Treatment of hemorrhoids

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INTRODUCTION — Hemorrhoids are normal vascular structures in the anal canal. However, they are often the source of a variety of problems. The cardinal features of hemorrhoidal disease include bleeding, anal pruritus, prolapse, and pain due to thrombosis. Although these symptoms may strongly suggest the diagnosis, confirmation by flexible sigmoidoscopy, anoscopy, or colonoscopy should be performed in patients who present with bleeding. Colonoscopy is generally recommended in older patients to exclude more serious underlying disease (eg, malignancy).

A variety of over-the-counter preparations is available for the treatment of hemorrhoids, and patients often seek medical attention only after these modalities have failed. Thus, patients presenting to their physicians probably represent a group with relatively severe disease.

Several options are available for the treatment of symptomatic hemorrhoids, and most patients will have relief with conservative or minimally invasive approaches. Surgery is successful for initial therapy in selected patients, in those whose symptoms are refractory to more conservative measures, and in those who have developed complications.

This topic review will discuss the conservative, minimally invasive, and surgical treatments of hemorrhoids. The pathogenesis, classification (ie, grading), and clinical manifestations of this disorder are presented separately (see "Hemorrhoids: Clinical manifestations and diagnosis") The AGA guideline for the diagnosis and treatment of hemorrhoids [1], as well as other AGA guidelines, can be accessed through the AGA website at www.gastrojournal.org/article/S0016-5085(04)00354-3/abstract.

CLASSIFICATION OF INTERNAL HEMORRHOIDS — Internal hemorrhoids have been graded across a spectrum of severity, which has proven useful for guiding treatment options (see below) [2]:

- Grade I: The hemorrhoids do not prolapse
- Grade II: The hemorrhoids prolapse upon defecation but reduce spontaneously
- Grade III: The hemorrhoids prolapse upon defecation and must be reduced manually
- Grade IV: The hemorrhoids are prolapsed and cannot be reduced manually

External hemorrhoids are not graded.

CONSERVATIVE TREATMENT — Conservative measures are successful for most patients with symptomatic hemorrhoids and bleeding, irritation, pruritus, or thrombosis.

Bleeding — Adding fiber to the diet may be beneficial for patients with bleeding from hemorrhoids [3,4]. A meta-analysis of seven controlled trials found a significant and consistent benefit from fiber supplementation in improving bleeding (RR 0.50, 95% CI 0.28-0.68) [3]. In an illustrative study, supplementation with psyllium for six weeks was associated with improvement in bleeding compared with untreated controls [5]. In a later trial, 50 patients with bleeding internal hemorrhoids were randomized to receive either a commercially available fiber preparation (Plantago Ovata) or placebo [6]. Endoscopy was performed before and after treatment. After 15 days of treatment, those who had received fiber supplementation had significantly fewer bleeding episodes and a

reduction in the number of congested and friable hemorrhoidal cushions seen on endoscopy. Hemorrhoidal prolapse was not affected by fiber supplementation.

Commercially available fiber supplements are available. Many contain either psyllium or methylcellulose. Neither has been shown to have a particular advantage over the other in treating hemorrhoidal disease. Treatment should aim at a dose of 20 to 30 g/day. For patients who are unwilling to take fiber supplements, a detailed listing of the fiber content of various foods can be helpful (table 1). Because fiber has other salutary effects, is safe to use, and may help to prevent recurrence, we recommend continued augmentation of fiber in the diet indefinitely.

In Europe, hydroxyethylrutoside, an oral micronized flavonoid compound (Daflon, Les Laboratoires Servier, Gidy, France) has been used to treat hemorrhoidal disease. Some studies found that it reduced acute and recurrent hemorrhoidal attacks, including those in pregnant women [7-11], as well as postoperative bleeding following surgical hemorrhoidectomy [12]. However, many of the studies had important methodological limitations [13]. How hydroxyethylrutoside acts is uncertain; it improves venous tone, microvascular permeability, lymphatic activity, and microcirculatory nutritive flow [14].

