WHAT ARE HEMORRHOIDS?

- **Sinusoids** (thin-walled terminal blood vessels with large pores for optimal permeability) that become **varicose** (swollen, inflamed, dilated, distended)
  - Arrange in pillow-like clusters beneath mucous membranes lining anal canal → cushion and control stool
- Hemorrhoid etymology = "liable to discharge" → perception that hemorrhoids bleed
- Aka **piles** ("ball-like): look of external hemorrhoids; downward push/prolapse (sx!!)
- **Blood clots** → constipation

ANORECTAL ANATOMY:

Rectum	• Stores about 1 L of feces

Anorectal line	• "Denate" or "pectinate" like
	  ○ Above the line = colonic columnar epithelium
	  ▪ Dull, noxious stimuli
	  ○ Below the line = squamous epithelium
	  ▪ Rich innervation, acute sensations (cold/heat/pain)

Columns of Mogagni	• Folds above anorectal line that form pockets (crypts) which may contain mucous glands
Pelvic floor	• Complex series of musculature manipulating the angle of the rectum • Maintain continence and contributes to defecation
External/ internal sphincters	• Help continence and defecation
Anal canal	• Passageway between rectum and anal verge (2-3 cm length)

Anal cushions	• Located above dentate line, surrounds anal canal
	• Do not make you comfy when sitting
	• NOT varicosities
	• Muscle tissue that is richly vascularized with arterioles and venules somewhat like erectile tissue (arteriovenous plexis)
	• Connected to sphincters via suspensory connective tissue and muscle
	• Serves 2 functions
	  ○ Continence – normal disgorged state acting as seal
	  ○ Defecation – congested engorged state = reduces trauma to anal canal and molds stool

Anal verge	• Anorectal exit

PATHOPHYSIOLOGY OF HEMORRHOIDS: anal cushion displacement theory

- Chronic straining: anal cushions become congested (↓venous return) & bulge out
- Connective tissue of anal cushions become weaker (due to shearing, pregnancy, old age) causing cushions to descend
- Bulge + distal location = hemorrhoid symptoms

INTERNAL VS. EXTERNAL HEMORRHOIDS:

INTERNAL	• Above dentate line = not sensitive to pain, touch, or temperature
	• 4 stages of severity (first 3 stages are painless)
	  1. Swelling (blood vessel prominent) but no prolapse
	  2. Prolapse, but returns to normal position after defecation
	  3. Prolapse that must be manually replaced
	  4. Prolapse that cannot be replaced (strangulated mass can produce blood cloth)
	  ▸ Painful and at risk of necrosis
	• Can be asymptomatic, but S/S include:
	  ○ Small amount of **bright red blood** usually on tissue when wiping or threaded in toilet bowl (shearing force of feces)
	  ○ Sense of fullness and discomfort
	  ○ Mucous discharge & increased moisture (from irritated crypts & inflamed tissue)
	  ○ Fecal soiling esp. in Stages 3-4 (prolapse compromises seal)
	  ○ Burning, soreness (regular skin becomes macerated and mucous epithelia is drier and irritated)
	  ○ Bluish bulging vessels covered w/ mucosa revealed on prolapse

EXTERNAL	• Below dentate line = anal discomfort, itching pain
	• Mostly asymptomatic, but S/S include:
	  ○ Bluish soft bulging tissue covered by anoderm
	  ○ If thrombosed = pain !!
	• Thrombus → ischemia (overlying tissue = necrotic, thin & may bleed)
	  ○ Repeated occurrences can form skin tags (= prior thrombosed, scarred external hemorrhoid without blood supply)
	  ○ Tags can cause itching, interference with hygiene

CAUSES OF HEMORRHOIDS:

- Exact cause is unknown
- Activities of chronic straining
  - Ex// constipation or diarrhea
    - Requires prolonged sitting & straining
    - Lots of futile straining → pelvic floor relaxed → anal cushions are unsupported

RISK FACTORS OF HEMORRHOIDS:

- Pregnancy: raised intra-abdominal pressure
  - Increases congestion and softens connective tissue
- Prostate enlargement
- IBS, Ulcerative colitis, Crohn's disease
- Rigorous anal stimulation; constipation or diarrhea
- Chronic cough
- Chronic sitting or standing
- Age (prevalence increases gradually until 70s)
  - Red flag: unusual in age < 12 y/o
- Western diet (white flour, sugar, low-fibre)

LONG-TERM CONSEQUENCE OF HEMORRHOIDS:

- Hemorrhoids usually not problematic
- **Anemia**: long-term bleed rarely causes anemia but may be important factor in elderly
- **Gangrene** & **sepsis** (rare) in prolonged prolapsed hemorrhoids
- Higher risk of infections for **immunocompromised pts**
- Currently no evidence to suggest increased risk of rectal cancer

SELF CARE VS. PHYSICIAN CARE:

- Based on a US study, when patients complaining of anorectal symptoms see you:
  - 50% have Grade I and II hemorrhoids
  - 19% have thrombosed hemorrhoids
  - 31% have serious anorectal conditions including abscess, fissures colorectal cancer, fistulas, IBDs, cryptitis, HPV infection

WHEN SHOULD YOU REFER TO A DOCTOR?

