

Anal Fissure

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CASE SUMMARY: A 30-year-old otherwise healthy woman presents with 1 week of pain, “like passing glass,” with defecation and bright red blood with bowel movements. She typically has hard stools.

CLINICAL QUESTIONS

- What are the presenting signs and symptoms of anal fissure?
- What are the medical and surgical treatment options?

BACKGROUND

Anal fissures are longitudinal tears in the anal canal, distal to the dentate line. They are typically seen in younger to middle-aged adults. The incidence is difficult to estimate, because a large proportion are self-limited and are never formally diagnosed, a common issue with estimating the frequency of benign anorectal diagnoses. Nevertheless, it is one of the most common conditions seen in a colorectal surgery practice.

The inciting event for the development of a fissure is likely trauma from hard stool, although diarrhea can also lead to the initial anoderm trauma. Increased internal anal sphincter tone is associated with anal fissures, but it likely plays a role in the persistence of a fissure rather than representing the inciting event. It is hypothesized that increased sphincter tone

decreases blood flow to the area and prevents healing once a fissure has formed. The association between fissures and hypertonic sphincters has been demonstrated manometrically, as has the association between hypertonic sphincter and decreased blood flow to the anoderm.

PRESENTATION

The most frequent symptom for fissure patients is sharp pain. Patients may describe having a bowel movement like passing glass or razor blades. The pain is worst with, and immediately after, bowel movements. In more chronic cases, constant pain may be reported as muscular hypertrophy occurs and sphincter spasm begins to contribute to the pain process. Patients often report bright red blood either streaking the stool or when wiping.

On physical examination, patients with an acute fissure will likely have a normal perineum. It may be possible to palpate a hypertonic sphincter with some degree of tenderness. Those with a more chronic fissure may have a small skin tag or sentinel pile in the posterior or anterior externally. With gentle spreading of the perianal skin, the most distal aspect of the fissure can sometimes be visualized, rendering additional examination in the acute setting unnecessary. Given the level of pain that patients with this problem experience, it may be difficult to perform digital rectal examination or anoscopy in the office. Patients with a chronic fissure often have exposed fibers of the internal sphincter at the base and a hypertrophic anal papilla at the proximal extent. There may be edema, fibrosis, or heaped-up granulation tissue at the edges of a chronic fissure. Most (75%–90%) fissures are located in the posterior midline, and most others are in the anterior midline. An off-midline fissure, or one not associated with a hypertonic sphincter, should raise suspicion of an underlying disease process, such as HIV, Crohn's disease, neoplasia, tuberculosis, or other infections.

MANAGEMENT

Many patients with acute fissures will resolve without any intervention or with a bowel management program including hot baths, psyllium fiber, a high-fiber diet, and increased intake of liquids. However, there are a variety of

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medical and surgical options to address fissures that do not respond to these measures.

Medical Management

Nonsurgical management may lead to resolution of symptoms in many patients, so it is generally worth a trial in all patients with an acute fissure and the majority of patients with a chronic fissure. An algorithm for the treatment of anal fissure is found on page 295.

Topical Nitrites

Topical nitrates release nitric oxide and result in relaxation of the internal anal sphincter. In meta-analysis, nitroglycerine ointment was found to be marginally superior to placebo in terms of healing, 48.9% versus 35.5%, although other studies have shown more successful results.¹ One prospective study demonstrated significant decreases in pain scores with topical nitrates in patients with chronic fissure compared with placebo. Adverse effects of topical nitrates include severe headaches. The estimated incidence of severe, disabling headaches is <70% of patients in some studies. These can often be resolved by decreasing the amount of ointment used but in some patients can require premature cessation of treatment. Recurrence rates after resolution with topical nitrates may be as high as 50%, depending on the study.

Calcium Channel Blockers

Calcium channel blockers, usually nifedipine or diltiazem, can be compounded into topical gel that relaxes the internal sphincter and promotes blood flow. Oral formulations may also be used but can have systemic adverse effects, primarily hypotension or orthostasis. Although not US Food and Drug Administration–approved for this indication, prospective trials have demonstrated healing in 68% of patients by 8 weeks of follow-up,² and others have shown healing rates of <95% compared with 50% with placebo.³ Although some trials have shown superior healing with calcium channel blockers compared with nitrates,⁴ other head-to-head analyses have shown relative equivalence with a significantly improved adverse effect profile for calcium channel blockers.⁵ The choice between nitrates and calcium channel blockers is somewhat practitioner-dependent and may also be determined by the availability of a compounding pharmacy.