Irritation and pruritus — Irritation and pruritus associated with hemorrhoids can be treated with a variety of analgesic creams, hydrocortisone suppositories, and warm sitz baths. These treatments, particularly hydrocortisone, should not be used for longer than one week since side effects may occur, such as contact dermatitis with analgesic creams or mucosal atrophy with steroid creams [15,16]. (See "Approach to the patient with anal pruritus".)

Sitz baths also help to relieve irritation and pruritus. They should be used in warm water two to three times per day. Their effectiveness may in part be related to relaxation of the internal anal sphincter [17]. A commercially available portable bowl allows for their use in the workplace.

The benefit of fiber for irritation and pruritus is less well established than for bleeding [3]. Fiber supplementation may relieve pruritus related to fecal soilage since the bulking effect of fiber may reduce leakage of liquid stool. There is no evidence that spicy foods worsen irritation and pruritus [18].

Thrombosed hemorrhoids — Organization and resorption of clot occurs within several days following thrombosis of internal or external hemorrhoids. It is important to appreciate, however, that thrombosis often occurs in grades III and IV internal hemorrhoids. These hemorrhoids usually persist after the conservative therapies outlined above, and may require definitive treatment. Treatment of acute thrombosis of internal hemorrhoids is usually conservative. Rare exceptions are patients who develop concomitant thrombosis of external and internal hemorrhoids (sometimes seen after childbirth) and who have severe pain in whom hemorrhoidectomy may be required.

Thrombosed external hemorrhoids can cause excruciating pain, and patients will often present acutely (picture 1). In such cases, surgical evacuation of the hemorrhoid with excision of the skin overlying the thrombosed hemorrhoid can produce immediate relief. As an alternative: oral and topical analgesics, stool softeners, and sitz baths may provide adequate relief until spontaneous resolution occurs. Other conservative approaches have also been described:

- A small series suggested that topical 0.5 percent nitroglycerin ointment may provide temporary analgesia by reducing internal anal sphincter spasm [19]. This dose may be associated with side-effects such as headache. A lower dose of nitroglycerin has been used in patients with anal fissures [20]. (See "Anal fissure: Clinical manifestations, diagnosis, prevention".)
- A small controlled trial suggested a benefit of topical nifedipine [21].
- A randomized, placebo-controlled trial involving 30 patients found that a single intrasphincteric injection of botulinum toxin significantly reduced pain intensity within 24 hours [22].
- Topical steroids have not been well evaluated for effectiveness in treating thrombosed hemorrhoids. If used, some experts suggest applying cream rather than using suppositories. Steroid cream should be applied twice a day for no more than seven days. The cream may shrink the hemorrhoids and relieve the associated pruritus. Long term use should be avoided because of potential thinning of perianal and anal

mucosa and increasing risk of injury. (See "General principles of dermatologic therapy and topical corticosteroid use".)

The prevalence of rectal pathology among patients who present with a thrombosed external hemorrhoid is unknown. Following resolution of symptoms, it is reasonable to suggest a sigmoidoscopy if this has not been previously performed. A colonoscopy can be considered in patients with risk factors for colorectal cancer or in those older than 50 years of age in whom it serves the added purpose of screening for colorectal cancer.

OFFICE-BASED PROCEDURES — Patients who have continued symptoms despite the measures outlined above may be candidates for a minimally invasive technique developed for treating hemorrhoids [4]. Evacuation of thrombosed external or internal hemorrhoids may be performed in the office. The other minimally invasive techniques described below are generally used to treat **internal** hemorrhoids. Patients with grade IV internal hemorrhoids and some with grade III require more definitive surgical treatment. More aggressive treatment may also be preferred for patients who develop thrombosis, and is required for those presenting with a strangulated hemorrhoid.

External hemorrhoids — Except in the case of thrombosis, external hemorrhoids do not usually require minimally invasive or surgical therapy. Patients seen within 72 hours of thrombosis may benefit from surgical evacuation for pain relief [4]. However, after 48 hours, organization of the thrombus and amelioration of symptoms generally obviates the need for surgical evacuation.

