HEMORRHOIDS: YOU MAY NOT WANT TO SIT DOWN

JOHNATHON DUFTON, MD
Hemorrhoids: You May Not Want to Sit Down

ACTIVITY DESCRIPTION
Hemorrhoids are veins that are varicose (swollen or dilated) located around the anus. They can occur internally or externally, usually arise due to blood clots and are frequently very painful. Hemorrhoids occur in both sexes equally and incidence is highest between the ages of 45 and 65. It’s believed that symptomatic hemorrhoids affect at least 50% of the U.S. population at some point during their lives, and ~5% are affected at any given time. A variety of pharmaceutical preparations help to treat the pain and inflammation of hemorrhoids, although there are some natural remedies and lifestyle choices that are beneficial also. As a last resort, surgical options exist too.

TARGET AUDIENCE
The target audience for this activity is pharmacists and pharmacy technicians in hospital, community, and retail pharmacy settings.

LEARNING OBJECTIVES
After completing this activity, the pharmacist will be able to:

- Describe the pathophysiology, frequency and implications of hemorrhoids.
- Outline the natural / non-pharmacological methods used to treat hemorrhoids.
- Compare and contrast the most common pharmaceuticals used to hemorrhoids, including mechanisms of action and potential side effects.

After completing this activity, the pharmacy technician will be able to:

- List the natural / non-pharmacological methods used to treat hemorrhoids.
- List the pharmacological methods used to treat hemorrhoids.

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Medical Writer & Speaker, Wellness Partners

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Hemorrhoids:
You May Not Want to Sit Down

Johnathon Dufton M.D.

History of Hemorrhoids

- First mention of condition is from ancient Egypt
  - Papyrus recommends acacia leaves for relief
- Hippocratic corpus discusses a treatment for hemorrhoids similar to rubber band ligation
- Celsus described ligation & excision methods and discussed possible complications of hemorrhoids
- Galen advocated severing blood vessels, claiming it reduced pain and potential for gangrene
- In Medieval Europe, hemorrhoids were called Saint Fiacre’s curse
- First use of the word “hemorrhoid” occurred in late 14th century
- Word derived from Latin and means “liable to discharge blood”

Brief Description

- Hemorrhoids are sinuses (intermediary between arteries / veins) that are varicose (swollen, inflamed, distended or dilated)
- These vessels are arranged in pillow-like clusters that lie just beneath the mucous membranes lining the distal part of the anal canal (rectum and anus)
- Normally these vessels act as a cushion and help with stool control
- They can occur internally or externally
- Frequently very painful, but not always
- They usually arise due to blood clots and are linked to constipation
- Also called piles (“ball-like”) → the look of external hemorrhoids
**Signs & Symptoms**
- symptoms depend on the location -- internal hemorrhoids lie inside the rectum and don’t often lead to discomfort
- external hemorrhoids are under the skin around the anus and are much more symptomatic
- bleeding (bright red) during bowel movements -- often painless
- leakage of feces and/or poor control of defecation
- itching, irritation, pain and/or discomfort in anal region
- swelling / inflammation around the anus → difficulty sitting
- sometimes blood may pool in an external hemorrhoid and form a clot (thrombus), resulting in severe pain & inflammation
- the pain can resolve in as little as 2-3 days; inflammation may take a few weeks to disappear

**Signs & Symptoms cont’d**
- many people who suffer from the condition have both internal and external hemorrhoids concurrently → “double whammy”
- straining on the toilet can push an internal hemorrhoid through the anal opening (prolapse)
- irritation from wiping can damage a hemorrhoid’s delicate surface and result in profuse bleeding
  - anemia a concern
- other less common symptoms may include mucous discharge, tarry stool, faintness
- most people feel embarrassed when experiencing hemorrhoids and seek medical care only when symptoms are advanced

**Internal Hemorrhoids**
- internal hemorrhoids are typically painless, even when they bleed, but they may prolapse (extend beyond the anus) and lead to severe problems, such as pruritus ani or necrosis

**External Hemorrhoids**
- blood clots (thrombi) can form, creating sudden & severe pain
- overlying skin from “piles” becomes irritated, erodes & bleeds
- the clot usually dissolves, leaving excess skin behind ([skin tag])
### Complications
- Complications of hemorrhoids are relatively rare, but can include:
  - **Anemia**: chronic blood loss leads to not enough iron for hemoglobin & healthy RBC synthesis → not enough O2 for cells
    - results in pale skin, fatigue & weakness
  - **Infection**: rupture and bleeding of hemorrhoidal tissue provides opportunity for infection, especially bacteria from feces
    - can eventually result in septicemia
  - **Anal Fibrosis**: as inflamed hemorrhoids eventually become fibrosed, there may be associated hardening of the anal orifice
  - **Strangulated Hemorrhoid**: if blood supply to an internal hemorrhoid is cut off, it may become "strangulated" which can cause extreme pain and lead to tissue necrosis & gangrene

