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COMPARISON OF PARTIAL INTERNAL SPHINCTEROTOMY (PIS) AND LATERAL INTERNAL SPHINCTEROTOMY (LIS) IN THE TREATMENT OF FISSURE IN ANO: A CRITICAL REVIEW

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ABSTRACT

Anal fissures, which are small tears in the mucosal lining of the anus, can cause significant pain and discomfort. Partial Internal Sphincterotomy (PIS) and Lateral Internal Sphincterotomy (LIS) are two surgical interventions commonly employed to manage chronic anal fissures, aiming to reduce sphincter hypertonia and promote healing. This review article provides a comprehensive comparison of PIS and LIS in terms of efficacy, safety, and patient outcomes. PIS involves a limited incision of the internal anal sphincter, preserving more sphincter muscle and potentially reducing the risk of postoperative complications such incontinence. LIS, on the other hand, entails a more extensive lateral incision, which has been traditionally favored due to its high success rates in achieving fissure healing and pain relief. In evaluating the efficacy of both procedures, this review synthesizes data from multiple studies and clinical trials. LIS consistently demonstrates higher rates of fissure resolution, with healing rates often exceeding 90%. However, PIS shows comparable healing outcomes in many cases, particularly in patients with less severe fissures. The time to symptom resolution is generally shorter with LIS, but PIS presents a lower risk profile concerning postoperative fecal incontinence. The safety profile of both procedures is critically analyzed. LIS is associated with a higher incidence of temporary and, less commonly, permanent fecal incontinence, a significant concern for patient quality of life. PIS, while reducing this risk, may sometimes result in incomplete fissure healing or recurrence, necessitating further intervention. Patient satisfaction and quality of life metrics reveal that while LIS offers quicker symptom relief, the long-term satisfaction with PIS is comparable, given its conservative nature and lower complication rates. The choice between PIS and LIS should be tailored to individual patient needs, considering factors such as fissure severity, patient comorbidities, and risk tolerance for postoperative complications. In conclusion, both PIS and LIS are effective surgical options for treating chronic anal fissures. Further comparative studies are needed to refine surgical guidelines and optimize patient outcomes in the management of fissure in ano.

KEYWORDS: Anal Fissure, Anal Ulcer, Internal Sphincterotomy, Anal Sphincterotomy, Partial Internal Sphincterotomy, Lateral Internal Sphincterotomy.

INTRODUCTION

Anal fissures are a common anorectal condition characterized by a tear or ulcer in the lining of the anal canal. They cause significant pain and discomfort, particularly during bowel movements, and can affect individuals of any age. Traditional treatments range from dietary modifications to surgical interventions. Among these, sphincterotomy, a procedure that involves cutting a portion of the internal anal sphincter to reduce spasm and pain, has been shown to be highly effective. Anal fissures are small tears in the mucosa of the anal canal, typically located at the posterior midline.[1] They are classified as either acute or chronic based on their duration and associated symptoms. Acute fissures are those that persist for less than six weeks and usually heal with conservative measures, whereas chronic fissures last longer and often require more intensive treatment.[2] Symptoms of anal fissures include severe pain during and after defecation, rectal bleeding, and sometimes a visible tear in the anal mucosa.[3]

The etiology of anal fissures is multifactorial. They are commonly caused by trauma to the anal canal from the passage of hard stools, frequent diarrhea, or anal sex. Other contributing factors include hypertonicity of the internal anal sphincter, which leads to reduced blood flow and delayed healing, and underlying conditions such as Crohn's disease or sexually transmitted infections.[4] Conservative management of anal fissures typically involves dietary modifications to soften stools, use of stool softeners, topical analgesics, and sitz baths to alleviate symptoms.[5] However, when these measures fail, more invasive treatments are considered, with sphincterotomy being one of the most effective options.

Sphincterotomy, particularly lateral internal sphincterotomy (LIS), is a surgical procedure designed to alleviate the hypertonicity of the internal anal sphincter, which is often implicated in the pathogenesis of chronic anal fissures.[6]

The procedure involves making a small incision in the internal sphincter to reduce spasm, improve blood flow, and facilitate healing of the fissure. Several studies have demonstrated the efficacy of LIS in the treatment of chronic anal fissures. A meta-analysis conducted by Nelson (2002) found that LIS had a high success rate, with healing rates exceeding 90% and a relatively low recurrence rate.[7] The procedure is also associated with significant pain relief, often noted immediately postoperatively, and a low incidence of complications such as incontinence when performed correctly.[8]

Comparative studies have shown that LIS is superior to other surgical options such as fissurectomy (removal of the fissure) or advancement flaps (where a healthy tissue flap is used to cover the fissure) in terms of healing rates and patient satisfaction.[9] Despite its invasive nature, the procedure is generally well-tolerated and considered the gold standard for the surgical treatment of chronic anal fissures.[10] This review aims to provide a comprehensive overview of anal fissures, the role of sphincterotomy in their management, and the current evidence supporting this treatment approach.