However, some surgeons advocate that such patients should undergo excision of the hemorrhoids to prevent recurrent thrombosis. (See "Outpatient and surgical procedures for hemorrhoids", section on 'Evacuation of thrombosis and excision of external hemorrhoids'.)

Internal hemorrhoids — Many of the minimally invasive techniques used to treat internal hemorrhoids are ambulatory procedures associated with minimal morbidity. The principle of most of these therapies is to remove or to cause sloughing of excess hemorrhoidal tissue. Healing and scarring fixes the residual tissue to the underlying anorectal muscular ring. Examples of these treatments include:

- Rubber band ligation
- Infrared coagulation
- Bipolar diathermy (Bicap)
- Laser photocoagulation
- Sclerotherapy
- Cryosurgery

Dilation of the internal sphincter has also been advocated. The rationale for this approach is that a hypertensive internal sphincter underlies the development of symptomatic hemorrhoids [23]. However, the success of this treatment may be similar to the other modalities, and may result from the submucosal hemorrhage and scar formation associated with dilation.

Some of these techniques may be better suited for particular hemorrhoidal problems. However, the choice among them often depends upon the availability of local expertise. A meta-analysis of 18 trials observed the following [24]:

- Surgical hemorrhoidectomy was more effective than dilation or band ligation for preventing recurrent symptoms. However, rubber band ligation was associated with fewer complications and pain than surgery.
- Rubber band ligation was associated with a better response than sclerotherapy.
- Patients treated with sclerotherapy or infrared coagulation were more likely to require further therapy than those treated with rubber-band ligation.

Based upon these findings, it was suggested that the optimal treatment for symptomatic grade I to III hemorrhoids unresponsive to conservative measures was rubber band ligation.

However, another meta-analysis of five trials comparing the efficacy and side effects of infrared coagulation, injection sclerotherapy, and rubber band ligation came to different conclusions [25]. Although recurrent

symptoms were less common in patients undergoing rubber band ligation, the higher incidence of posttreatment pain compared to infrared coagulation outweighed the superior efficacy of rubber band ligation.

Thus, rubber band ligation may be superior to other nonsurgical techniques for preventing recurrent symptoms but, compared to infrared coagulation, may be associated with a higher incidence of side effects.

Rubber band ligation — Rubber band ligation is the most widely used technique for treatment of symptomatic internal hemorrhoids that are refractory to conservative treatment. This procedure has been available since the early 1960s and is effective, inexpensive, requires no anesthesia, is easy to perform, and only rarely causes serious complications. The technique may be used for first, second, and selected third degree hemorrhoids. Successful ligation results in thrombosis of the hemorrhoid, and the development of localized submucosal scarring.

Technique — Several techniques have been described for the application of rubber bands to the affected hemorrhoid. All utilize the same principles as the traditional forceps approach.

Forceps applicator — After identifying the involved hemorrhoid through an anoscope, a rubber ring ligating drum with two rubber rings is placed into the anal canal. The internal hemorrhoid is grasped with forceps, and the excess tissue is pulled into the drum of the ligator. The rubber rings are then advanced down to the neck of the hemorrhoid. The bands need to be placed at least 5 mm above the dentate line to avoid placement onto somatically innervated tissue. Only one column of hemorrhoids is treated in a single session to minimize risk of tissue necrosis. However, the placement of as many as three bands in a single column may be safely performed [26].

Endoscopic suction ligator — An alternative technique involves suction of the symptomatic hemorrhoid into the ligating drum, which is attached to an endoscope [27-29]. The ring is deployed through a trigger passed through the biopsy channel of the endoscope. This approach may allow for adequate ligation with fewer treatment sessions [30]. A single-handed non-endoscopic ligating device (KilRoid, Astra Tech, AB, Molndal, Sweden) has also been used successfully, and is less expensive than the endoscopic device [31].

