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BATTLE OF THE BLADES: TRANSMUCOSAL VERSUS LATERAL ANAL SPHINCTEROTOMY- A CASE SERIES

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ABSTRACT

Background: Fissure in ano is an ulcer in the longitudinal axis of the lower anal canal. Globally, the Annual incidence is estimated between 0.1–0.2% (≈ 1–2 cases per 1,000 people per year)Affects both sexes equally, most common in young and middle-aged adults. Commonly it occurs in the midline, posteriorly (more common in males), but can also occur in the midline anteriorly (more common in females). 95% of anal fissures in men are posterior; 5% are anterior. 85% of anal fissures in females are posterior; 20% are anterior. Failure of conservative and medical therapy necessitates surgical intervention. Lateral Anal sphincterotomy (LAS) is the established gold-standard procedure, while Transmucosal internal anal sphincterotomy (TMIS) has emerged as a newer technique aimed at achieving similar outcomes with minimal tissue dissection. **Objective:** To evaluate and compare the outcomes of transmucosal internal anal sphincterotomy and lateral anal sphincterotomy in the treatment of chronic fissure in ano. **Methods:** This study was conducted as a case series including eight patients with chronic fissure in ano who did not respond to medical management divided four each for the two treatment modalities. Four patients underwent transmucosal internal anal sphincterotomy, and four patients underwent lateral anal sphincterotomy. Patients were followed postoperatively to assess pain relief, fissure healing, and complications. **Results:** All patients in both groups showed significant relief from pain in the early postoperative period. Complete fissure healing was achieved in the majority of cases in both transmucosal internal anal sphincterotomy and lateral anal sphincterotomy groups. No major complications were observed. No recurrence was observed during the study period. **Conclusion:** Transmucosal internal anal sphincterotomy and lateral anal sphincterotomy demonstrated equivalent efficacy in chronic anal fissure healing, with comparable pain relief, complication rates, and satisfaction at short-term follow-up. Transmucosal internal anal sphincterotomy may be considered an alternative surgical option, especially for surgeons seeking a less invasive dissection., Further large-scale multicenter trials are needed to confirm long-term outcomes.

INTRODUCTION

Fissure-in-ano is a very common and painful condition. Fissures occur most commonly in the midline posteriorly, the least protected part of the anal canal. In males fissures usually occur in the midline posteriorly (90%) and much less commonly anteriorly (10%). In females fissures on the midline posteriorly are slightly commoner than anteriorly (60: 40). The relative frequency of the anterior fissures in the females may be explained by the trauma caused by the foetal head on the anterior wall of the anal canal during delivery. The predominantly posterior midline location of fissures has been explained by (a) posterior angulation of the anal canal, (b) relative fixation of the anal canal posteriorly, (c) divergence of the fibres of the external sphincter muscle posteriorly and (d) the elliptical shape of the anal canal. Constipation, has been the most common aetiological factor. Spasm of the internal sphincter has also been incriminated to cause fissure-in-ano. When too much skin has been removed during operation for haemorrhoids, anal stenosis may result in which anal fissure may develop when hard motion passes through such stricture. Secondary causes of anal fissures must be remembered. These are Ulcerative colitis, crohn's disease, syphilis, tuberculosis.

Fissure starts proximally at the dentate line. So whole of the anal fissure lies in the sensitive skin of the anal canal and that is why pain is the most prominent symptom. There are two types of fissure-in-ano acute and chronic. Acute fissure-in-ano is a tear of the skin of the lower half of the anal canal. There is hardly any inflammatory induration or oedema of its edges. Anal sphincter muscle spasm is always present. Chronic fissure-in-ano is a deep canoe-shaped ulcer with thick oedematous margins. At the upper end of the ulcer there is hypertrophied papilla. At the lower end of the ulcer there is a skin tag known as 'sentinel pile (sentinel because it guards the anal fissure). There is characteristic inflammation, and induration at the margins. Base consists of scar tissue and internal sphincter muscle. Spasm of the internal sphincter is always present. Sometimes infection may lead to abscess formation. Anal sphincter muscle spasm is always present.

Most cases initially respond to conservative measures, including high-fiber diets, adequate hydration, stool softeners, and sitz baths, which aim to relieve constipation and reduce anal sphincter spasm. In patients with persistent symptoms, medical therapies such as topical nitrates, calcium channel blockers, or botulinum toxin injection may be employed to chemically reduce internal anal sphincter tone. While these measures can promote healing in acute fissures, chronic fissures—defined as those lasting more than 6–8 weeks—often fail to respond, necessitating surgical intervention.