Anatomy and Pathophysiology

The anal canal, the terminal segment of the gastrointestinal tract, measures approximately 3-5 cm in length and extends from the anorectal junction to the anal verge. It is anatomically divided into three zones: the upper, middle, and lower parts. The upper part, lined with columnar epithelium, contains the anal columns, valves, and sinuses, which are collectively referred to as the pectinate or dentate line.[11] The middle part, lined with transitional epithelium, marks the transition from the columnar to squamous epithelium. The lower part, lined with stratified squamous epithelium, is the most distal segment and includes the anal verge.[12] Two muscular structures, the internal and external anal sphincters,

encircle the anal canal. The internal anal sphincter, composed of smooth muscle, is a continuation of the circular muscle layer of the rectum and provides involuntary control. In contrast, the external anal sphincter is composed of striated muscle and provides voluntary control.[13] Together, these sphincters maintain continence and regulate defecation. The blood supply to the anal canal comes from the superior rectal artery (a branch of the inferior mesenteric artery) and the middle and inferior rectal arteries (branches of the internal iliac artery). Venous drainage follows a similar pattern, with the superior rectal vein draining into the portal system and the middle and inferior rectal veins draining into the systemic circulation.[14] The nerve supply is derived from the autonomic nervous system (internal sphincter) and the somatic nervous system (external sphincter).

Pathophysiology of Fissure in Ano

Anal fissures occur due to a break or tear in the anoderm, typically at the posterior midline of the anal canal, although they can occasionally occur at the anterior midline. The pathogenesis of anal fissures is multifactorial, involving mechanical trauma, hypertonicity of the internal anal sphincter, and impaired anodermal blood flow.[15] Mechanical trauma to the anal canal, often from the passage of hard stools or severe diarrhea, is a primary cause of fissure formation. This trauma can lead to a linear tear in the anoderm, exposing the underlying internal sphincter muscle. The exposed muscle fibers trigger a spasm of the internal sphincter, resulting in increased resting pressure and reduced blood flow to the affected area.[16] This ischemia impairs the healing process and perpetuates the cycle of pain and spasm. Chronic fissures, defined as those persisting for more than six weeks, are often associated with hypertrophied anal papillae and sentinel piles, which are skin tags at the fissure site. Chronic fissures also display fibrosis and the formation of granulation tissue, further complicating the healing process.[17] Conditions such as Crohn's disease, HIV, and tuberculosis can predispose individuals to developing fissures, as these conditions affect the integrity of the anorectal mucosa and immune response.

Role of Internal Sphincter in Fissure Formation and Healing

The internal anal sphincter plays a crucial role in both the formation and healing of anal fissures. As a smooth muscle under involuntary control, the internal sphincter maintains a baseline level of contraction, contributing to the resting anal pressure. In individuals with anal fissures, this resting pressure is often abnormally high, leading to reduced blood flow and ischemia at the fissure site.[18] Hypertonicity of the internal anal sphincter is a significant factor in the pathophysiology of chronic anal fissures. The persistent high pressure exacerbates the tear, impeding healing and causing ongoing pain. The resultant spasm creates a cycle of pain and muscle contraction, making conservative treatments less effective in chronic cases.[19] Reducing the tone of the internal sphincter is therefore a key therapeutic target. Topical agents such as glyceryl trinitrate and calcium channel blockers aim to reduce sphincter pressure pharmacologically. However, when these measures fail, surgical intervention, specifically lateral internal sphincterotomy (LIS), becomes necessary.[20] LIS involves a controlled incision in the internal anal sphincter, which lowers the resting pressure and improves blood flow to the fissure site, promoting healing. Multiple studies have shown the effectiveness of LIS, with healing rates exceeding 90% and a low risk of complications such as incontinence when performed correctly.[21] This procedure directly addresses the pathophysiological role of the internal sphincter in fissure formation and healing. Furthermore, understanding the precise anatomical and functional aspects of the anal canal and internal sphincter is critical for optimizing treatment strategies. Innovations in imaging and diagnostic techniques have improved our ability to assess sphincter function and guide therapeutic interventions.[22]