Wall suction ligator — An alternative to the standard technique of using forceps is the single operator vacuum suction band ligator [32]. The principles are the same but the rubber band ligator is attached to wall suction. The surgeon places the drum with the rubber band against the hemorrhoid. Suction pulls the hemorrhoid into the drum and the rubber band is deployed. The technical advantage is that the surgeon can hold the ligator and apply the band with one hand and hold the anoscope with the other unassisted.

Outcomes — One of the largest series to describe long-term outcomes of rubber band ligation included 805 patients who underwent 2114 ligations (median of two ligations in each patient) [33]. Excluding 104 patients who were lost to follow-up, treatment was considered successful in 71 percent (80 percent when considering patients who underwent repeated treatment after initial failure). Success rates were similar for all degrees of hemorrhoids. A higher failure rate was observed in patients who required four or more bands to be placed. The application of the rubber band using wall suction can be performed in fewer sessions compared with the standard forceps technique (1.2 versus 2 sessions) [34].

Complications — The complication rate following rubber band ligation is low [26,33,35-37]. The most frequent complication is pain, which occurs in approximately 8 percent [36].

Severe pain can occur from misapplication of the band below the dentate line, or from associated spasm. Many patients complain of anal or rectal "tightness" after the procedure. Other complications include:

- Delayed hemorrhage – Delayed hemorrhage can occur when the rubber band dislodges, typically two to four days after application or with ulceration and mucosal sloughing, which can occur five to seven days after the procedure.
- Hemorrhoidal thrombosis – Hemorrhoids distal to the rubber band ligation thrombose, leading to pain or a palpable mass.
- Localized infection – Localized infection or abscesses can occur at the site of band ligation. Persistent pain, fever, or foul smelling rectal drainage may signal the onset of infection.

- Sepsis – Fulminant sepsis after hemorrhoid ligation is rare [35,36].

Bipolar, infrared, and laser coagulation — These techniques involve the application of bipolar current or infrared or laser light to cause coagulation and necrosis, which leads to fibrosis in the submucosal layer. They are generally effective for grade I to II internal hemorrhoids and each has its advocates [38,39]. Infrared coagulation may be associated with more frequent recurrences than rubber band ligation, but may have fewer side effects [25].

Sclerotherapy — Specialized needles can be used to inject sclerosing agents directly into the hemorrhoidal tissue. A variety of injected sclerosing agents is effective for grade I and II internal hemorrhoids. Examples include sodium morrhuate, 5 percent phenol, and hypertonic saline. The sclerosant causes an intense inflammatory reaction, destroying redundant submucosal tissue associated with hemorrhoidal prolapse. Hemorrhoidal sclerotherapy may be less effective than rubber band ligation [24].

Cryosurgery — The application of special probes cooled with liquid nitrogen causes freezing, necrosis, and subsequent fixation of the hemorrhoidal cushion. However, band ligation, photocoagulation with laser or infrared light, and electrical coagulation with Bicap have supplanted cryosurgery, which may be associated with a higher rate of complication and less patient satisfaction [40].

Laser hemorrhoidectomy — Hemorrhoidectomy using the ND:YAG or carbon dioxide laser has been described [41-43]. However, these approaches do not appear to offer a significant advantage to other approaches and the required equipment is expensive. Furthermore, serious complications have been described [44].

SURGICAL THERAPY — Continued symptoms despite conservative or minimally invasive measures usually require surgical intervention. In addition, surgery is the initial treatment of choice in patients with symptomatic grade IV hemorrhoids or those who have strangulated internal hemorrhoids. It may also be required for symptomatic grade III hemorrhoids and in patients who present with thrombosed hemorrhoids.

A medical position statement issued by the American Gastroenterological Association suggests that surgery should be recommended only for a small minority of patients with any of the following characteristics [1].

- Failure of medical and nonoperative therapy
- Symptomatic third-degree, fourth-degree, or mixed internal and external hemorrhoids
- Symptomatic hemorrhoids in the presence of a concomitant anorectal condition that requires surgery
- Patient preference after discussion of the treatment options with the referring physician and surgeon.

