

Original Research Article

Study of effectiveness of lateral internal sphincterotomy on acute fissure-in-ano

Pravin Namdeo Shingade, Shishir Jadhav, Sudhir Jayakar*, Gaurav Batra, Manish Kashyap, Dakshayani Nirale

Department of General Surgery, Dr. D.Y. Patil Medical College, Pimpri, Pune, Maharashtra, India

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***Correspondence:**

Dr. Sudhir Jayakar,

E-mail: sudhirjayakar@gmail.com

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ABSTRACT

Background: Acute fissure in ano, disease of young age is frequently associated with early hemorrhoids. The condition usually presents with severe pain, spasm and needs emergency Lateral internal sphincterotomy (LIS). Results of LIS are extremely rewarding. Additionally, effect of LIS on early hemorrhoids needs to be studied.

Methods: Prospective observational study of 106 Patients of acute fissure in ano was conducted in Dr D.Y. Patil hospital and research center, Pune over 2 years. All the patients underwent emergency LIS and evaluated for symptomatic relief, complications and regression of the hemorrhoids diagnosed intraoperatively.

Results: Acute fissure in ano is disease of young child bearing age group female (49%). Low fiber diet (75%) is associated with fissure. Lack of exercise and sedentary lifestyle are another factors. LIS is safe and effective tool to control pain and most of the other symptoms. 86% patients get complete pain relief assessed by VAS score. 98% patients are completely relieved after LIS. 95.2% patients got relief of anal spasm post-operatively. 18% of the patients had early hemorrhoids and 70 to 80% of early hemorrhoids were completely reduced post LIS.

Conclusions: Acute fissure in ano is the disease of young reproductive female with non-vegetarian diet, sedentary lifestyle, lack of exercise as risk factors. LIS is effective in reducing symptoms. VAS score is handy tool in assessing severity of pain and effectiveness of LIS. Complications with LIS are low making it safe procedure. Association of hemorrhoids with fissure appears insignificant. LIS appears to be effective in reducing the hemorrhoids with fissure.

Keywords: Anal fissure, Lateral internal anal sphincterotomy, LIS

INTRODUCTION

Anal fissure is a longitudinal tear or disruption in the anoderm at the distal end of anal canal.¹ Posterior fissure is most common due to relatively scanty blood supply and relative unsupported anoderm in that area.

Majority of the patients suffering from fissure are from young age group Although it is not a fatal condition but can significantly influence the quality of life of the affected person due to its troubling symptoms and signs such as severe pain, bleeding per rectum, spasm of the internal sphincter.^{1,2}

Painful fissures are generally associated with involuntary spasm of the internal sphincter with high resting pressure in the anal canal. Incidence of fissure is on rise owing to stressful lifestyle and lack of fibers in diet. Lack of exercise, sleep and decreased water intake add to it. Conservative management only have short term results which includes local anesthetic creams laxatives and local muscle relaxants like Calcium channel Blockers (nifedipine and diltiazem).

Reduction of anal sphincter spasm results in improved blood supply and healing of fissure. Surgical techniques like manual anal dilatation or lateral internal

sphincterotomy (LIS), effectively heal most fissures within a few weeks.^{3,4} Lateral Internal Sphincterotomy is now considered as procedure of choice over anal dilatation as it is controlled procedure with less chance of anal Incontinence and other complications Effectiveness of LIS is being studied in various studies in terms of pain relief and complications. Present study aims to study effectiveness of LIS in reducing symptoms of Acute fissure in ano. Additionally, it intends to study association of hemorrhoids with fissure in ano and effect of LIS on early hemorrhoids diagnosed intraoperatively.

The aim was to study the role of Lateral internal Sphincterotomy in treatment acute fissure in ano. The objectives were to study the demographic data of patients of fissure in ano, to study the outcome of lateral sphincterotomy in acute fissure in ano, to study the association of hemorrhoids and fissure in ano and to study the effect of lateral internal sphincterotomy on hemorrhoids diagnosed intra-operatively.

