Hemorrhoids

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PGY-III
Colorectal Surgery
Overview

- Anatomy
- Classification
- Etiology
- Incidence
- Symptoms
- Differential Diagnosis
- Medical Management
- Surgical Management
Anatomy

- Anal canal has 3 regions of fibrovascular cushions
  - Located in the left lateral, right posterior and right anterior regions of the canal
  - Contain submucosa, blood vessels, smooth muscle and connective tissue
  - Contribute 15% to 20% of the resting anal pressure
  - Prevent fecal incontinence by filling with blood during times of increased abdominal pressure and decreased anal tone
Anatomy
Anatomy

- The term hemorrhoid is used when one of these cushions enlarges and produces symptoms.

- **Internal hemorrhoids**
  - Located above dentate line
  - Covered with mucosa
  - No sensory innervation - painless

- **External hemorrhoids**
  - Located below dentate line
  - Covered with anoderm
  - Sensory innervation - painful
## Classification

<table>
<thead>
<tr>
<th>Internal Hemorrhoids</th>
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<tbody>
<tr>
<td><strong>Grade I</strong></td>
<td>No prolapse, bleeding</td>
</tr>
<tr>
<td><strong>Grade II</strong></td>
<td>Prolapse with spontaneous reduction</td>
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<tr>
<td><strong>Grade III</strong></td>
<td>Prolapse requiring manual reduction</td>
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<tr>
<td><strong>Grade IV</strong></td>
<td>Prolapse not amenable to reduction secondary to thrombosis/incarceration</td>
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Etiology

- Etiology of hemorrhoids remains uncertain
- Pathophysiology includes:
  - Elevated anal sphincter pressures
  - Abnormal dilation of the internal hemorrhoid venous plexus
  - Distention of the arteriovenous anastomosis
  - Prolapse of the cushion and surrounding tissue
Etiology

- Risk factors:
  - Constant straining with defecation
  - Prolonged efforts at defecation
  - History of constipation
  - Inadequate fiber intake
  - Long periods on the commode
  - Conditions associated with increased intraabdominal pressure
Incidence

• Unknown incidence of hemorrhoids.
• Reported prevalence of 4.4% in the United States
  • Approximately 10 million people affected
• Whites more likely affected than African Americans
• Peak incidence between 45 and 60 years of age for both genders
• Pregnant women and elderly patients at increased risk
Symptoms

- Painless bleeding is the most frequent complaint
- Other symptoms include swelling, prolapse, pruritus, hygiene problems and pain
- Prolapse of internal hemorrhoids occurs with straining
  - Fecal leakage and pruritus
  - Pain is associated with incarceration and strangulation
- Pain associated with external hemorrhoids associated with thrombosis
  - Diminishes after 48 to 72 hours
Differential Diagnosis

- Evaluation should include digital rectal exam and anoscopy.
- Hemorrhoids and rectal varices are not the same:
  - Located more proximal in the anal canal and rectum.
  - Treated with procedures that reduce portal hypertension.
- No increased incidence of hemorrhoids in patients with portal hypertension.
### Differential Diagnosis

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Cause</th>
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<tbody>
<tr>
<td>Pain and bleeding after bowel movement</td>
<td>Ulcer/fissure disease</td>
</tr>
<tr>
<td>Forceful straining to have bowel movement</td>
<td>Pelvic floor abnormalities</td>
</tr>
<tr>
<td>Blood mixed with stools</td>
<td>Neoplasm</td>
</tr>
<tr>
<td>Drainage of pus</td>
<td>Abscess/fistula, IBD</td>
</tr>
<tr>
<td>Constant moisture</td>
<td>Condyloma</td>
</tr>
<tr>
<td>Mucous drainage and incontinence</td>
<td>Rectal prolapse</td>
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</tbody>
</table>
Medical Management

- Lifestyle modifications
  - Dietary changes
  - Increased fluid and fiber intake
    - 6 to 8 glasses of fluid daily
    - 25 to 30 grams of fiber per day
  - Dietary supplements
    - Psyllium
  - Improved anal hygiene
    - Avoid excessive scrubbing
    - Frequent sitz baths
    - Use facial and baby wipes
Medical Management

- Strict toilet regimen
  - Avoid reading in the toilet
  - Avoid sitting on the toilet for long periods of time
  - Do not defer the urge to defecate