Techniques for the operative treatment of hemorrhoids include:

- Closed hemorrhoidectomy
- Open hemorrhoidectomy with excision and ligation
- Stapled hemorrhoidectomy
- Lateral internal sphincterotomy

These procedures usually require general or spinal anesthesia. However, selected patients may tolerate the procedure with sedation and a local anesthetic.

Closed hemorrhoidectomy — Closed hemorrhoidectomy, or a modification of the technique, is the most common surgical procedure performed for internal hemorrhoids. For the standard closed hemorrhoidectomy, an elliptical incision is made starting on the external hemorrhoidal tissue and extending proximally across the dentate line to the superior extent of the hemorrhoidal column. Care is taken to make the ellipse relatively narrow, and to remove only the redundant anoderm and hemorrhoidal tissue. The defect is closed with a continuous absorbable suture. Usually three hemorrhoidal columns are treated. This technique is successful in 95 percent of cases and has a low rate of wound infection [45].

Open hemorrhoidectomy — To reduce the risk of infection, some surgeons advocate excision and ligation without mucosal closure. However, one study compared open hemorrhoidectomy to a modified closed approach ("semi-open") in 300 patients [46]. The semi-open technique was associated with more rapid healing and a lower incidence of postoperative complications [46].

Stapled hemorrhoidectomy (stapled hemorrhoidopexy) — An intraluminal circular stapling device has been developed as an alternative to conventional surgical hemorrhoidectomy. The device excises a circumferential column of mucosa and submucosa from the upper anal canal, thus reducing the hemorrhoids back into the anal canal and fixing them in position. It also interrupts part of the hemorrhoidal blood supply thereby decreasing vascularity [47-49]. It is not appropriate for treatment of external hemorrhoids.

The stapled hemorrhoidectomy device is being used more commonly in patients with bleeding and/or prolapsing internal hemorrhoids who have failed rubber band ligation. Its role as primary therapy is still being determined. The following illustrate the range of findings:

- Three systematic reviews concluded that stapled hemorrhoidopexy was less effective than conventional surgery and was associated with a higher long-term risk of hemorrhoid recurrence and prolapse [50-52]. There is also a higher incidence of additional operations and tenesmus with stapled hemorrhoidopexy as compared with conventional hemorrhoidectomy [52]. On the other hand, the stapled approach was associated with significantly less pain, a shorter inpatient stay, operative time, and time to return to normal activity [50].

- A controlled trial comparing stapled hemorrhoidectomy to rubber band ligation as primary therapy suggested that stapled hemorrhoidectomy was associated with more pain and minor morbidity, although it had a significantly lower risk of recurrence [49].

- In a randomized trial of stapled hemorrhoidopexy versus hemorrhoidectomy, the procedures were equally effective in preventing recurrence after one year [53]. Patients undergoing hemorrhoidectomy were more likely to have symptomatic relief from the hemorrhoids (69 versus 44 percent with hemorrhoidopexy), but had significantly greater postoperative pain.

- A retrospective evaluated outcomes after a median of 73 months in 291 patients with Grade II or IV hemorrhoids who underwent stapled hemorrhoidopexy [54]. Moderate hemorrhoid-related symptoms were reported in 25 percent while 9 percent reported severe symptoms. Recurrence was reported in 18 percent of whom 21 patients (7 percent of the original cohort) underwent reoperation. Patient satisfaction was 90 percent overall.

One role for stapled hemorrhoidopexy may be for patients seeking a less painful alternative to conventional surgery if the higher risk of recurrence and prolapse are considered an acceptable tradeoff. However, because it is relatively new, its disadvantages may not yet be fully understood. Furthermore, occasional but significant complications are still being reported and the device is expensive [55-58]. Persistent post-defecation pain affects a small percentage of patients; one study suggested that such symptoms may respond rapidly and completely to oral nifedipine [59].