METHODS

Prospective study of 106 patients was conducted in Dr. D. Y. Patil Medical College and Hospital, Dr. D. Y. Patil University Pimpri Pune from May 2015 to October 2017 over the period of 2 years.

Inclusion criteria

- Age groups-15 to 65 years of age
- Both the sexes
- All the patients of fissure in ano.

Exclusion criteria

- Patient with diagnosed hemorrhoids pre-operatively.
- Patients with secondary hemorrhoids as a result of abdominal malignancy, anorectal deformity, hypotonic sphincter, uterine neoplasm, ovarian neoplasm etc.
- Immunocompromised patients.
- Previously operated patients for hemorrhoids and fissure in ano.

All patients of acute fissure in ano attending Dr D Y Patil Medical College OPD were enrolled in the study as per inclusion criteria. Institutional ethical committee clearance was taken. Informed and written consent was taken. Patients were clinically evaluated, and demographic data was collected. All patients underwent Lateral Internal Sphincterotomy. Visual analog score of patients was assessed on admission and post operatively on day 7. Patients were followed for a period of 3 months post-operatively and assessed for effect on hemorrhoids. Patients were also observed for post-operative complications like incontinence to flatus or fecal soiling, persistence of pain, infection (abscess or fistula), anal stenosis. Observations were collected and tabulated. Chi square test and Fisher's exact tests are applied as

statistical methods used to analyze the data and conclusions were drawn after comparing with other studies.

Statistical analysis

Most observations were analysed by simple percentage as analytical method. including demographic data symptomatology and vas score. Chi square test applied to age suggested p-value=0.00409. which is not statistically significant proving age is not a risk factor in development of fissure in ano. To apply Fisher's exact test response to hemorrhoid is considered as responded and not responded after Lateral internal sphincterotomy. The P value is 0.999 suggesting no stastical significance and hence LIS as a whole treatment of early hemorrhoids is ineffective.

VAS score

A Visual Analogue Scale (VAS) is a measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured. For example, the amount of pain that a patient feels ranges across a continuum from none to an extreme amount of pain. From the patient's perspective, this spectrum appears continuous \pm their pain does not take discrete jumps, as a categorization of none, mild, moderate and severe would suggest. It was to capture this idea of an underlying continuum that the VAS was devised. Operationally a VAS is usually a horizontal line, 100 mm in length, anchored by word descriptors at each end, as illustrated in Figure 1. The patient marks on the line the point that they feel represents their perception of their current state. The VAS score is determined by measuring in millimeters from the left-hand end of the line to the point that the patient marks.⁵

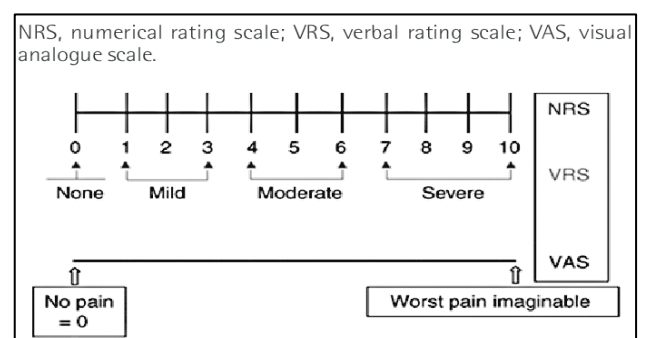


Figure 1: VAS scoring scale figure.

Lateral internal sphincterotomy

Using regional or general anesthesia with lithotomy position open Lateral Sphincterotomy was performed for IAS muscles in which 5-mm incision was done starting from right side of the anal canal into the perianal skin through the intersphincteric groove.