- Stage 3 or 4 internal hem & thrombosed external hem
- Stage 1/2 internal hem not responsive to conservative therapy
- Persists for > 7 days even with treatment
- If first time bleeding from anus
- If have history of hemorrhoid, refer if large amount of blood or blood is dark, or if recurrent
- < 12 yo (structural abnormality, pinworms, sexual abuse)
- High risk of colorectal cancer
  - > 50 years old
  - Personal or family history
  - Abdominal pain or discomfort
  - Altered bowel habits
  - Unexplained weight loss

TAKING A PROPER HISTORY:

- Color or character of bleed? Presence of mucus?
- Do symptoms coincide with defecation?
- Is there concurrent bowel condition (constipation or diarrhea)?
- Medical conditions? Current medications? Blood thinners?
- Recent pregnancy?
- Digital-rectal exam or proctoscopy/anoscopy
  - Not always necessary

TO TREAT OR NOT TO TREAT:

- Don't treat with pharmacological therapy if pt is asymptomatic
- Hemorrhoids are harmless on their own (self-limiting = 1-2 wk)
- If there are symptoms, goal is sx management & prevention of hemorrhoids

NON-PHARMACOLOGICAL THERAPY: STAGE 1 AND 2 HEMORRHOIDS

- Increased fluid intake
- Lose weight and increase exercise
- Do not postpone urge to defecate
- Keep toilet bowl visits short (2 mins at a time)
- Avoid straining
- Prolapse = use wet toilet paper to replace
- Clean perianal area with mild soap and cool water, pat dry
- Sitz bath = soak bum in warm (not hot) tepid water for 15 mins tid-qid
  - No evidence to support but anecdotally soothing and relaxes sphincters
  - Some incidence of delayed wound healing and skin infections reported
- Avoid using donut-ring cushions

FIBRE THERAPY (CONSERVATIVE TXT): 20-30 g soluble fibers (psyllium) + lots of water

- First line for treating & preventing Grade 1 and 2 hemorrhoids
  - May be useful for prevention of Grade 3 hemorrhoids
- Cochrane review:
  - 50% of pts experience reduction in bleeding & improvement in sx
  - Reduction in itching and pain but NSS
  - No difference in prolapse
  - Bloating as side effect of fiber intake but NSS
  - Reduction in recurrence of Stage 3 hemorrhoids after rubber band ligation

NON-CONSERVATIVE TECHNIQUES: for medical treatment-resistant hemorrhoids

Hemorrhoidectomy	• < 3% recurrence so very effective but has most post-op discomfort and longest recovery time • Most invasive and therefore not first-line
Stapled-hemorrhoidopexy	• Circular device that excises excess tissue and staples anal cushions to rectal wall
Rubber-band ligation	• Use tight band to cut of blood supply to involved tissue • Most effective of the non-invasive techniques
Infrared/laser/ electrocoagulation	• Fewest side effects • Requires repeat therapy
Sclerotherapy	• Not very effective
Cryosurgery	• Lots of discomfort

PHARMACOLOGICAL THERAPIES (CONSERVATIVE TX):

- Medications should play a small role in treatment of hemorrhoids but are commonly prescribed in practice
- Topical OTC or Rx treatments
  - No good RCTs available, no comparative trials
  - No consistent symptom scoring guidelines
  - Symptomatic relief (do not cure condition)
- Creams/ointments/suppositories
  - No need to apply deep into rectum
  - Finger cots are useful for aesthetic reasons
  - Mostly used for external applications
- Suppositories lubricate but little role in external symptoms
- Rectal pipes/syringes
  - No need to apply deep into rectum
  - Not recommended for people who have poor manual dexterity

PHARMACOLOGICAL TXT SPECIFIC TO BOWEL CONDITION:

- Treat underlying causes of constipation & diarrhea
- Constipation: bulk-forming laxatives, PEG laxatives, docusate OK
  - Do not usually consider stimulant or osmotic laxatives → chronic use leads to fluid/electrolyte imbalance, colonic atony, flatulence, cramping
- Diarrhea: usual therapy

CHOOSING RATIONALLY:

1. Check age, risk factors, medical conditions, and allergies
2. Confirm S/S consistent with hemorrhoids
3. Choose conservative therapy (fibre)
4. OTC medications for Stage 1 (maybe 2)
5. Refer if all others or if painful hemorrhoids

RX: ANESTHETICS

Product	Pramoxine, benzocaine, cinchocaine, dibucaine
Indication	• Used externally for temporary relief of **pain, itch, irritation of anal canal & perianal area** • Not useful in rectum • Use only for few days d/t **sensitization** of anal skin
SE	• Hypersensitive reaction is likely with benzocaine and dibucaine • Pramoxine preferred
DI	• Unlikely to interact
Evidence	• Little evidence of efficacy