Doppler-guided hemorrhoidal artery ligation — Doppler-guided transanal hemorrhoidal artery ligation (HAL) uses a specially designed proctoscope housing a Doppler transducer to facilitate ligation of the hemorrhoidal artery. A retrospective review of 116 patients with internal hemorrhoids demonstrated improvement in pain, prolapse, and bleeding in 96, 78, and 95 percent of patients, respectively [60]. A randomized trial that included 40 patients with grade 2 or grade 3 hemorrhoids found that patients treated by HAL had significantly less postoperative pain at one week compared with preoperative pain ($p < 0.05$) while patients undergoing an open hemorrhoidectomy had no difference between postoperative pain at one week and preoperative pain [61]. However, at one year, patients treated with an open hemorrhoidectomy had significantly decreased fecal soiling.

Lateral internal sphincterotomy — Patients who have internal hemorrhoids associated with high resting internal anal sphincter pressures may benefit from this procedure. It should be avoided in those who have normal resting sphincter pressure and should be primarily reserved for patients with concomitant fissure disease [62].

Complications of hemorrhoidectomy — The main complications following a standard closed hemorrhoidectomy include urinary retention, urinary tract infection, fecal impaction, and delayed hemorrhage.

- Urinary retention following hemorrhoidectomy is observed in as many as 30 percent of patients [63]. Many of these patients remain asymptomatic, although some require urinary catheterization. Limiting postoperative fluids may reduce the need for catheterization (from 15 to less than 4 percent in one study)

[64]. Warm sitz baths and pain medication also may lessen urinary retention and reduce the need for catheterization.

- Urinary tract infection develops in approximately 5 percent of patients after anorectal surgery [65], possibly secondary to occult urinary retention. (See "Urinary tract infection associated with urethral catheters".)
- Delayed hemorrhage, probably due to sloughing of the primary clot, develops in 1 to 2 percent of patients; it usually occurs 7 to 16 days postoperatively [65]. No specific treatment is effective for preventing this complication, which usually requires a return to the operating room for suture ligation.
- Fecal incontinence can occur in approximately 2 to 10 percent of patients [66,67]. Management of fecal incontinence, including medical therapy and injectable materials, is reviewed separately. (See "Fecal incontinence in adults", section on 'Treatment'.)
- Fecal impaction after a hemorrhoidectomy is associated with postoperative pain and opiate use. Most surgeons recommend stimulant laxatives, stool softeners, and bulk fiber to prevent this problem. Should impaction develop, manual disimpaction with anesthesia may be required.
- Infection is surprisingly uncommon after hemorrhoid surgery. A submucosal abscess occurs in less than 1 percent of cases and severe fasciitis or necrotizing infections are rare [65].
- Other complications include sphincter damage (which is rare), wound dehiscence (which is common but usually of no clinical consequence), and stricture formation (approximate incidence of 1 percent).

POSTOPERATIVE PAIN MANAGEMENT — Pain following hemorrhoidectomy is nearly universal and may in part be due to spasm of the internal sphincter. Because of the frequency of this problem, most patients are given a local injection of a long-acting anesthetic, such as bupivacaine, during the procedure to provide postoperative local pain control. In a review of prospective trials that assessed analgesia following hemorrhoidectomy, perianal infiltration with a long-acting local anesthetic provided significant pain relief, whether given alone or with oral analgesics [68].

Several other end of procedure options have been evaluated in small randomized trials:

- A randomized, placebo-controlled trial of 18 patients found that topical diltiazem ointment (2 percent) applied to the perianal region three times daily for seven days postoperatively was significantly more effective than placebo in reducing pain and the need for prescription narcotics [69]. The mechanism of benefit is presumably related to relaxation of the internal anal sphincter.
- A second randomized trial that compared injection of botulinum toxin to injection of placebo in 30 patients found that botulinum toxin was associated with significant reductions in postoperative pain and the time of healing [70].

