

Anal fissure: Surgical management

Miguel Angel Flores-Delgado¹, Héctor Zúñiga-Gazcón¹, Diego Eduardo Saavedra Mayorga², Luis Antonio Villalobos Calderon³ Felix Osuna Gutierrez⁴

¹Departamento de Cirugía, Unidad Médica de Alta Especialidad (UMAE), Hospital de Especialidades (HE), Centro Médico Nacional de Occidente (CMNO), IMSS, Guadalajara, Jalisco, México.

²Departamento de Anestesiología, Unidad Médica de Alta Especialidad (UMAE), Hospital de Especialidades (HE), Centro Médico Nacional de Occidente (CMNO), IMSS, Guadalajara, Jalisco, México.

³Universidad Autónoma de Guadalajara, Guadalajara, Jalisco, México.

⁴Institution: Autonomous University of Guadalajara, Guadalajara, Jalisco, México.

ABSTRACT

An anal fissure is a tear or ulceration in the lining of the anal canal below the mucocutaneous junction. Medical treatment cures an anal fissure typical in most patients. Because sphincter preservation is important for patients who often have chronic diarrhea, fissures in Crohn's patients are usually treated medically rather than surgically. A lateral sphincterotomy is reserved for Crohn's patients with minimal active anorectal inflammation who fail all available non-surgical therapies. Medical treatment is often used as an initial treatment of an anal fissure. Surgery is reserved for patients in whom medical treatment fails. The technique will depend on the patient and the type and temporality of the fissure according to the different authors. The choice of technique should be based on the individual characteristics of the patients to reduce complications as much as possible.

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INTRODUCTION

An anal fissure is a tear or ulceration in the lining of the anal canal below the mucocutaneous junction (anal sinuses). Most often caused by local trauma, fissures cause pain during defecation that persists for an hour or two. The persistence of an anal fissure is usually associated with anal spasms or high anal pressure. Medical treatment is often used as an initial treatment of an anal fissure. Surgery is reserved for patients in whom medical treatment fails.^{1,2}

This topic discusses the surgical modalities of anal fissure treatment, including lateral internal sphincterotomy and botulinum toxin injection.²

THEORETICAL FRAMEWORK

Medical treatment cures an anal fissure typical in most patients. Surgical treatment may be offered to patients whose fissure is not cured with medical treatment. Patients who are willing to undergo surgical treatment undergo additional triage based on their risk of faecal incontinence. Women who have had multiple vaginal deliveries and older patients may have a weak anal sphincter complex, which puts them at high risk of developing faecal incontinence after surgical treatment of the anal fissure. Such patients should undergo

One of the procedures that do not require division of the anal sphincter muscle (e.g., botulinum toxin injection, fistulectomy, or anal advancement flap). Other patients who are not at risk of developing faecal incontinence may undergo an internal lateral sphincterotomy, which is considered the most effective treatment for anal fissures.^{3,4}

Patients at low risk of incontinence: Sphincterotomy: A lateral internal sphincterotomy provides immediate symptomatic relief and cures fissures in more than 95% of patients within three weeks. In patients who have a low risk of developing faecal incontinence, internal lateral sphincterotomy is the gold standard for the surgical treatment of an anal fissure secondary to hypertonicity or hypertrophy of the internal anal sphincter. As a gold standard, lateral internal sphincterotomy has been compared to all other therapies for anal fissure, including topical nitroglycerin, botulinum toxin A injection, and oral nifedipine.^{5,6}

Lord's dilation, or four fingers, in the operating room, had previously been used for the treatment of fissures before lateral sphincterotomy. Although this treatment may improve spasms in the internal anal sphincter, it is associated with a high incidence of sphincter tears and faecal incontinence and has therefore been abandoned. Neuromodulation has also

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been studied as a conservative sphincter treatment for anal fissures; however, experience with this technique is limited and has not been directly compared to other approaches. A posterior sphincterotomy in the midline was found to be inferior to the internal lateral sphincterotomy and is rarely performed because it can result in a "keyhole deformity."^{6,7}

Risk of faecal incontinence: A major concern with surgery for fissures is the risk of fecal incontinence. Fecal incontinence can be characterized as minor (defined as inadvertent leakage of flatus or partial dirt from underwear with liquid stool) or major (involuntary excretion of feces). Lateral internal sphincterotomy can cause long-term incontinence (≥ 2 years) of both flatus and stool.⁸

Patients at high risk of incontinence: For patients who are at high risk of developing fecal incontinence (e.g., multiparous women or older patients), options for surgical management of anal fissure include botulinum toxin A injection, V-Y advancement flap, and subcutaneous physurectomy. These alternatives to lateral sphincterotomy do not require the internal sphincter muscle to divide and therefore reduce the risk of fecal incontinence.⁸