RX: ASTRINGENTS

Product	Bismuth, hamamelis (witch hazel), zinc oxide or sulfate
Indication	• Temporary soothing relief of itching, discomfort, irritation and burning • Lessens mucus secretions and protects skin via protein precipitation effect
SE	• Probably none
DI	• Unlikely
Evidence	• Little evidence of efficacy

PROTECTANTS

Product	Glycerin, shark liver oil, white petrolatum, zinc oxide, calamine, cod liver oil, mineral oil, cocoa butter, aluminium hydroxide gel
Indication	• Block tissue from irritation and prevent excessive water loss from epithelial tissue • Also provides soothing relief & lubrication
SE	• Unlikely topically • Glycerin may irritate and cause burning sensation if applied in anal canal
DI	• Unlikely to interact
Evidence	• Little evidence of efficacy

VASOCONSTRICTORS:

Product	Epinephrine, naphazoline, phenylephrine
Indication	• Temporary relief of engorged tissue (mins-hrs) by constricting blood vessels
CI	• Do not use in patients with rectal bleeds without confirmation from doctor • Caution in HTN, BPH, diabetes
SE	• Unlikely • Increased BP and HR
DI	• Unlikely • MAOIs and RIMAs may theoretically increase BP
Evidence	• Little evidence of efficacy • Not often used

WOUND HEALING AGENTS:

Product	Shark liver oil, live yeast cell derivative
Indication	• Apparently help increase healing rate of hems • Relief likely due to lubricating effects
SE	• Probably none topically • Avoid in immunocompromised?
DI	• Probably none
Evidence	• Questionable efficacy & insufficient evidence

CORTICOSTEROIDS: hydrocortisone

Indication	• Antimitotic, vasoconstrictive, reduces inflammation
CI	• Do not use more than 7 days to reduce risk of skin atrophy, fungal and viral infections
SE	• Mucosal atrophy & yeast infections • Burning esp. if mucus membrane not intact
DI	• Unlikely
Evidence	• No solid evidence (no RCTs) showing improvements in hemorrhoid symptoms

ANTISEPTICS AND ANTIBIOTICS:

Products	Domiphen (mouthwashes), framycetin (aminoglycoside)
Indication	• For cleansing perianal area, preventing infection and to increase wound healing
SE	• None for domiphen • Burning sensation & sensitivity to framycetin
DI	• None
Evidence	• No studies specific to hemorrhoids • Unknown efficacy

GLYCERYL TRINITRATE OINTMENTS:

Indication	• Immediate but partial relief of thrombosed external and stage 4 internal hemorrhoids
SE	• Headache, dizziness
CI	• PDE5 inhibitors

PHLEBOTONICS (ORAL BIOFLAVONOIDS):

Products	• Includes diosmin, rutosides, hidrosmin, hesperidin, esculin
Indication	• MOA unclear - Anti-inflammatory? Affects lymphatic drainage or capillary permeability? • Reduction in symptoms, acute bleeds, days bleeding, pain, recurrences
SE	• Very few long-term safety studies and no comparative studies make phlebotonics difficult to recommend

ANUREX (1st or 2nd degree internal hemorrhoid):

- The only OTC cryotherapy in market
- Applicator's content freezes in refrigerator & cools surrounding hemorrhoidal tissues → shrinks blood vessels and soothes tissue
- Leave in anus for about 6 minutes
- May use up to 4 times daily

COMMON PRODUCTS:

Anusol	Zinc sulfate
Anusol Plus	Zinc sulfate and pramoxine
Preparation H Cooling Gel	Hamamelis, phenylephrine
Prepation H	Shark liver oil and yeast
Tucks	Hamemalis, glycerin
Hemcort HC, Anusol HC	Zinc sulfate, HC
Proctomyxin, proctosedyl	Anesthetic, framycetin, esculin, hydrocortisone
Protofoam HC	Hydrocortisone 1%, pramoxine

TREATMENT AND MANAGEMENT:

	Used for	Ingredients	AEs	Evidence
Local anesthetic	Itching, irritation	Benzocaine, pramoxine	Contact dermatitis, systemic	No
Steroids	Inflammation	Hydrocortisone	Mucosal atrophy	No
Antiseptics	Microbial growth	Domiphen	Burning	No
Astringents	Irritation, burning	Bismuth, witch hazel, zinc	None?	No
Protectants	Irritation, prevent water loss	Glycerin, shark liver oil, zinc	None?	No
Vaso-constrictors	Inflammation	Naphazoline, phenylephrine	Systemic	No

POST-OPERATIVE CARE:

- Pain due to anal spasms, especially with hemorrhoidectomy
  - Can be managed with oral NSAIDs
  - Careful with narcotics → constipation
- Constipation = increases bleeds and pain, suture breakdown and loosening staples
  - Stool softeners and bulking agents recommended to prevent constipation
- May need Rx to improve post-op pain
  - Topical metronidazole 10% gel improves wound-healing & pain
  - Topical diltiazem 2% or GTN 0.2% reduces anal sphincter tone and anal spasms