Among surgical options, lateral anal sphincterotomy (LAS) is the established gold-standard procedure, demonstrating high healing rates, low recurrence, and minimal complications. Recently, transmucosal internal anal sphincterotomy (TMIS) has been introduced as a minimally invasive alternative, allowing controlled division of the internal sphincter via a mucosal approach. Early clinical experience suggests that transmucosal internal anal sphincterotomy (TMIS) achieves comparable outcomes to lateral anal sphincterotomy (LAS) in terms of pain relief, fissure healing, and patient satisfaction, with potentially reduced tissue trauma and postoperative discomfort. Therefore, both lateral anal sphincterotomy (LAS) and transmucosal internal anal sphincterotomy (TMIS) represent the definitive surgical treatments for chronic fissure in ano, providing reliable and effective relief when conservative and medical therapies fail.

MATERIALS AND METHODS

Study Design

This was a prospective comparative pilot study conducted on eight patients diagnosed with chronic anal fissure in the opd, department of shalyatantra, government ayurvedic medical college, Bengaluru.

Patient Selection

Inclusion criteria

- Age between 18-60 years
- Subjects diagnosed with chronic fissure in ano – presenting with clinical features of presence of ulcer at anal verge, pain, burning sensation during and after defecation, bleeding per anum, constipation, Sphincter spasm, with or without sentinel tag.
- Selection of subjects will be done irrespective of gender, religion, occupation.
- Failure of conservative treatment

Exclusion criteria

- Acute anal fissure (<6 weeks duration)
- Multiple anal fissures
- Fissure associated with hemorrhoids requiring surgical intervention
- Anal fistula or perianal abscess
- Anal stricture or stenosis
- Pre-existing fecal or flatus incontinence
- Neurological disorders affecting bowel control
- Previous pelvic radiation
- Pregnancy or postpartum status
- Diabetes mellitus with poor glycemic control
- Immunocompromised states (e.g., HIV infection, long-term steroid therapy)
- Coagulopathies or patients on anticoagulant therapy
- Inability to comply with follow-up protocol

Study Groups

- **Group A (TMIS):** 4 patients underwent transmucosal internal sphincterotomy
- **Group B (LAS):** 4 patients underwent lateral anal sphincterotomy

Operative procedure

Transmucosal Internal Sphincterotomy (TMIS)

Preoperative procedure

- Detailed history and clinical examination to confirm chronic non healing anal fissure
- Routine preoperative investigations (CBC, blood sugar, coagulation profile)
- Informed written consent
- Bowel preparation with sodium phosphate enema on the morning of surgery
- Prophylactic antibiotics administered
- Procedure performed under local anesthesia
- Patient placed in lithotomy position
- Vitals monitored
- Inj lignocaine 0.2 ml test dose given subcutaneously
- Inj TT 0.5ml IM given
- Part preparation done

Operative procedure

- Subject is made to lie in lithotomy position.
- Perianal region is cleaned with betadine and sterile draping is done.
- Local anaesthesia is achieved by means of field block by infiltrating the anaesthic agent around the anal verge.
- Manual anal dilatation is achieved upto four fingers.

- Anal canal is visualized using slit proctoscope.
- Internal sphincter appears as a band beneath the anorectal mucosa.
- A small longitudinal incision is made on the anal mucosa below the dentate line directly over the internal anal sphincter at the intersphincteric groove using no.11 blade.
- The mucosa is carefully dissected to expose the underlying internal anal sphincter fibers.
- A controlled partial division of the internal sphincter is performed under direct vision using a scalpel or electrocautery.
- Adequate sphincter release is confirmed by reduction in sphincter tone.
- The mucosal incision is usually left open to heal by secondary intention or can be closed using simple interrupted or figure of eight suture.
- Hemostasis is achieved.
- Anal pack kept and sterile dressing done.

Post operative procedure

- Remove anal pack after 6 hours
- Oral analgesics
- Stool softeners and high-fiber diet advised
- Sitz baths recommended 2–3 times daily
- Early ambulation encouraged
- Follow-up visits scheduled to assess fissure healing

Operative procedure

Lateral anal sphincterotomy

Preoperative procedure

- Detailed history and clinical examination to confirm chronic non healing anal fissure.
- Routine preoperative investigations (CBC, blood sugar, coagulation profile)
- Informed written consent
- Bowel preparation with sodium phosphate enema on the morning of surgery
- Prophylactic antibiotics administered at induction
- Procedure performed under local anesthesia
- Patient placed in lithotomy position
- Vitals monitored
- Inj lignocaine 0.2 ml test dose given subcutaneously
- Inj TT 0.5ml IM given
- Part preparation done