### Causes
- Technically, everyone has hemorrhoids as they are a reflection of normal anatomy, but the term has come to infer pathology
  - the term "piles" is more descriptive as it refers to the swollen ball-like appearance of protruding external hemorrhoids
  - Pathology occurs when there is an increase in pressure in the lower rectum and small blood vessels that make up the hemorrhoid, causing them to swell and engorge w/ blood
  - Increased pressure may be caused by a variety of factors:
    - straining during bowel movements, chronic constipation or diarrhea, prolonged sitting on the toilet, giving birth
    - recent studies show that some patients w/ hemorrhoids tend to have higher anal canal tone → smooth muscle there is tighter

### Risk Factors
- **Age**: hemorrhoids are more likely w/ advancing age because the connective tissues that support the blood vessels in the rectum and anus gradually weaken and stretch
- **Obesity**: greater risk of straining the anal canal
- **Pregnancy**: enlarging uterus puts pressure on associated vessels
- **Previous Rectal Surgery**
- **Anal Sex**: high risk of damaging anal membranes and associated hemorrhoids, as well as spreading infection / STDs (inflammation)
- **Low-Fiber Diet**: increased risk of constipation, smaller stools
- **Spinal Cord Injury**: lots of sitting

### Pathophysiology
- Hemorrhoids are sinusoids and connective tissue w/in the smooth muscles of the walls of the rectum and anus
- They contribute to 15-20% of anal closure pressure at rest and protect the anal sphincter muscles during the passage of stool
- They are classified as internal or external according to where they are located in relationship to the pectinate line, the dividing point between the upper 2/3 and lower 1/3 of the anus
- This is an important anatomic distinction because of the type of cells and the number of nerve endings involved
- Internal hemorrhoids are above the pectinate line and are covered w/ cells like those that line the rest of the intestines
- External hemorrhoids are below the line and covered w/ cells that resemble skin (squamous epithelium) → involve more nerve fibers
Pathophysiology cont’d

• the division between internal and external hemorrhoids is the pectinate (dentate) line
• the anoderm is the lining of the anal canal immediately inferior to the pectinate line and extending for about 1.5 cm to the anal verge; it’s made of squamous cells that contain more nerves

Incidence / Prevalence

• it’s difficult to determine how common hemorrhoids are as many people w/ the condition do not seek medical attention
• it’s believed that symptomatic hemorrhoids affect at least 50% of Americans at some time during their lives
• ~3% of the population is affected at any given time
• both genders experience approximately the same incidence
• incidence is highest between the ages of 45 and 65 years
• hemorrhoids are more common in Caucasians and those of higher socioeconomic status
• long-term outcomes are good; some have recurrent episodes
• only a small proportion need surgery or invasive procedures

Diagnosis

• typically, external hemorrhoids are diagnosed by a basic exam
• tests & procedures to diagnose internal hemorrhoids include:
  • digital exam of the anal canal & rectum for abnormalities
  • internal hemorrhoids are often too soft to be felt during a rectal exam so a visual inspection of the lower portion of the colon w/ an anoscope, proctoscope or sigmoidoscope may be needed
  • a more extensive exam of the entire colon using colonoscopy may be warranted if:
    • signs & symptoms suggest a digestive system disease
    • patient has risk factors for colorectal cancer
    • patient has a history of any type of cancer
    • patient’s older than 50 and hasn’t had a recent colonoscopy

Differential Diagnosis

• bleeding during bowel movements is the most common sign of hemorrhoids, but bleeding can occur w/ other conditions such as:
  • colorectal / anal cancer
  • colitis / IBD / diverticulitis or other intestinal issues
  • broken blood vessels around the anus
  • bright red blood in the stool represents lower GI bleeding, whereas tarry or “coffee ground” stool is from upper GI (ulcers)
  • emergency care should be sought if blood loss is significant enough to cause lightheadedness, dizziness or faintness
  • many anorectal problems can mimic the look of hemorrhoids:
    • rectal prolapse, fissures, fistulae, abscesses, rectal varices, skin tags, polyps, anal warts, enlarged anal papillae, infections
Grading

- internal hemorrhoids are graded by clinical history, not physical exam

<table>
<thead>
<tr>
<th>Grade</th>
<th>Symptom/Signs</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>No prolapse; bleeding only</td>
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<tr>
<td>II</td>
<td>Prolapse with defecation; reduce spontaneously</td>
</tr>
<tr>
<td>III</td>
<td>Prolapse with defecation; require manual reduction</td>
</tr>
<tr>
<td>IV</td>
<td>Non-reducible hemorrhoids</td>
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</tbody>
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Who’s at Greatest Risk?