Initial postoperative therapy for pain control consists of oral analgesics such as nonsteroidal antiinflammatory drugs and/or acetaminophen, as needed [68]. Opioids may be given if pain is not well controlled but carry the potential adverse effects of inducing constipation and possibly worsening the pain.

A bulk fiber supplement and/or increased dietary fiber and fluid intake will help reduce postoperative constipation and pain upon defecation. A sensation of "tightness" after the procedure can usually be alleviated with a warm sitz bath.

INFORMATION FOR PATIENTS — UpToDate offers two types of patient education materials, "The Basics" and "Beyond the Basics." The Basics patient education pieces are written in plain language, at the 5th to 6th grade reading level, and they answer the four or five key questions a patient might have about a given condition. These articles are best for patients who want a general overview and who prefer short, easy-to-read materials. Beyond the Basics patient education pieces are longer, more sophisticated, and more detailed. These articles are written at the 10th to 12th grade reading level and are best for patients who want in-depth information and are comfortable with some medical jargon.

Here are the patient education articles that are relevant to this topic. We encourage you to print or e-mail these topics to your patients. (You can also locate patient education articles on a variety of subjects by searching on

"patient info" and the keyword(s) of interest.)

- Basics topics (see "Patient information: Hemorrhoids (The Basics)")
- Beyond the Basics topics (see "Patient information: Hemorrhoids (Beyond the Basics)")

AMERICAN SOCIETY OF COLON AND RECTAL SURGEONS GUIDELINES — The American Society of Colon and Rectal Surgeons (ASCRS) has issued guidelines for the treatment of hemorrhoids [4]. These guidelines are available online at www.fascrs.org/physicians/practice_parameters/.

SUMMARY AND RECOMMENDATIONS — We agree with the guidelines issued by the ASCRS, with modifications for grade III hemorrhoids.

- We recommend dietary management consisting of adequate fluid and fiber intake as the primary medical treatment of symptomatic hemorrhoids (**Grade 1B**). (See 'Conservative treatment' above.)
- For patients with medically refractory grades I and II hemorrhoids, we recommend an office-based procedure for initial surgical treatment (**Grade 1B**). We recommend rubber band ligation as the initial office-based procedure (**Grade 1B**). (See 'Office-based procedures' above and 'Rubber band ligation' above.)
- For patients with a single symptomatic grade III hemorrhoid, the authors perform a rubber band ligation. If two or three hemorrhoidal columns are symptomatic, we perform a surgical excision. (See 'Surgical therapy' above.)
- For patients with grade IV hemorrhoids or who have combined internal and external hemorrhoids with significant prolapse, we recommend surgical excision (**Grade 1B**). (See 'Surgical therapy' above.)
- Surgical hemorrhoidectomy is indicated for patients who fail or are unable to tolerate office-based procedures. (See 'Office-based procedures' above.)
- For patients with thrombosed external hemorrhoids, we recommend either observation (oral and topical analgesics, stool softeners, and sitz baths) or excision of overlying skin and clot evaluation, if possible, within 72 hours of onset of symptoms (**Grade 1C**)**.** (See 'Thrombosed hemorrhoids' above.) Definitive treatment is an excision of the external hemorrhoid. (See "Outpatient and surgical procedures for hemorrhoids", section on 'Evacuation of thrombosis and excision of external hemorrhoids'.)
- We recommend perianal infiltration with a long-acting local anesthetic agent, either as a sole technique or as an adjunct to general or regional anesthesia, and a combination of oral analgesics (eg, non-steroidal anti-inflammatory, acetaminophen) for postoperative pain control (**Grade 1A**). (See 'Postoperative pain management' above.)