Partial Internal Sphincterotomy (PIS)

Partial Internal Sphincterotomy (PIS) is a surgical procedure used to treat chronic anal fissures that have not responded to conservative treatments. This procedure involves making a controlled incision in a portion of the internal anal sphincter muscle to reduce sphincter tone, alleviate pain, and promote healing of the fissure. PIS aims to lower the resting anal pressure, which is often elevated in patients with chronic fissures, thereby improving blood flow to the affected area and facilitating the healing process.[23]

The technique for PIS typically involves the following steps:

1. **Patient Preparation:** The patient is placed in a lithotomy or prone jackknife position. Regional or general anesthesia is administered to ensure patient comfort and muscle relaxation.
2. **Exposure:** The anal canal is gently dilated, and the fissure is inspected. A retractor may be used to expose the internal anal sphincter.
3. **Incision:** A small incision is made at the lateral aspect of the anal canal, usually at the 3 or 9 o'clock position, away from the fissure site. The internal sphincter muscle is identified and partially divided. The extent of the incision varies but generally involves cutting only a portion of the sphincter to avoid compromising continence.[24]
4. **Hemostasis and Closure:** Hemostasis is achieved, and the wound may be left open or closed with absorbable sutures. Some surgeons prefer leaving the incision open to allow for drainage and to reduce the risk of infection.[25]

Indications for PIS

PIS is indicated primarily for patients with chronic anal fissures that have not responded to conservative treatments such as dietary modifications, topical nitroglycerin, or botulinum toxin injections. Specific indications for PIS include:

1. **Persistent Symptoms:** Patients with chronic anal fissures who experience persistent pain, bleeding, and discomfort despite adequate conservative management for six to eight weeks.[26]
2. **High Resting Anal Pressure:** Individuals with elevated resting anal pressures, as confirmed by manometry, who have not responded to medical treatments aimed at reducing sphincter tone.[27]
3. **Recurrent Fissures:** Patients with a history of recurrent fissures that repeatedly fail to heal with non-surgical treatments.[28]
4. **Complications of Fissures:** Cases where fissures are complicated by the presence of hypertrophied anal papillae, sentinel piles, or secondary infection that do not resolve with conservative measures.[18]

Benefits of PIS

The benefits of PIS in the treatment of chronic anal fissures are well-documented. Key benefits include:[29,30]

1. **High Healing Rates:** PIS has been shown to achieve high healing rates, often exceeding 90%, making it a highly effective treatment option for chronic fissures.
2. **Rapid Pain Relief:** Many patients experience immediate and significant pain relief following PIS due to the reduction in sphincter spasm and pressure.
3. **Low Recurrence Rates:** Compared to other treatments, PIS has a low recurrence rate, providing long-term relief from fissure symptoms.
4. **Minimally Invasive:** PIS is less invasive than more extensive surgical procedures and can often be performed on an outpatient basis, leading to shorter recovery times and lower overall morbidity.

5. **Improved Quality of Life:** By alleviating the pain and discomfort associated with chronic anal fissures, PIS significantly improves patients' quality of life and allows them to resume normal activities more quickly.

Complications and Risks Associated with PIS

While PIS is generally considered safe and effective, like any surgical procedure, it carries potential risks and complications. These include:[31]

1. **Incontinence:** The most significant risk associated with PIS is the potential for fecal incontinence. Although partial division of the sphincter aims to preserve continence, there is still a small risk of temporary or permanent incontinence, particularly in patients with pre-existing sphincter weakness or those who undergo an overly aggressive incision.
2. **Bleeding:** Intraoperative or postoperative bleeding can occur, although it is usually minor and self-limiting. Proper hemostasis during the procedure minimizes this risk.
3. **Infection:** The risk of infection is relatively low but can be minimized by adhering to strict aseptic techniques and, in some cases, using prophylactic antibiotics.
4. **Pain and Discomfort:** Some patients may experience postoperative pain and discomfort at the incision site. This is typically managed with analgesics and resolves within a few days to weeks.
5. **Anal Stenosis:** Rarely, PIS can lead to scarring and stenosis of the anal canal, resulting in narrowing and difficulty with defecation. This complication may require further surgical intervention.
6. **Delayed Healing:** In some cases, the fissure may take longer to heal, particularly if the underlying factors such as constipation or diarrhea are not adequately addressed. Ensuring proper postoperative care and lifestyle modifications can help mitigate this risk.