- people near or over the age of 50, especially if they are Caucasian, obese and suffer from chronic constipation / diarrhea
- pregnant women are at high risk of hemorrhoids during last 6 months of pregnancy because of increased pressure on the blood vessels in the pelvis
- straining during childbirth can make them worse
- people who are sedentary (desk jobs) or frequently lift heavy objects are also at greater risk for hemorrhoids

Prevention

- avoid constipation / diarrhea by eating high-fiber foods, drinking enough fluid and/or taking fiber supplements
  - high-fiber foods include fruit, veggies, beans & whole grains
  - drinking 8 8-ounce glasses of filtered water / day is good start
  - daily fiber recommendations are 25g for women, 38g for men, so supplements such as Metamucil or Citruce may be needed
- avoid straining while attempting to defecate or lift things
- avoid long periods of sitting (on toilet, at work, surfing internet)
- exercise, especially by walking / jogging, also reduces weight
  - do moderate activity at least 2½ hours/week or vigorous activity at least 1¼ hours/week
- for pregnancy, sleeping recumbent lowers pressure on pelvis

High-Fiber Foods

- fiber “goal” each day is at least 25g for women, 38g for men
- raspberries are a high-fiber fruit, as 1 cup contains about 8g
  - 1 medium pear (w/ skin) contains 5.5g
  - 1 medium artichoke (cooked) has 10.3g
  - 1 cup of boiled broccoli contains 5.1g
  - 1 cup of cooked lentils has 15.6g
  - 1 cup of whole-wheat spaghetti has 6.3g
  - 1 oat bran muffin has 5.2g
  - ¼ cup of sunflower seeds has 4g
  - 1 ounce of almonds has 3.5g
Treatment Overview

- **Wait & See**: condition can be self-limiting after a week or so
- **Dietary and Lifestyle Modification**: more fiber / exercise
- **Cryotherapy**: apply ice pucks on anus to relieve inflammation
- **Herbal Remedies**: many herbs are used to combat hemorrhoids and blood vessel problems in general
- **Natural Supplements**: psyllium, vitamins, diosmin, hesperidin
- **Hydrotherapy**: using water to ease the pain of hemorrhoids
- **Drug Therapies**: OTC pain killers, topical corticosteroids, protectants, anesthetics, vasoconstrictors
- **Fixative Procedures**: rubber band ligation, laser, electrotherapy
- **Surgical Options**: hemorrhoidectomy, skin tag removal

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Herbal Treatments

- **Barberry**: blood purifier and anti-diarrheal sometimes used for piles → promotes healthy microbial balance in GI and liver / gallbladder function -- taken orally as tincture or dry extract
- **Butcher’s Broom root**: used to treat varicose veins / piles → has vein constricting qualities & relieves discomfort -- taken orally, 150mg 2x/d
- **Horse Chestnut seed extract**: rich in aescin, which increases strength/tone of veins and reduces inflammation (helpful for piles, phlebitis, varicose veins) → taken orally (300mg of extract containing 50mg of aescin, 2x daily) or applied directly to swollen external hemorrhoid

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Herbal Treatments

- **Neem extract**: recommended due to its anti-inflammatory, pain-relieving, anti-itch and coagulating properties → also promotes waste elimination and combats constipation -- extract applied topically to external hemorrhoids
- **Slippery Elm bark**: soothes inflamed mucous membranes of the entire GI tract → also helps w/ digestion and cleanses the colon → taken orally as a tea or capsule (500mg, 3x daily)
- **Witch Hazel**: an astringent used to reduce swelling and inflammation → effective in stopping blood flow and reducing secretions -- applied externally -- in some OTC wipes

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Supplements

- **Psyllium**: bulk laxative & demulcent used for the short-term treatment of constipation (helpful for hemorrhoids)
  - can also lower cholesterol levels
  - important to increase hydration w/ fiber supplements
  - flaxseed good fiber option also
- **Vitamin C** and bioflavonoids can help constrict and strengthen blood vessels (ascorbic acid needed to make collagen)
  - RDA values too low → aim for at least 1,000mg, 3x per day
- **Vitamin E**: rubbing this oil into the inflamed area can reduce discomfort and help shrink swollen tissues
  - even better when combined w/ St. John’s wort ointment
Supplements cont’d

