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 dots → constipation

INTERNAL VS. EXTERNAL HEMORRHOIDS:

PATHOPHYSIOLOGY OF HEMORRHOIDS:

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 Morgagni
- 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 plexus)
- Connected to sphincters via suspensory connective tissue and muscle
- Serves 2 functions
  - Continence – normal disgorge state as seal
  - Defecation – congested engorged state = reduces trauma to anal canal and molds stool

Anal verge
- Anorectal exit

LONG-TERM CONSEQUENCE OF HEMORRHOIDS:

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)

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
- High risk of colorectal cancer
  - > 50 years old
  - Personal or family history
  - Abdominal pain or discomfort
  - Altered bowel habits
  - Unexplained weight loss

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
- Persist 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?
- Personal or family history
- Weight changes or other symptoms
- Do symptoms persist or recur?
- Does patient report of altered bowel habits?
- 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 anecdotaly 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 off 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**
- Pramoxine, benzocaine, cinchocaine, dibucaine

**RX: ASTRINGENTS**
- Bismuth, hamamelis (witch hazel), zinc oxide or sulfate

**PROTECTANTS**
- Glycerin, shark liver oil, white petrolatum, zinc oxide, calamine, cod liver oil, mineral oil, cocoa butter, aluminium hydroxide gel

**VASOCONSTRICTORS:**
- Epinephrine, naphazoline, phenylephrine

**WOUND HEALING AGENTS:**
- Shark liver oil, live yeast cell derivative

**CORTICOSTEROIDS:**
- Hydrocortisone

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**Evidence**
- Little evidence of efficacy

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**Di**
- Unlikely to interact

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**SE**
- Probably none

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**CI**
- Do not use more than 7 days to reduce risk of skin atrophy, fungal and viral infections

---

**Evidence**
- Little evidence of efficacy

---

**Di**
- Unlikely

---

**SE**
- Probably none

---

**Evidence**
- Questionable efficacy & insufficient evidence

---

**CI**
- Do not use more than 7 days to reduce risk of skin atrophy, fungal and viral infections

---

**Di**
- Unlikely

---

**SE**
- Probably none

---

**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
- **DI**: None
- **Evidence**: No studies specific to hemorrhoids

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

TREATMENT AND MANAGEMENT:

<table>
<thead>
<tr>
<th>Used for</th>
<th>Ingredients</th>
<th>AEs</th>
<th>Evidence</th>
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</thead>
<tbody>
<tr>
<td>Local anesthetic</td>
<td>Itching, irritation</td>
<td>Benzocaine, pramoxine</td>
<td>Contact dermatitis, systemic</td>
</tr>
<tr>
<td>Steroids</td>
<td>Inflammation</td>
<td>Hydrocortisone</td>
<td>Mucosal atrophy</td>
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<tr>
<td>Antiseptics</td>
<td>Microbial growth</td>
<td>Domiphen</td>
<td>Burning</td>
</tr>
<tr>
<td>Astringents</td>
<td>Irritation, burning</td>
<td>Bismuth, witch hazel, zinc</td>
<td>None?</td>
</tr>
<tr>
<td>Protectants</td>
<td>Irritation, prevent water loss</td>
<td>Glycerin, shark liver oil, zinc</td>
<td>None?</td>
</tr>
<tr>
<td>Vaso-constrictors</td>
<td>Inflammation</td>
<td>Naphazoline, phenylephrine</td>
<td>Systemic</td>
</tr>
</tbody>
</table>

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