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Topic 1382 Version 13.0

GRAPHICS

Dietary fiber content of frequently consumed foods

Food	Fiber, g/serving
Fruits	
Apple (with skin)	3.5/1 medium-sized apple
Apricot (fresh)	1.8/3 apricots
Banana	2.5/1 banana
Cantaloupe	2.7/half edible portion
Dates	13.5/1 cup (chopped)
Grapefruit	1.6/half edible portion
Grapes	2.6/10 grapes
Oranges	2.6/1 orange
Peach (with skin)	2.1/1 peach
Pear (with skin)	4.6/1 pear
Pineapple	2.2/1 cup (diced)
Prunes	11.9/11 dried prunes
Raisins	2.2/packet
Strawberries	3.0/1 cup
Juices	
Apple	0.74/1 cup
Grapefruit	1.0/1 cup
Grape	1.3/1 cup
Orange	1.0/1 cup
Vegetables	
Cooked	
Asparagus	1.5/7 spears
Beans, string, green	3.4/1 cup
Broccoli	5.0/1 stalk
Brussels sprouts	4.6/7-8 sprouts
Cabbage	2.9/1 cup (cooked)
Carrots	4.6/1 cup
Cauliflower	2.1/1 cup
Peas	7.2/1 cup (cooked)
Potato (with skin)	2.3/1 boiled
Spinach	4.1/1 cup (raw)
Squash, summer	3.4/1 cup (cooked, diced)
Sweet potatoes	2.7/1 baked
Zucchini	4.2/1 cup (cooked, diced)

Raw	
Cucumber	0.2/6-8 slices with skin
Lettuce	2.0/1 wedge iceberg
Mushrooms	0.8/half cup (sliced)
Onions	1.3/1 cup
Peppers, green	1.0/1 pod
Tomato	1.8/1 tomato
Spinach	8.0/1 cup (chopped)
Legumes	
Baked beans	18.6/1 cup
Dried peas	4.7/half cup (cooked)
Kidney beans	7.4/half cup (cooked)
Lima beans	2.6/half cup (cooked)
Lentils	1.9/half cup (cooked)
Breads, pastas, and flours	
Bagels	1.1/half bagel
Bran muffins	6.3/muffin
Cracked wheat	4.1/slice
Oatmeal	5.3/1 cup
Pumpernickel bread	1.0/slice
White bread	0.55/slice
Whole-wheat bread	1.66/slice
Pasta and rice cooked	
Macaroni	1.0/1 cup (cooked)
Rice, brown	2.4/1 cup (cooked)
Rice, polished	0.6/1 cup (cooked)
Spaghetti (regular)	1.0/1 cup (cooked)
Flours and grains	
Bran, oat	8.3/oz
Bran, wheat	12.4/oz
Rolled oats	13.7/1 cup (cooked)
Nuts	
Almonds	3.6/half cup (slivered)
Peanuts	11.7/1 cup

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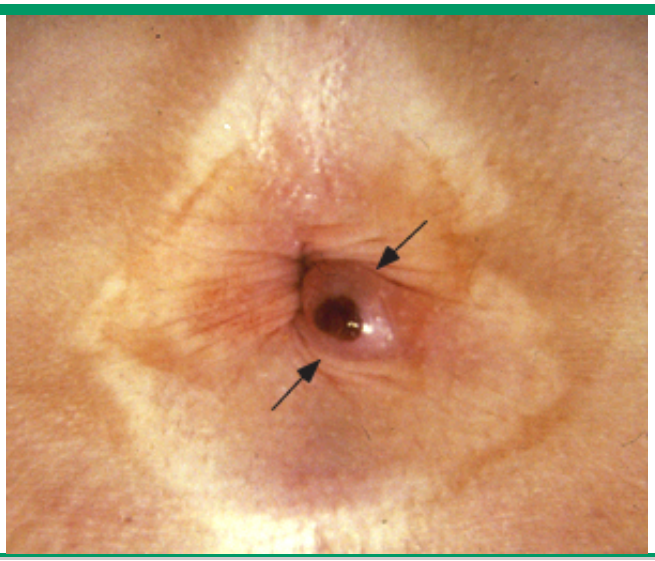
Graphic 82094 Version 5.0

Thrombosed external hemorrhoids



Photograph shows a swollen external hemorrhoid (arrows).

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Graphic 72916 Version 2.0