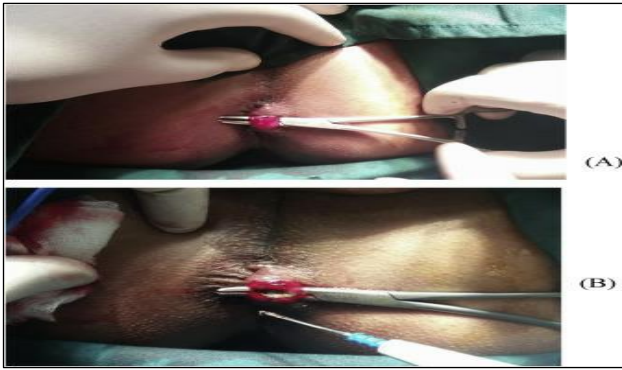


Figure 2: Lateral sphincter (A) identification of the lateral sphincter muscle, (B) the process of division.

The lateral side of IAS was dissected and a segment of which was withdrawn to outside using artery forces and then divided completely with electro diathermy. The wound was left open to heal by secondary intention.

RESULTS

Demographic data

The most common age group is young age group (49%) with female predominance (37.7%) probably attributed to child bearing age in female followed by middle age group (24.5%) and least in old age (10.1%).

Table 1: Age wise distribution of patients with fissure in ano.

	Age group	No. of males	Percentage	No. of females	Percentage	Total %
Young age group	15-30 years	12	11.3	40	37.7	49
	30-40 years	6	5.6	20	18.86	24.46
Middle age group	40-50 years	10	9.4	7	6.6	16
	50-60 years	7	6.6	4	3.7	10.1

Risk factors

Mixed and predominantly Non-vegetarian diet (75.48%) appears to be most commonly associated with fissure-in-ano.

Table 2: Diet as a risk factor.

No. of patients	Veg diet	%	Mixed die	%
106	26	24.52	80	75.48

Sedentary lifestyle and lack of daily exercise also appear to be associated with fissure-in-ano. Role of smoking, alcohol and tobacco addiction could not be significantly associated with occurrence of fissure-in-ano.

Table 3: Addictions affecting occurrence of fissure in ano.

Addictions	No. of patients	Percentage of patients
Smoking	25	23
Alcohol	40	37
Tobacco	44	41.50

Table 4: Lifestyle factors affecting fissure incidence.

Lifestyle	No. of patients	Percentage of patients
Sedentary	60	56
Active	46	43

Table 5: Presenting symptoms in patient with fissure in ano.

Symptoms	No. of patients preoperatively	Day 7 postoperatively	Percentage of patients with symptomatic relief
Pain during defecation	106	14	86
Bleeding per rectum	90	2	98
Constipation	92	30	67
Hard stools	73	4	95

Table 6: Clinical signs of fissure in ano.

Clinical signs	No. of patients preoperatively	Post-operative Day 7	Percentage of patients having relief
Increased anal tone	106	5	95.2
Bleeding PR	90	2	98
Sentinel pile	83	72	13

Patient evaluation

Pain (100%) is the most prominent symptom amongst all patients preoperatively. However, postoperatively about 86% patients get complete pain relief.

Bleeding per-rectum is the next prominent symptom and is seen in 85% of the patients. About 98% patients are

completely relieved of this symptom after lateral internal sphincterotomy. Relief of constipation itching, and hard stool is up to variable extent.

Anal spasm almost always is the sign associated with fissure-in-ano. 95.2% patients got relief of Anal spasm post-operatively. Bleeding is relieved in 98% patients postoperatively.

Table 7: VAS score prediction of pain threshold.

Vas score 0 to 100 mm	No. of patients pre-operatively	Percentage pre-operatively	No. of patients post-operatively	Percentage post-operatively
Mild pain 0-33	0	0	11	10.3
Moderate 34-66	28	26	3	2.8
Severe Above 67	78	74	0	0

VAS score suggests 74% patients having severe pain while 26% patients had moderate pain. Post-operatively

there is significant reduction in pain score with only 2.8% having moderate pain as per VAS score and 10.3% patients having mild pain.

Table 8: Effect of lateral internal sphincterotomy on hemorrhoids diagnosed intra-operatively.