- Diosmin: a bioflavonoid found in citrus used for treating various disorders of blood vessels including hemorrhoids & varicose veins
  - often taken in combo w/ hesperidin, another bioflavonoid
  - for internal hemorrhoids: 1,350mg of diosmin plus 150mg of hesperidin 2x daily for 4 days, followed by 900mg of diosmin plus 100mg of hesperidin 2x daily for 3 days
  - for prevention of hemorrhoids: 450mg of diosmin plus 50mg of hesperidin 2x daily for 3 months
  - diosmin / hesperidin significantly improves inflamed hemorrhoids in studies and also keeps them from returning
- MSM: a sulfur-based anti-inflammatory also helpful for pain and constipation → orally by powder/capsule, or topically via cream
  - for hemorrhoids, often combined w/ hyaluronic acid & tea tree oil

Hydrotherapy

- eases discomfort, itching / swelling by stimulating the circulation of blood vessels around the anus
- a warm water bath specifically for the anus and buttocks is often called a sitz bath (German for “to sit”)
- for hemorrhoids, most health experts recommend a 20-minute sitz bath after each bowel movement and usually 1-3 more each day
- using a hair dryer (set on low heat) to dry the anal area after bathing is preferred instead of wiping w/ a towel

Approach to Drug Therapy

- conservative drug treatment consists of acetaminophen or OTC NSAIDs (aspirin, ibuprofen, naproxen), although NSAID use reduces the ability of the blood to clot -- especially ASA
- many OTC topical agents and suppositories are available to treat hemorrhoids, but there’s not much scientific evidence to support their use other than temporary relief of minor symptoms
- ointments that protect the skin are helpful remedies for hemorrhoids because they reduce itching and prevent further injury by forming a physical barrier
- corticosteroid-based creams (hydrocortisone) work well for relieving itching & inflammation, but have high risk of side effects
- some medicinal products (wipes and pads) also contain herbal ingredients, such as witch hazel → strong astringent

Nonsteroidal Topicals

- Protectants: hemorrhoidal preparations often include a protectant which covers the delicate tissues to prevent irritation and forms a protective barrier while skin heals — examples:
  - Tucks suppositories (starch), Desitin (zinc oxide), lanolin, mineral oil, glycerin, petroleum jelly
- Vasoconstricting meds: tighten blood vessels & help shrink tissues — phenylephrine is a vasoconstrictor used in preparations such as:
  - Medicore suppositories, Preparation-H products, Tranalone cream
- Numbing meds: some topical preparations include an anesthetic (numbs nerves and temporarily relieves pain), such as:
  - Americaine ointment (benzocaine), Lanacaine (benzocaine), Medicore ointment (benzocaine), Desitin (zinc oxide), Tranalone anesthetic cream (promoxone), Tucks ointment (promoxone)
  - 5% lidocaine ointments (Lidoderm, Regenerocore) need Rx
Topical Corticosteroids

- corticosteroids are strong anti-inflammatories that mimic adrenal hormones → they also suppress immunity and thin the skin
- hydrocortisone reduces itching associated w/ piles and it can sometimes ease internal bleeding (doesn’t shrink submucosal veins though) → OTC preparations that contain low doses (1%) include:
  - Cortizone-10 cream, Preparation-H hydrocortisone cream, Tucks hydrocortisone ointment
- stronger hydrocortisone (2.5%) needs Rx and shouldn’t be used for more than 2 weeks → causes skin atrophy
  - Anапрам HC (plus 1% pramoxine)
  - Pramoxine (plus 1% pramoxine)

Fixative Procedures

- despite several meta-analyses, there is no clear advantage of one technique → all are potential 1st line treatments of Grades I & II internal hemorrhoids that don’t respond to conservative therapy
- goal of these procedures is to reduce the blood supply to the hemorrhoid so it shrinks or goes away → the scar tissue left behind actually helps support the anal tissue and reduce recurrence rates to between 30-50% within 5-10 years
- Rubber band ligation: most-used remedy for Grades I, II & III in U.S.
  - a rubber band ligature is passed through an anoscope and placed at the base of the inflamed hemorrhoid, proximal to the dentate line
  - tissue necroses and sloughs off in a week, leaving an ulcer that fibroses → no anesthesia is required; complications are uncommon
  - sometimes takes multiple procedures, done at least 6 weeks apart, to completely eliminate the hemorrhoid → 87% cure rate