Lateral Internal Sphincterotomy (LIS)

Lateral Internal Sphincterotomy (LIS) is a surgical procedure performed to treat chronic anal fissures that have not responded to conservative treatments. The procedure involves making an incision in the internal anal sphincter to reduce sphincter pressure, alleviate pain, and promote healing. LIS specifically targets the hypertensive internal sphincter muscle, which is often the underlying cause of persistent fissures.[32]

The technique for LIS generally involves the following steps:[32,33]

1. **Patient Preparation:** The patient is placed in the lithotomy or prone jackknife position. Anesthesia, either local, regional, or general, is administered to ensure patient comfort and relaxation of the sphincter muscles.
2. **Identification of the Internal Sphincter:** The anal canal is gently dilated, and the internal sphincter muscle is identified. This is typically done by palpation and visual inspection, ensuring that the correct muscle is targeted.
3. **Incision:** A small incision is made at the lateral aspect of the anal canal, typically at the 3 o'clock or 9 o'clock position, avoiding the fissure itself. A scalpel or electrocautery device is used to make a controlled cut through the internal sphincter muscle. The incision length varies but usually involves about one-third to one-half of the sphincter length to balance reducing pressure and maintaining continence.
4. **Hemostasis and Closure:** Hemostasis is achieved, and the wound may be left open to heal by secondary intention or closed with absorbable sutures. Some surgeons prefer to leave the wound open to reduce the risk of infection and facilitate drainage.

Indications for LIS

LIS is indicated primarily for patients with chronic anal fissures that do not respond to conservative treatments such as dietary modifications, topical medications, or botulinum toxin injections. Specific indications for LIS include:[33]

1. **Persistent Symptoms:** Chronic anal fissures with persistent pain, bleeding, and discomfort despite adequate conservative management for at least six to eight weeks.
2. **High Resting Anal Pressure:** Patients with elevated resting anal pressures, confirmed by anorectal manometry, who have not achieved symptom relief with medical treatments.
3. **Recurrent Fissures:** Individuals with a history of recurrent fissures that repeatedly fail to heal with non-surgical interventions.
4. **Complicated Fissures:** Cases where fissures are associated with hypertrophied anal papillae, sentinel piles, or secondary infections that do not resolve with conservative measures.

Benefits of LIS

LIS offers several benefits for the treatment of chronic anal fissures, including:[34,35]

1. **High Healing Rates:** LIS is highly effective, with healing rates reported to exceed 90% in most studies, making it one of the most successful treatments for chronic fissures.
2. **Rapid Pain Relief:** Many patients experience significant pain relief shortly after the procedure due to the reduction in sphincter spasm and pressure.
3. **Low Recurrence Rates:** Compared to other treatments, LIS has a low recurrence rate, providing long-term relief from fissure symptoms.
4. **Minimally Invasive:** The procedure is relatively straightforward and can often be performed on an outpatient basis, leading to shorter recovery times and lower overall morbidity.
5. **Improved Quality of Life:** By effectively alleviating the pain and discomfort associated with chronic anal fissures, LIS significantly improves patients' quality of life and allows them to resume normal activities more quickly.

Complications and Risks Associated with LIS

While LIS is generally considered safe and effective, it carries potential risks and complications. These include [36,37]:

1. **Incontinence:** The most significant risk associated with LIS is the potential for fecal incontinence. Although rare, incontinence can occur, particularly if too much of the sphincter muscle is divided or in patients with pre-existing sphincter weakness. Studies suggest that the risk of incontinence is low when the procedure is performed correctly, with rates typically ranging from 2% to 8% for minor incontinence.
2. **Bleeding:** Intraoperative or postoperative bleeding can occur, though it is usually minor and self-limiting. Proper hemostasis techniques during the procedure can minimize this risk.
3. **Infection:** The risk of infection is relatively low but can be minimized by adhering to strict aseptic techniques and using prophylactic antibiotics when necessary.
4. **Pain and Discomfort:** Some patients may experience postoperative pain and discomfort at the incision site. This is typically managed with analgesics and resolves within a few days to weeks.
5. **Anal Stenosis:** Rarely, LIS can lead to scarring and stenosis of the anal canal, resulting in narrowing and difficulty with defecation. This complication may require further surgical intervention.

6. **Delayed Healing:** In some cases, the fissure may take longer to heal, particularly if underlying factors such as constipation or diarrhea are not adequately addressed. Proper postoperative care and lifestyle modifications can help mitigate this risk.

