Hemorrhoids: Causes, Symptoms, Diagnosis and Treatment

Hemorrhoids are normal vascular and connective tissue cushions located in the anal canal mucosa. They serve an essential protective role by engorging with blood during defecation, thereby cushioning and protecting the anal canal from trauma caused by passing stool.

Anatomy and Physiology

Hemorrhoidal cushions are composed of blood vessels, smooth muscle, and connective tissue. Their ability to engorge is influenced by increased intra-abdominal pressure during activities such as defecation, straining, pregnancy, or heavy lifting.

Classification

Internal Hemorrhoids

- Located **above the dentate (pectinate) line** and lined by columnar epithelium.
- Innervated by **autonomic nerves**, making them **typically painless**.
- Classified by degree of prolapse:
    - **1st degree:** No prolapse, presents with painless bleeding.
    - **2nd degree:** Prolapse during defecation but spontaneously reduce.
    - **3rd degree:** Prolapse requiring manual reduction.
    - **4th degree:** Permanently prolapsed and irreducible.

External Hemorrhoids

- Found **below the dentate line**, lined by squamous epithelium.
- Innervated by somatic nerves (pudendal nerve and branches), causing **significant pain** when inflamed or thrombosed.
- Can become thrombosed, leading to acute pain and swelling.

Etiology and Risk Factors

The exact cause of hemorrhoids is multifactorial but linked to increased venous pressure and weakening of supporting tissues:

- Chronic constipation and straining
- Low-fiber diet leading to hard stools
- Prolonged sitting (sedentary lifestyle, occupation)
- Pregnancy (increased intra-abdominal pressure and hormonal effects)
- Obesity
- Portal hypertension (secondary to liver disease)
- Aging and decreased connective tissue elasticity
- Previous anorectal surgery or trauma

Pathophysiology

Increased intra-abdominal pressure leads to venous engorgement and dilation of hemorrhoidal plexuses. Chronic straining and constipation cause stretching and weakening of the supporting connective tissue, resulting in hemorrhoidal prolapse and symptoms. With age, the supportive tissues deteriorate, increasing prolapse risk.

Clinical Presentation

- Painless rectal bleeding, often bright red, especially with internal hemorrhoids
- Prolapse or bulging tissue in anal area
- Discomfort or itching (pruritus)
- Pain (especially with thrombosed external hemorrhoids)
- Sensation of incomplete evacuation or fecal soiling
- Mucous discharge

Diagnosis

- Careful history and physical examination including **anoscopy**
- Digital rectal examination to assess for masses or tenderness
- **Sigmoidoscopy or colonoscopy** if bleeding or other symptoms suggest alternate pathology
- Observation of prolapse with straining

Differential Diagnosis

- Colorectal carcinoma
- Anal fissures
- Diverticular disease
- Inflammatory bowel disease (ulcerative colitis, Crohn’s)
- Rectal prolapse
- Adenomatous polyps

Management

Conservative and Medical Treatment

Initial management focuses on symptom relief and addressing underlying risk factors:

- **Dietary modification:** High-fiber diet with fruits, vegetables, and adequate hydration to soften stool and reduce straining
- **Stool softeners:** Lactulose, polyethylene glycol
- **Behavioral changes:** Avoid prolonged sitting and straining during defecation
- **Topical treatments:** Hydrocortisone creams, local anesthetics, and astringents for symptomatic relief
- **Warm sitz baths:** 3 times daily for 15-20 minutes to reduce pain and swelling

Minimally Invasive Procedures

For persistent or prolapsing internal hemorrhoids:

- **Rubber band ligation:** A band is applied to the base of the hemorrhoid to cut off blood supply, causing necrosis and sloughing
- **Sclerotherapy:** Injection of a sclerosant (e.g., 5% phenol) to induce fibrosis
- **Infrared coagulation:** Uses infrared light to cause coagulation and shrinkage of hemorrhoids
- **Cryotherapy:** Freezing hemorrhoidal tissue to induce necrosis (less commonly used)

Surgical Treatment

Reserved for severe or refractory cases (Grade III and IV hemorrhoids):

- **Hemorrhoidectomy:** Excision of hemorrhoidal tissue
- **Stapled hemorrhoidopexy (Procedure for Prolapse and Hemorrhoids - PPH):** Circular stapler removes a ring of mucosa above the dentate line, reducing prolapse and interrupting blood flow to hemorrhoids
- **Thrombectomy:** For acute thrombosed external hemorrhoids, excision of the thrombus under local anesthesia

Complications

- Bleeding
- Anal stenosis
- Infection and abscess formation
- Recurrence
- Urinary retention (especially post-surgical)
- Fistula formation

Summary – The Six “S” Approach

1. **Stool softeners and diet**: Increase fiber and fluids
2. **Suppositories and topical agents**: To relieve symptoms
3. **Sitz baths**: For pain and inflammation
4. **Sclerotherapy**: Injection treatment for internal hemorrhoids
5. **Strangulation (rubber band ligation)**: For prolapsing hemorrhoids
6. **Surgery**: Reserved for severe or refractory cases