Hemorrhoids cushions are normal structures of the lower rectum. They are very vascular and pathology develops when that vasculature becomes engorged (especially the veins). Itching and pain are common symptoms of hemorrhoid pathology. Hemorrhoids are classified on their origin relative to the dentate line: external (below the dentate line), internal (above the dentate line), and prolapsed internal hemorrhoids. Most hemorrhoids are treated with dietary modification (increase fiber) and stool softeners, but occasionally surgery is required.

Definition of Hemorrhoids

Hemorrhoids are venous cushions found in the lower rectum and help with stool control. Patients present with symptoms when the vascular tissue becomes inflamed and swollen. There are three classes of hemorrhoids, based on their origin. Their origin also determines blood supply, histology, and possibility to cause pain.
### Pain

<table>
<thead>
<tr>
<th>Pain</th>
<th>Usually painless</th>
<th>Painful</th>
</tr>
</thead>
</table>

### Histology

<table>
<thead>
<tr>
<th>Artery</th>
<th>Superior rectal artery from inferior mesenteric artery</th>
<th>Middle/Inferior rectal artery from internal pudendal artery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vein</td>
<td>Superior rectal vein that drains into inferior mesenteric vein and hepatic portal system</td>
<td>Middle/Inferior rectal veins that drain into the pudendal vein</td>
</tr>
</tbody>
</table>

### Epidemiology of Hemorrhoids

#### Spread of hemorrhoids

**About 5% of the general population** suffer from hemorrhoids. While there are no differences between the sexes, middle-aged adults are most likely to develop the condition.

### Etiology of Hemorrhoids

#### Causes of hemorrhoids

Healthy hemorrhoid cushions are normal structures in the rectum. Their transformation into an inflamed and swollen nuisance is the source of a great deal of speculation. The main theory revolves around **poor venous return** during:

- Constipation
- Sitting for extended periods of time
- Pregnancy

When patients strain during **defecation** (due to a low fiber diet) venous return is reduced. This may contribute to rectal vasculature engorgement. Also during pregnancy, the uterus may compress the inferior vena cava resulting in venous congestion which may result in hemorrhoids.

**Other conditions that may cause hemorrhoids include:**

- Anal intercourse
- **Diarrhea**
- Obesity
- Rectal surgery, including episiotomy

**Risk factors are:**

- Chronic constipation
- Portal hypertension
- Pregnancy

### Pathology and Pathophysiology of Hemorrhoids
The term hemorrhoids describes the symptoms associated with swollen and inflamed hemorrhoid tissue. Normally, non-inflamed hemorrhoid tissue rarely causes symptoms. Once the arteriovenous plexus of the hemorrhoid tissue becomes dilated the suspensory muscles are stretched and the rectal mucosa becomes engorged and is damaged easily. This leads to bleeding which will produce bright red blood.

The weakening of the suspensory muscles of the rectum results in prolapse and fecal incontinence. Internal hemorrhoids, with an origin above the dentate line, are not innervated by cutaneous nerves and are usually painless. They can prolapse and thrombose causing the anal sphincter to spasm, resulting in discomfort. External hemorrhoids are innervated by cutaneous nerves and can be quite painful. These types of hemorrhoids can also form a thrombus.

**Symptoms of Hemorrhoids**

**Signs of hemorrhoids**

Hemorrhoids present with a variety of symptoms that are nonspecific and relate to a variety of diseases. The most common symptoms of hemorrhoids include:

- Rectal pain
- Bleeding
- Pruritus
- Anal prolapse

Rectal bleeding of any type should be thoroughly investigated. Colon malignancy should always be ruled out by direct inspection via anoscopy, sigmoidoscopy, or colonoscopy.

**Diagnosis of Hemorrhoids**

A patient with asymptomatic hemorrhoids should not be treated. A thorough history is very important to characterize the signs and symptoms associated with hemorrhoids. Internal hemorrhoids are graded based on their prolapse into the anal canal. A Grade I internal hemorrhoid projects into the anal canal but does not prolapse where a Grade IV
A hemorrhoid is constantly prolapse and cannot be reduced. There is an increased risk for these hemorrhoids to strangulate or thrombose.

**Lab testing**

A complete blood count is useful to establish an infection or anemia from excess bleeding. Coagulation studies are also beneficial.

**Visual inspection**

Anoscopy is useful when evaluating internal hemorrhoids while sigmoidoscopy can evaluate tissue in the sigmoid. This is useful to rule out malignancy and inflammatory diseases such as ulcerative colitis.

**Differential Diagnoses of Hemorrhoids**

Clinical pictures similar to hemorrhoids

- Inflammatory bowel disease (Ulcerative Colitis and Crohn’s disease)
- Condyloma
- Coagulopathy
- Anal fissure
- Anal fistula

**Therapy of Hemorrhoids**

Treatment of hemorrhoids

Treatment for both internal and external hemorrhoids is taken in a stepwise manner with the most conservative, noninvasive methods attempted first before surgery is attempted. Acute symptoms, pain, and itching, are treated with topical astringents, witch hazel or phenylephrine (found in some hemorrhoid creams), and NSAIDS. A sitz bath in warm water may also relieve these symptoms. For severe cases, corticosteroid suppositories are effective.
To shrink hemorrhoid and prevent it from becoming inflamed in the future the American College of Gastroenterology recommends an increase in dietary fiber and fluids. Exercise and weight loss may also be effective.

If this is insufficient there are a variety of outpatient procedures available to patients. Banding and sclerotherapy can be performed in the clinic with minimal risk to the patient and relatively good outcomes.

Surgical treatment is usually reserved for patients with severe hemorrhoids or complicated cases that require advanced monitoring. Hemorrhoids treated surgically are less likely to recur, compared to those treated conservatively.

Progression and Prognosis of Hemorrhoids

Hemorrhoids usually resolve spontaneously or with conservative treatment that includes changes to diet and exercise. If left unattended hemorrhoids can progress to develop thrombosis, infections, fistulas, anal fissures, incontinences, and abscesses. The recurrence rate for healed hemorrhoids is relatively common at 10–20%.

Review Questions

The correct answers can be found below the references.

1. The first test to perform on a patient presenting with new onset bright red blood with painless bowel movement is?
   A. Colonoscopy
   B. Anoscopy
   C. Digital Rectal Exam
   D. Fecal Occult Blood Test

2. Which condition increases the risk of developing hemorrhoids?
   A. Hypertension
   B. Pregnancy
   C. Diverticulosis
   D. Inflammatory Bowel Syndrome

3. Once a patient has been diagnosed with symptomatic hemorrhoids, what is
**the first line of treatment?**

A. Banding  
B. Dietary changes with fiber supplementation  
C. Reassurance

**References**


**Correct answers:** 1C, 2B, 3B

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