Comparison of PIS and LIS [38]

Efficacy in Healing Fissures

Partial Internal Sphincterotomy (PIS) and Lateral Internal Sphincterotomy (LIS) are both surgical procedures designed to treat chronic anal fissures. Both methods aim to reduce the resting pressure of the internal anal sphincter to facilitate healing. However, they differ in their approach and extent of sphincterotomy.

Efficacy in Healing: The efficacy of LIS in healing chronic anal fissures is well-documented, with healing rates often exceeding 90%.[60] Studies have shown that LIS effectively reduces internal anal pressure, thereby promoting blood flow to the fissure site and facilitating healing. In comparison, PIS, which involves only a partial incision of the internal sphincter, also shows high efficacy, but healing rates are slightly lower than those of LIS, typically around 80-90%.[61]

The less extensive nature of the incision in PIS may account for the marginally lower healing rates.

Recurrence Rates[39]

LIS Recurrence Rates: LIS is associated with low recurrence rates for chronic anal fissures. Long-term follow-up studies indicate that the recurrence rate after LIS is less than 5%, making it a highly effective long-term treatment. This low recurrence rate is attributed to the more comprehensive division of the internal sphincter, which sufficiently lowers the sphincter pressure to prevent fissure recurrence.

PIS Recurrence Rates: PIS, while effective, has a slightly higher recurrence rate compared to LIS. Recurrence rates for PIS can range from 5% to 15%. The partial nature of the sphincterotomy in PIS might not be sufficient in all patients to maintain low sphincter pressure in the long term, leading to a higher likelihood of fissure recurrence.

Postoperative Pain and Recovery Time[39]

Postoperative Pain and Recovery in LIS: Patients undergoing LIS typically experience significant pain relief shortly after the procedure due to the reduction in sphincter spasm. The recovery period is generally short, with most patients resuming normal activities within a few days to weeks. However, the initial postoperative period can involve moderate pain at the incision site, which is usually managed with analgesics.

Postoperative Pain and Recovery in PIS: PIS also provides significant postoperative pain relief, but the recovery period can be slightly longer than that for LIS. This is partly because the less extensive incision in PIS may result in slower initial pain relief compared to LIS. Nonetheless, most patients recover within a similar timeframe, typically returning to normal activities within a few weeks.

Long-term Outcomes and Patient Satisfaction[6,16]

LIS Long-term Outcomes: Long-term outcomes for LIS are generally excellent, with high patient satisfaction rates. The comprehensive reduction in sphincter pressure achieved by LIS not only promotes healing but also minimizes the risk of recurrence, contributing to sustained relief from symptoms. Patient satisfaction rates for LIS are consistently high, reflecting the procedure's efficacy and durability.

PIS Long-term Outcomes: PIS also yields favorable long-term outcomes, though patient satisfaction rates are slightly lower than those for LIS. While PIS is effective in reducing symptoms and promoting healing, the higher recurrence rates and slightly prolonged recovery period can impact long-term patient satisfaction. Nevertheless, many patients report significant improvement in quality of life post-PIS.

Complication Rates[6]

Incontinence Rates: The risk of fecal incontinence is a major concern with sphincterotomy procedures. LIS, which involves a more extensive division of the sphincter, carries a slightly higher risk of incontinence compared to PIS. The reported rates of minor incontinence (e.g., inability to control gas) after LIS range from 2% to 8%, while major incontinence (e.g., loss of stool) is rare but can occur in up to 2% of cases. In contrast, PIS has a lower overall risk of incontinence, with minor incontinence occurring in less than 5% of patients and major incontinence being exceedingly rare.

Infection Rates: Both LIS and PIS have low infection rates due to the superficial nature of the incision and the rich blood supply to the anal region. Proper aseptic techniques and postoperative care further minimize the risk of infection. The incidence of postoperative infection is similar for both procedures, typically less than 2%.

Other Complications: Other potential complications of sphincterotomy include bleeding, anal stenosis, and delayed healing. These complications are relatively rare and can be managed effectively with appropriate surgical techniques and postoperative care. Bleeding is usually minor and self-limiting, while anal stenosis and delayed healing occur in less than 1% of cases for both LIS and PIS.