Operative procedure

- Subject is made to lie in lithotomy position.
- Perianal region is cleaned with betadine and sterile draping is done.
- Local anaesthesia is achieved by means of field block by infiltrating the anaesthic agent around the anal verge.
- Manual anal dilatation is achieved upto four fingers.
- A small incision is made over the skin external to the anal verge corresponding to the intersphincteric groove at the lateral position (usually at 3 or 9 o'clock).
- Blunt dissection is carried out to identify the internal anal sphincter.
- The internal anal sphincter fibres are catch hold with the mosquito forcerps
- The lower one-third to one-half of the internal anal sphincter is carefully divided using a scalpel.
- Adequate sphincterotomy is confirmed by reduction in anal tone.
- The skin incision is closed with absorbable suture vicryl 2-0.
- Haemostasis achieved.
- Anal pack kept and sterile dressing done.

Post operative procedure

- Remove anal pack after 6 hours
- Oral analgesics
- Stool softeners and high-fiber diet advised
- Sitz baths recommended 2–3 times daily
- Early ambulation encouraged
- Follow-up visits scheduled to assess fissure healing

RESULTS

A total of eight patients with chronic anal fissure were included in the study, with four patients each undergoing transmucosal internal sphincterotomy (TMIS) and lateral anal sphincterotomy (LAS). All patients completed the follow-up period of 4 weeks.

Clinical Outcome

Both TMIS and LIS were effective in relieving symptoms of chronic anal fissure. All patients in both groups experienced significant postoperative reduction in pain and improvement in symptoms.

Fissure Healing

Complete fissure healing was achieved in all patients in both groups by the end of the follow-up period. No cases of delayed or non-healing fissures were observed.

Postoperative Morbidity

No major postoperative complications were noted in either group. Minor, transient postoperative discomfort was observed in both groups and was managed conservatively.

Continence Status

All patients in both groups maintained satisfactory continence throughout the follow-up period. No permanent fecal or flatus incontinence was reported.

DISCUSSION

Lateral anal sphincterotomy (LAS) has long been regarded as the gold standard surgical treatment for chronic anal fissure, owing to its consistently high healing rates and reliable symptom relief. Extensive literature supports its effectiveness in reducing internal sphincter hypertonicity, thereby promoting fissure healing. As a result, LAS continues to be widely practiced and accepted as the classical operative

approach.

In the present pilot study, both lateral anal sphincterotomy and transmucosal internal sphincterotomy (TMIS) demonstrated effective clinical outcomes. Complete fissure healing and significant symptom relief were achieved in all patients, confirming the established efficacy of LAS while also highlighting the therapeutic potential of TMIS.

Although LAS is highly effective, concerns regarding postoperative morbidity—particularly minor degrees of incontinence—have encouraged the exploration of less invasive techniques. TMIS, performed through a limited mucosal incision with controlled division of the internal sphincter, aims to achieve adequate sphincter relaxation while minimizing tissue disruption. In this study, TMIS showed outcomes comparable to LAS, with satisfactory pain relief, complete fissure healing, and preservation of continence.

The findings suggest that TMIS may offer certain practical advantages, including reduced sphincter trauma and potentially lower risk of continence disturbance. These features make TMIS an attractive option, especially in carefully selected patients. However, it must be emphasized that LAS remains the most well-established and time-tested procedure, supported by large-scale studies and long-term follow-up data.

The principal limitation of this study is the small sample size, which restricts statistical comparison and generalizability. Nevertheless, as a pilot study, the results provide preliminary evidence that TMIS is a promising alternative to the classical lateral approach. Further randomized controlled trials with larger patient populations and longer follow-up are required to validate these findings and to define the precise role of TMIS in the surgical management of chronic anal fissure.

CONCLUSION

Both lateral anal sphincterotomy and transmucosal internal sphincterotomy were found to be safe and effective surgical options for the treatment of chronic anal fissure in this pilot study. Lateral anal sphincterotomy continues to remain the classical and well-established procedure with proven efficacy. Transmucosal internal sphincterotomy demonstrated comparable short-term outcomes with satisfactory symptom relief, complete fissure healing, and preservation of continence.

The results suggest that transmucosal internal sphincterotomy may serve as a promising alternative to the traditional lateral approach, particularly in selected patients where minimizing sphincter trauma is desirable. However, larger randomized studies with longer follow-up are necessary to further validate these findings and to clearly define the role of transmucosal internal sphincterotomy in routine clinical practice.