Chemodenervation (Botulinum Toxin)

Botulinum toxin is produced by the bacterium *Clostridium botulinum* and acts on the presynaptic nerve at the neuromuscular junction to prevent the release of acetylcholine. This temporarily paralyzes the internal anal sphincter. There is significant variation in the amount of toxin used, typically 40 to 100 units, as well as variation in the location of the injection. Some practitioners inject into the internal

sphincter at all 4 quadrants, into the fissure directly, or on either side of the fissure. In general, higher doses appear to correspond with improved healing rates without compromising safety. A prospective trial comparing 20 units of botulinum toxin with diltiazem ointment showed equivalent healing,⁶ and a different multicenter study demonstrated improved efficacy to topical nitroglycerin.⁷ Other prospective studies have demonstrated healing rates of <75% but typically reported healing rates that are somewhat lower. The injection is well tolerated by patients and may work best when given in conjunction with a topical nitrate or calcium channel blocker. Recurrence rates after botulinum toxin injection may be <42%, but there is decreased incontinence compared with surgery.⁸

OPERATIVE TREATMENT

Lateral Internal Sphincterotomy

The very high healing rate (80%–95%) and low recurrence rate make lateral internal sphincterotomy (LIS) the gold standard for the treatment of anal fissures. A Cochrane analysis of randomized controlled trials found an OR of 0.11 (95% CI, 0.06–2.23) when comparing nonhealing at a median of 2 months for surgical treatment versus medical management.¹ The sphincterotomy can be performed as an open or closed procedure with equivalent results with regard to healing, recurrence, and complications. In an open sphincterotomy (Fig. 1), a small incision is made in the intersphincteric groove and a portion of the internal sphincter is dissected out before division. A closed sphincterotomy involves a stab incision in the intersphincteric groove and division based on palpation. The overall incidence of disturbed continence after LIS was reported at 14% in a systematic review that included >4500 patients, with the majority reporting problems with flatus, soiling, or seepage rather than accidental defecation, which

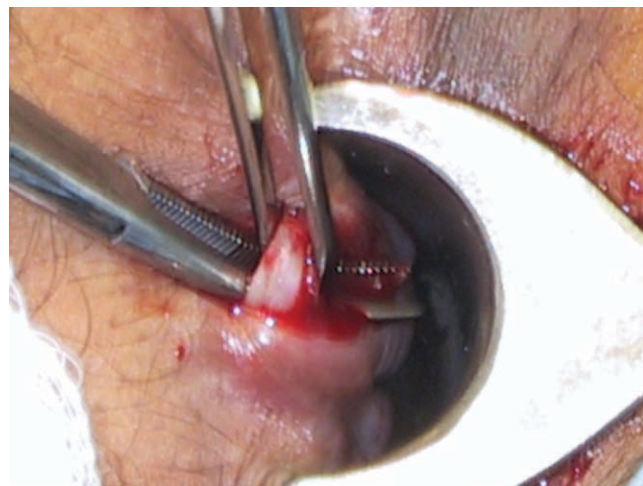


FIGURE 1. Lateral internal sphincterotomy.

occurred in <1%.⁹ In addition, most of the incontinence after LIS is transient. To address the issue of incontinence, the idea of a tailored sphincterotomy, with division of the IAS to the length of the fissure rather than to the dentate line, has been described. The rate of healing appears to be slightly decreased with this approach, but improved continence is described.¹⁰ Patients with other risk factors for fecal incontinence, such as those with previous sphincter injuries or an attenuated sphincter after childbearing, should be offered LIS with more caution than others.

Fissurectomy excision of the anal fissure has been proposed, but its success is limited when the underlying issue of a hypertonic sphincter has not been addressed. The combination of fissurectomy and botulinum injection has been proposed and in a prospective study was found to have very low complication rates, 95% resolution or improvement at 12 weeks, and transient postoperative incontinence to stool and/or flatus in 7%.¹¹

Advancement Flaps

When patients do not have a hypertonic sphincter, they may be less likely to respond to treatments aimed at typical fissures. These patients may be particularly well suited for consideration of fissurectomy with dermal advancement flap. For those with hypertonic sphincters, prospective studies have suggested a modified LIS with

sphincterotomy to the level of the fissure apex with a dermal advancement flap, which appears to result in better healing and less postoperative pain than a typical LIS to the dentate line. This can be done as a VY flap from the perianal skin.

SPECIAL SITUATIONS

When a fissure is off the midline, an additional diagnosis such as Crohn's disease, tuberculosis, HIV, or a sexually transmitted infection should be considered. In general, patients with Crohn's disease should not be treated with sphincterotomy. In Crohn's-related fissures that appear more typical and are associated with sphincter hypertonicity, medical management similar to the approach for a typical fissure is reasonable. However, Crohn's-directed medical therapy is essential for these patients when their fissures are a manifestation of IBD. When sexually transmitted or other infection is suspected, cultures and biopsies are used to identify the organism. HIV-related ulcerations are addressed by optimizing retroviral therapy. Other infections, such as syphilis, herpes, and gonorrhea, can all produce fissures. These should be appropriately managed, and patients should be counseled regarding the transmission of infection.

EVALUATION AND TREATMENT ALGORITHM

