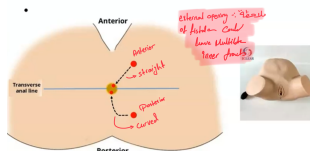
-fistulotomy (mc and effective) (cutting open the fistula tract and allowing to nearby secondary intention)

-Advancement flaps: rapid healing

-Fistulectomy Low rate of the recurrence but a great tissues loss with delayed healing and risk for incontinence

-Seton: used as drain (carries a significant risk of incontinence)

The Goodsall rule, used clinically to predict the course of a fistula tract



Pilonidal sinus:(hair and nidus)

Sinus containing hair found between the Buttocks

- More common in teens and young adults
- common initial presentation is abscess
(no association with cancer but has high recurrent rate)

Rectal prolapse:

Protrusion of a few or all(procidentia) layers of the erected in mucous membrane through the anus.

- Mainly in children <4yrs (M=F).

Can be caused by increased intra-abdominal pressure, parasitic infection, neoplasm, cystic fibrosis, ehler Danlos syndrome.

protruding mass during defecation and straining is the main complain

Feeling of incomplete evacuation

Treatment : Surgery (ventral sacro-rectopexy)

Extra Note : proctalgia fugax: Severe rectal pain , suddenly, Intermittant, often at night, cramp-like and felt deep inside the true pelvis for few seconds and passes off spontaneously , without an identifiable cause on examination or imaging , associated with IBS

1. A 41-year-old woman has prolapsing tissue and bright red blood on the toilet paper after bowel movements. Physical examination reveals two large, pink nonreducible columns of mucosa protruding from her anal canal. Which is the most likely complication following surgical treatment of her anorectal disease?

- a. Sphincter injury
- b. Bleeding
- c. Infection
- d. Urinary retention**
- e. Anal stenosis

1. Answer: d. This patient presents with stage IV internal hemorrhoids and undergoes surgical excision. While each of the listed answers are potential complications of excisional hemorrhoidectomy, urinary retention is the most common, occurring in up to 20% of patients in some series. Limiting IV fluid administration has been shown to decrease this risk most effectively (Int J Colorectal Dis. 2006;21(7):

2. A 68-year-old man has perianal mucus and pain. Physical examination reveals a posterior fistula. On examination under anesthesia, you discover the fistula crosses the internal and deep external anal sphincters with a small underlying abscess cavity. Which is the most appropriate treatment at this time?

- a. Fistulotomy using electrocautery over the entire fistula tract
- b. Division of the internal sphincter using electrocautery and placement of seton encircling the external sphincter**
- c. Diverting colostomy
- d. Antibiotics only
- e. Anal advancement flap

2. Answer: b. This patient presents with a transsphincteric fistula and abscess that is partially open and draining. First, control of the inherent infection must be gained; this is achieved by incision of the internal sphincter to drain the abscess. Then, definitive therapy should be pursued with seton placement to allow wound to granulate and heal, although future intervention may be needed. Complex sphincterotomy of the internal and external sphincters simultaneously should not be performed during first stage of transsphincteric fistula excision due to high rates of residual incontinence. While advancement flap may be required in the future, it would not be indicated with an abscess present.

3. A 36-year-old woman presents to clinic complaining of incontinence to soft stool at least once a week. She recently recovered from her fourth vaginal delivery, which was complicated by a third-degree perineal tear. On digital rectal examination, you note little change in tone when the patient attempts to contract her pelvic floor. Which component of the anal sphincter mechanism is most likely dysfunctional?

- a. The internal sphincter
- b. The external sphincter**
- c. The sacral nervous plexus
- d. The puborectalis muscle
- e. The rectal-anal inhibitory reflex

3. Answer: b. Anal sphincter function requires synchronized function of the puborectalis, internal anal sphincter, and external anal sphincter. The internal anal sphincter, innervated by the sympathetic and parasympathetic fibers of the autonomic nervous system, is responsible for 80% of the resting pressure of the complex. The external sphincter, under somatic nerve control, contributes most to voluntary contraction. The external sphincter can become damaged during perineal trauma such as complications of vaginal deliveries.

4. A 54-year-old woman has anal pain and blood on the toilet tissue after defecation. Physical examination reveals a 2- to 2-cm ulcer within the anal canal. Biopsy of the ulcer returns as squamous cell carcinoma. Which of the following is the appropriate treatment?

- a. Low anterior resection with diverting ileostomy
- b. Abdominoperineal resection
- c. Primary chemoradiation therapy**
- d. Wide local excision, skin grafting, permanent colostomy
- e. Wide local excision and primary closure

4. Answer: c. For anal squamous cancers under 5 cm in size, chemoradiation under the Nigro protocol is the first-line treatment.

5. A 75-year-old man has a perianal pruritic, erythematous rash. Biopsy reveals Paget disease. Which of the following is correct regarding Paget disease?

- a. Regardless of level of invasion, all patients require abdominoperineal resection.
- b. Since Paget disease is an intraepithelial neoplasm, patients do not require colonoscopy.
- c. Extramammary Paget disease is most common in 20- to 30-year-old women.
- d. Fulguration with laser or electrocautery is the most effective treatment.
- e. Wide local excision is the most appropriate treatment in noninvasive disease.**

5. Answer: e. Extramammary Paget disease is a cutaneous adenocarcinoma in situ. It is characterized by large, pale, ulcerated plaques with central crusting and peripheral erythema. It is associated with additional digitalis from radiography, therefore, further investigation of potential malignancy is warranted. For extramammary disease, wide local excision is treatment of choice. However, radical mastectomy with axillary node dissection is indicated in mammary Paget disease.

5. A 26-year-old man has severe anal pain during and after bowel movements for the past 6 weeks. Physical examination reveals a split in the anoderm in the posterior midline with a skin tag just inferior to the wound. Which of the following is correct regarding this condition?

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- a. Lateral sphincterotomy is associated with poor rates of resolution.
- b. Fissurectomy is the mainstay of treatment.
- c. Ninety percent of patients heal with medical treatment, including fiber, sitz baths, and topical nifedipine ointment.**
- d. An equal number of fissures occur posteriorly as anteriorly.
- e. The anal fissure triad consists of internal hemorrhoid, sentinel skin tag, and fissure.

6. Answer: c. Anal fissures are commonly located in the posterior midline and overwhelmingly respond to medical therapies. The "anal triad" classically includes a deep ulcer, sentinel pile, and enlarged anal papillae superior to the ulcer. Fissurectomy is rare, and lateral sphincterotomy is highly effective but accompanied by the potential for morbidity and incontinence.