Meta-Analyses and Systematic Reviews

Meta-analyses and systematic reviews have synthesized evidence from multiple studies to provide a comprehensive comparison of PIS and LIS:

1. **Nelson et al. (2002):** This meta-analysis included randomized controlled trials and observational studies comparing surgical techniques for anal fissures. The findings supported LIS as superior to PIS in terms of healing rates and recurrence prevention. The review emphasized the importance of sphincterotomy extent in achieving optimal outcomes.[1]
2. **Poh and Tan (2010):** In their systematic review, Poh and Tan analyzed various surgical innovations and techniques for treating chronic anal fissures. They concluded that while both PIS and LIS are effective, LIS offers better long-term outcomes with lower recurrence rates and higher patient satisfaction compared to PIS.[16]

Discussion of Findings and Interpretation

The findings from clinical studies and meta-analyses consistently highlight LIS as the preferred surgical treatment for chronic anal fissures when compared to PIS. LIS achieves higher healing rates and lower recurrence rates due to its more extensive division of the internal sphincter muscle. This comprehensive reduction in sphincter pressure not only promotes faster healing but also minimizes the risk of fissure recurrence over time.[40]

However, it's essential to consider the risk-benefit profile of each procedure. LIS, while effective, carries a slightly higher risk of minor and, rarely, major incontinence compared to PIS. The risk of incontinence is attributed to the greater extent of sphincterotomy in LIS, which can potentially compromise anal continence. In contrast, PIS, with its

partial sphincterotomy, preserves more of the anal sphincter function but may not achieve as thorough a reduction in sphincter pressure, leading to higher recurrence rates.[40]

Emerging Techniques and Innovations[16]

The treatment landscape for chronic anal fissures continues to evolve with advancements in surgical techniques and innovations aimed at optimizing outcomes and reducing complications associated with traditional sphincterotomy methods.

Botulinum Toxin Injections: Emerging as a minimally invasive alternative to surgical sphincterotomy, botulinum toxin injections offer a temporary reduction in sphincter tone, promoting fissure healing without the risks of permanent sphincter damage associated with traditional procedures. Studies have shown promising results in terms of pain relief and healing rates comparable to surgical interventions.

Laser and Radiofrequency Techniques: Laser and radiofrequency technologies are being explored as alternatives to conventional scalpel-based sphincterotomy. These techniques aim to achieve sphincterotomy with greater precision and minimal tissue trauma, potentially reducing postoperative pain and accelerating recovery times.

Ongoing Research and Potential Improvements in Sphincterotomy[40]

Enhanced Sphincter Preservation: Current research focuses on strategies to preserve anal sphincter function while effectively treating chronic anal fissures. Modified sphincterotomy techniques, such as tailored incision depths and angles, aim to achieve optimal fissure healing without compromising anal continence. Advances in imaging and surgical navigation technologies facilitate precise localization and execution of sphincterotomy, minimizing unintended tissue damage.

Biological Agents and Regenerative Therapies: Research is exploring the use of biological agents and regenerative therapies to enhance wound healing and tissue repair in chronic anal fissures. Growth factors, stem cell-based therapies, and tissue engineering approaches hold potential for promoting faster healing and reducing the risk of recurrence post-treatment.

DISCUSSION

The future of chronic anal fissure management lies in personalized treatment approaches tailored to individual patient characteristics. Factors such as sphincter tone, severity of symptoms, anatomical variations, and patient preferences influence treatment decisions. Advances in diagnostic tools, including high-resolution anorectal manometry and imaging modalities, enable precise assessment of sphincter function and tailor treatment strategies accordingly.Integrating pharmacological therapies, dietary modifications, and behavioral interventions alongside surgical techniques enhances treatment efficacy and patient outcomes. Personalized multimodal treatment algorithms aim to address underlying causes of fissure development, optimize healing rates, and prevent recurrence.In the comparison of Partial Internal Sphincterotomy (PIS) and Lateral Internal Sphincterotomy (LIS) for the treatment of chronic anal fissures, several key differences and similarities emerge, each impacting treatment efficacy, patient outcomes, and potential risks.[41]

CONCLUSION

In comparing Partial Internal Sphincterotomy (PIS) and Lateral Internal Sphincterotomy (LIS) for chronic anal fissures, LIS achieves higher healing rates (>90%) due to its more extensive sphincterotomy, reducing sphincter pressure effectively. Recurrence rates are lower (<5%) with LIS compared to PIS (5-15%), attributed to the comprehensive sphincterotomy in LIS. Both procedures offer significant pain relief and comparable recovery times, though LIS generally resolves pain quicker. Risks include minor incontinence rates (2-8% for LIS, <5% for PIS), with rare major complications. Patient satisfaction is high for both, favoring LIS for lower recurrence and superior long-term outcomes.

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