- Over the counter topical treatments improve hygiene and alleviate associated symptoms

- Grade I, II and III internal hemorrhoids usually respond to these modifications
Rubber band ligation

- Best suited for Grade I internal hemorrhoids
  - Bleeding with minimal prolapse
- Can be used to treat Grade II and III hemorrhoids
- Not indicated for External Hemorrhoids
  - Somatic innervation
- Rubber band promotes inflammation that leads to ulcer formation, scarring and fixation to the rectal wall.
- Band is retained for 2 to 10 days
Rubber band ligation

- Elastic bands on inner drum
- Outer drum
- Bands released
- Ligated hemorrhoid
- Inner drum retracts and releases bands onto base of hemorrhoid
Rubber band ligation

- Repeat banding should be performed after 4 weeks
  - Allows inflammation to resolve
- Bands placed too close to the dentate line should be removed
- Discomfort after banding is managed with sitz baths, analgesics and avoidance of constipation
Rubber band ligation

- Complication rate of 0.5% to 8%
  - Vasovagal reaction
  - Bleeding 1 to 2 weeks after procedure
  - Pelvic sepsis
    - Fever, perianal pain, perineal cellulitis, watery discharge and urinary retention

- Relatively contraindicated in patients chronically anticoagulated

- Success rate over 75% in patients with Grade I and II hemorrhoids
Sclerotherapy

- Injection of irritant at the base of the hemorrhoid
  - 1 to 2 mL of an oil based irritant containing 5% phenol
  - 1 to 2 mL of an aqueous irritant (ethanolamine oleate)

- Causes an inflammatory reaction, edema and intravascular thrombosis leading to scarring.

- Indicated for Grade I and II internal hemorrhoids and grade III internal hemorrhoids in immunocompromised patients
Sclerotherapy

- Complications
  - Upper abdominal pain if injected into the hemorrhoidal vessel
  - Erectile dysfunction if injected in the periprostatic parasympathetic nerves
  - Pelvic sepsis can occur up to 5 days after procedure

- Sclerotherapy improves symptoms in up to 75% of patients with Grade II internal hemorrhoids
Surgical Management

- Indications
  - Large Grade III and Grade IV internal hemorrhoids
  - Mixed hemorrhoids
  - Large external hemorrhoids
  - Failure of medical management
Surgical Management

- Preoperative preparation
  - Stopping anticoagulation
  - If patient is incontinent
    - Anal manometry
    - Ultrasound
  - Enema
  - Prophylactic antibiotics for patients at high risk for endocarditis

- Prone jackknife or lithotomy position

- Perianal block with local anesthetic
  - 30 ml of 0.25% bupivacaine
Surgical Management

- Acute thrombosis of external hemorrhoids
  - Worsens within 24 hours
  - Managed with sitz baths and analgesics
  - Surgical intervention due to pain should occur within the first 24 hours
    - Clot is evacuated and overlying skin removed to avoid recurrence
    - Not indicated after 24 hours due to cumulative pain
  - Topical application of 0.3% nifedipine cream
    - Antiinflammatory
    - Smooth muscle relaxant
Surgical Hemorrhoidectomy

Excision technique for mixed hemorrhoids

- Hemorrhoid grasped and pulled down
- External hemorrhoid dissected free; dissection carried cephalad to free internal portion
- Deep suture ligation of vascular pedicle
- Dead space closed with suture incorporating skin edges and muscle
- Internal sphincter
- External sphincter
Surgical Hemorrhoidectomy

- Complications
  - Most common complication is urinary retention
    - Minimize intravenous fluids
    - Voiding before discharge
    - Resolves after swelling subsides
  - Anal incontinence
  - Anal stenosis
    - Operate on the largest hemorrhoid first
    - 1 cm of normal anoderm between suture lines
  - Hemorrhage
    - 1 to 2 weeks after procedure
    - Reported rate of 0.9%
Surgical Hemorrhoidopexy
Surgical Hemorrhoidopexy

- Complications
  - Urinary retention
  - Bleeding
  - Pain

- Rare complications
  - Rectal perforation
  - Rectovaginal fistula
  - Pelvic sepsis

- Increased recurrence rate when compared with hemorrhoidectomy