Botulinum toxin injection: Botulinum toxin is a potent inhibitor of acetylcholine release from nerve endings and has been used successfully for decades to treat certain spastic disorders of skeletal muscle such as blepharospasm and torticollis. It has also been used to treat spastic disorders of the gastrointestinal tract such as achalasia and anal fissure.⁹ Injecting botulinum toxin into the anal sphincter can help relax the hypertonic muscle of the anal sphincter and, in turn, improve the healing of chronic anal fissures. A commercially prepared form of botulinum toxin type A (e.g., Botox, Dysport) is usually given as injections around the anal canal. Dosages (ranging from 10 to 100 units) vary depending on the specific brand and preparation of botulinum toxin being used.⁹

Botulinum toxin treatment for anal fissure has been performed safely in patients who developed anal fissures while actively receiving chemotherapy.⁹

Physurectomy: A physurectomy, or excision of the anal fissure, is also an effective treatment of chronic anal fissure that has a low recurrence rate and a low risk of fecal incontinence. In a study of 53 patients whose chronic fissures were successfully treated with physurectomy, only five patients (11 percent) relapsed with a five-year follow-up. Physurectomy did not affect the rate of fecal incontinence.¹⁰

Anal advancement flap: An anal advancement flap, such as the V-Y endoanal advancement flap, does not divide the internal sphincter and is not associated with an increased risk of fecal incontinence. It is an alternative to lateral internal sphincterotomy for patients who are at risk of developing fecal incontinence (e.g., older adults, multiparous women, recurrent fissures), especially for those whose fissures are not related to hypertonicity of the sphincter muscle.¹⁰

PERSISTENT OR RECURRENT ANAL FISSURE AFTER SURGERY

Fissures that do not heal or recur after lateral internal sphincterotomy have been associated with incomplete sphincterotomy, sphincter hypertonia, or chronic morphological changes within the fissure, including fibrosis, a sentinel pile, or coiled edges. Patients who have persistent or recurrent fissures despite surgery are usually managed conservatively with a high-fiber diet and ample fluid intake. These conservative measures can cure about two-thirds of persistent or recurrent fissures that are not related to infection, inflammation, or malignancy. The rest of the patients receive additional treatment based on their symptoms.¹¹

Painless: When a persistent anal fissure bleeds with bowel movements but is not painful, it does not require surgical intervention.¹¹

Minimal pain: When a fissure does not heal and is minimally painful, a subcutaneous fissurectomy may be performed, especially if the fissure has one of the following chronic morphological changes.¹¹

- Fibrosis
- A sentinel stack
- Laminated edges

Severe pain: When a persistent or recurrent fissure causes severe rectal pain, anal ultrasound is indicated to evaluate the extent of the anterior lateral internal sphincterotomy. Further treatment depends on the integrity of the sphincterotomy initiates.¹¹

Incomplete sphincterotomy: If the lateral internal sphincterotomy was not completed, a repeated procedure is performed to complete the sphincterotomy at the level of the toothed line. Repeated sphincterotomy can be performed on the same side or, more commonly, on the contralateral side to avoid scar tissues from the first procedure. A subcutaneous physurectomy may also be added at the surgeon's discretion, depending on the presence or absence of the same chronic morphological changes listed above.¹²

In a review of 51 patients after a lateral internal sphincterotomy, there was a significantly increased risk of fissure recurrence with an incompletely divided internal sphincter compared to a fully divided sphincter (75 versus 10 percent).¹²

Complete sphincterotomy: If the lateral internal anal sphincter muscle is clearly divided at a point proximal to the tooth line, a surgical physurectomy may be performed and an endoanal V-Y advancement flap is used to cover the defect.¹²

ATYPICAL ANAL FISSURE

The finding of an atypical anal fissure (multiple, outside the midline, large or irregular) should alert the surgeon to the possibility of a secondary manifestation of a systemic disease, such as Crohn's disease, tuberculosis, HIV infection,

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adenocarcinoma, metastatic basal cell carcinoma, lymphoma or leukemia. Patient evaluation should include a complete history and physical examination focused on the secondary manifestations of systemic disease, wound cultures to identify possible infection, and examination under anesthesia with biopsies to rule out malignancies.^{12,13}

Fissures related to an underlying systemic disease are best treated initially with aggressive medical management of that disease. As an example, patients with fissures due to Crohn's proctitis should be referred to a gastroenterologist for optimal management of their Crohn's disease. Fissures related to Crohn's disease are multiple in about one-third of patients. These fissures are usually painless. Therefore, excessive rectal pain in a patient with Crohn's-related fissures should raise suspicions of developing a perirectal abscess and prompt examination under anesthesia and possibly a drainage procedure.^{13,14}

DISCUSSION

Because sphincter preservation is important for patients who often have chronic diarrhea, fissures in Crohn's patients are usually treated medically rather than surgically. A lateral sphincterotomy is reserved for Crohn's patients with minimal active anorectal inflammation who fail all available non-surgical therapies. Medical treatment is often used as an initial treatment of an anal fissure. Surgery is reserved for patients in whom medical treatment fails. The technique will depend on the patient and the type and temporality of the fissure according to the different authors.^{14,15}

CONCLUSION

The choice of technique should be based on the individual characteristics of the patients to reduce complications as much as possible.

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