Fixative Procedures cont’d

- Coagulation (infrared, laser): hardens and shrivels bleeding internal hemorrhoids w/ heat → infrared serves best for Grades I & II; as effective as rubber band ligation, but w/ fewer complications
- Electrocautery: quickly coagulates the hemorrhoid tissue, but has no effect on prolapse → best for lower-grade hemorrhoids
- Electrotherapy: low-voltage direct current works best for higher-grade hemorrhoids → also provides excellent control of pain
- Radiofrequency ablation: uses high-frequency radio waves (electrode remains cold, unlike electrocautery or diathermy) → tissue damage is very superficial; causes rapid coagulation (5-10 seconds)
- Scierotherapy: involves injection of sclerosing agent (phenol) which causes vein walls to collapse and hemorrhoids to shrivel → little or no pain; good Tx for Grades I & II; 70% success rate after 4 years

Surgical Options

- various surgical techniques are available for hemorrhoids if conservative management and fixative procedures fail
- hemorrhoids recur after non-surgical treatment between 30-50% of the time, while the recurrence rate after surgery is only ~5%
- external hemorrhoid surgery is performed using local anesthesia w/ IV sedation → general anesthetic techniques also used
- these surgical options are associated w/ risks including bleeding, infection, anal strictures, urinary retention & fecal incontinence
- Hemorrhoidal dearterialization: is a minimally invasive treatment using a Doppler ultrasound to accurately locate the appropriate arteries, which are then “tied off” and the prolapsed tissue is snared back to its normal position
  - fewer complications compared to a hemorrhoidectomy
Hemorrhoidectomy

- involves excision of the inflamed internal or external hemorrhoid and removal of the offending blood vessel
- used only in severe cases (Grades III & IV), and especially on thrombosed external hemorrhoids that generate severe pain
- associated w/ significant post-operative pain (2-4 weeks recovery)
- no documented difference between scalpel or laser techniques
- electrocautery provides hemostasis, not suturing, due to better healing times
- 5-10% of people w/ hemorrhoids eventually require a hemorrhoidectomy
- when performed well, there's only a 2-5% recurrence rate

Stapled Hemorrhoid Surgery

- aka: procedure for prolapsing hemorrhoids (PPH)
- involves removing most of the inflamed internal hemorrhoidal tissue, followed by repositioning the remaining tissue back to its normal anatomical position (above the pectinate line) via staples
- mainly for patients w/ large internal hemorrhoids and a minimal external component (including teats)
- does not directly affect the external tissues
- less pain and faster healing times compared to a standard hemorrhoidectomy, but greater chance of recurrence → best for Grades II & III
- often done in outpatient setting w/ local anesthesia

Treatment According to Grade

- internal hemorrhoids don't have cutaneous innervation and can be destroyed without anesthetic (but getting to them through anus can be uncomfortable) → treatment may be surgical or nonsurgical
- Grade I treated w/ conservative medical therapy (possible avoidance of NSAIDs), home remedies, dietary changes
- Grades II or III initially treated w/ nonsurgical procedures → referral to surgery depends on patient outcome
- Grades III & IV (especially those that are very symptomatic) are best treated w/ surgical hemorrhoidectomy (and w/ staples)
- Grade IV internal hemorrhoids w/ any incarcerated or gangrenous tissue is a medical emergency and requires prompt surgical consultation
ACTIVITY TEST

1. What is the best vascular description of a hemorrhoid?
   A. Veins
   B. Sinusoids
   C. Arteries
   D. Arterioles

2. What is another term for a blood clot?
   A. Prolapse
   B. Sclerosis
   C. Thrombus
   D. Scab

3. A hemorrhoid that extends beyond the anus is called a:
   A. Prolapse
   B. Thrombus
   C. Blood clot
   D. Fistula

4. What is a primary complication stemming from chronic hemorrhoids?
   A. Gangrene
   B. Itching
   C. Obesity
   D. Anemia

5. What is the greatest risk factor for developing hemorrhoids?
   A. Gender
   B. Dark colored skin
   C. High fat diet
   D. Advancing age
6. What natural remedy is NOT applied directly to the inflamed anal region?
   A. Slippery elm
   B. Witch hazel
   C. Horse chestnut
   D. Neem extract

7. What is diosmin often paired with for the treatment of hemorrhoids?
   A. Witch hazel
   B. Phenylephrine
   C. Hesperidin
   D. Zinc oxide

8. What compound is an example of a protectant?
   A. Phenylephrine
   B. Zinc oxide
   C. Pramoxine
   D. Phenol

9. What percentage / strength of prednisone is typically available in OTC products?
   A. 1%
   B. 2.5%
   C. 5%
   D. 10%

10. What surgical technique uses a Doppler ultrasound?
    A. Hemorrhoidectomy
    B. Procedure for prolapsing hemorrhoids
    C. Sclerotherapy
    D. Hemorrhoidal dearterialization

Please submit your final responses on freeCE.com. Thank you.