Grades of hemorrhoids	Total no. of patients diagnosed with hemorrhoids	Partial regression		Completely regressed		Not reduced at all.	
		No. of patients	Percentage of patients	No. of patients	Percentage of patients	No. of patients	Percentage of patients
Grade I	10	0	0%	8	80%	2	20%
Grade II	10	1	10%	7	70%	2	20%

18.9% Patient had early hemorrhoids. Only 20 patients were diagnosed to have early hemorrhoids 18.86%. This is statistically insignificant association suggesting that no common association between hemorrhoids. 80% of grade I and 70% of grade II hemorrhoids were completely reduced post LIS after 7 days hemorrhoids making it effective method of treating hemorrhoids with fissure in ano.

DISCUSSION

Anal fissure is a longitudinal tear or disruption in the anoderm at the distal end of anal canal.² It is disease of young and reproductive age group with female sex more predominance owing to child bearing and probably hormonal effect on gut resulting in constipation.⁶ Stress full lifestyle, low fiber diet predominantly no vegetarian and water intake are another contributing factors.⁷ It is usually located posteriorly in the midline, probably because of the relatively unsupported nature and poor perfusion of the anal wall in that location.^{1,2} Although it is not a fatal condition but can significantly influence the quality of life of the affected person due to its troubling

symptoms and signs such as severe pain, bleeding per rectum, spasm of the internal sphincter and straining for defecation.²⁻⁴ Despite extensive researches and advancements made in the field of medicine and surgery, exact etiology of anal fissures is still unknown. Trauma due to the passage of hard stool is thought to be an important initiating factor for the fissure; or less commonly prolonged and repeated passage of diarrhea. Low fiber diet is also found to be associated with the development of anal fissures.^{1,2,5} Based on etiology it is classified as primary (idiopathic) or secondary. Secondary fissures are those that occur due to some other pathology such as Crohn’s disease, anal tuberculosis, AIDS. Patients usually present with pain during defecation and passage of bright red blood per anus.

Acute fissure usually heals spontaneously within 6 weeks. Painful fissures are generally associated with involuntary spasm of the internal sphincter with high resting pressure in the anal canal. So, it seems that chronic over activity of the internal sphincter may be the cause. Reduction of anal sphincter spasm results in improved blood supply and healing of fissure. Surgical

techniques like manual anal dilatation or lateral internal sphincterotomy, effectively heal most fissures within a few weeks.^{6,7} Effectiveness of LAS is being studied in various studies in terms of pain relief and complications.

LAS effectively reduces pain associated with fissure in ano and other symptoms associated with fissure in ano to variable level like bleeding, constipation and straining for defecation. Results of surgery are augmented by lifestyle modifications like exercise, high fibre diet, increase water intake and reducing stress by various means.⁸

Common occurrence of fissure in ano with early hemorrhoids is frequently seen though diagnosis usually is done intraoperatively during Lateral sphincterotomy. Late hemorrhoids usually occur as independent entity and not associated with fissure frequently. Lateral internal sphincterotomy help in reducing tone of internal sphincter thereby reducing straining for defecation. This may have resulted in regression of early hemorrhoids associated with fissure in ano.

Similar study conducted by Schouten and Vroonhoven the clinical results after lateral internal sphincterotomy performed in patients with symptomatic hemorrhoids had success rate 75% and it is a good alternative to hemorrhoidectomy.⁹

CONCLUSION

Acute fissure in ano is the disease of young reproductive female of child bearing age. Non-vegetarian diet, sedentary lifestyle, lack of exercise are important risk factors. LIS is effective in reducing pain, bleeding per-rectum and anal spasm in patients with acute fissure in ano. VAS score appears to be handy tool in assessing severity of pain in acute fissure in ano and comparing with post-operative pain, so as to assess the effectiveness of LIS in reducing pain. Complications associated with Lateral internal Sphincterotomy are low making it safe procedure to perform in emergency. Association of hemorrhoids with fissure in ano appears insignificant. LIS appears to be effective in reducing the hemorrhoids associated with fissure in ano however p value in this case is insignificant. Studies directed specifically on effect of LIS on early hemorrhoids are required to assess effectiveness of LIS in management of early hemorrhoids.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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