

Original Research Article

A comparison of segmental internal sphincterotomy versus lateral internal sphincterotomy in management of chronic fissure in ano

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ABSTRACT

Background: Fissure in ano is one of the commonest benign and painful proctologic condition encountered in surgical practice treated by conservative line of management. Lateral sphincterotomy is the ideal treatment option for chronic refractory fissure in ano. A newer modality segmental internal sphincterotomy shows good promise in terms of early resolution of symptoms, fissure healing and prevention of anal incontinence involving division of the internal sphincter at two different levels.

Methods: In comparative nonrandomized trial patients with chronic fissure in ano satisfying the inclusion and exclusion criteria were allocated to lateral sphincterotomy and segmental internal sphincterotomy groups. The outcome factors were perianal sepsis, pain relief using VAS as assessed on passing the first motion, duration of healing of fissure, assessment of incontinence using Wexner's continence score on 30th post-operative day.

Results: A total of 54 cases were enrolled, of them 31 patients underwent lateral internal sphincterotomy and 23 underwent segmental internal sphincterotomy with the mean age of patient was 34.76 years and a male to female ratio of 1.07:1. The pain score (VAS) on passing stool for the first time postoperatively was 4.5 with lateral sphincterotomy and 3.91 with segmental internal sphincterotomy which was statistically significant (P value < 0.010). The duration of postoperative healing was observed to be 27.94 days and 28.09 days in lateral sphincterotomy and segmental internal sphincterotomy group respectively. The post-operative anal incontinence was evaluated by using Wexner's continence grading after one month which was not statistically significant between two groups.

Conclusions: Segmental internal sphincterotomy could be a good surgical modality with its healing effect on fissure in ano and post-operative complications which are similar to standard lateral internal sphincterotomy.

Keywords: Fissure in ano, Lateral internal sphincterotomy, Segmental internal sphincterotomy

INTRODUCTION

Fissure in ano is a common benign and painful proctologic disease causing considerable morbidity and affecting the quality of life.¹ The cause of fissure in ano remain to be defined but expected view is a combined effect of constipation (hard stools), internal anal sphincter hypertonia and certain predisposing factors like smoking, alcohol consumption of high fat diet, non-vegetarian diet etc.²⁻⁴ Medical management is the first line of treatment

in all fissure in ano which aims to regulate the bowel movements by high fiber diet, stool softener, osmotic laxatives and topical medications which consist of local anaesthetic and anti-inflammatory agent which reduces the local pain and irritation. The ideal treatment for reducing the hypertonicity of anal sphincter is debatable and it could be medical or surgical manipulation which remains the cornerstone of the treatment.² Lateral internal sphincterotomy, remains the most effective and time-tested surgical procedure for treatment of chronic fissure

in ano with a fissure cure rate of 90-100%.⁵ The major drawback of lateral internal sphincterotomy was the development of anal incontinence mainly to flatus.² The present study aims to compare the newer procedure that is “segmental internal sphincterotomy” with standard “lateral internal sphincterotomy” in the Indian scenario as very few comparative studies are available.

METHODS

This was a comparative study conducted at a tertiary care teaching hospital. The subjects of both genders between 18-70 years, not responding to conservative treatment of one and a half months duration or with presence of external skin tag or induration at the edges of the fissure were enrolled in the study. The exclusion criteria were patients with co-morbid conditions like diabetes mellitus, HIV, classified as ASA grade 3 or 4, having an associated fistula in ano or haemorrhoids or having undergone previous sphincter surgery/fistula surgery/haemorrhoidectomy/perianal sepsis. Patients with associated bowel disorders like ulcerative colitis or Crohn's disease, pregnant females, women with recent history of vaginal delivery were also excluded from this study.

The study factors were two surgical procedures, lateral sphincterotomy and segmental internal sphincterotomy. Patients were allocated to the two groups randomly and surgical procedure was carried out under spinal anaesthesia or saddle block. The segmental internal sphincterotomy was done by dividing the internal sphincter at two different sites (Figure 1,2 and 3).



Figure 1: Lifting of sphincter fibres at two places.

The outcome factors were post-operative pain relief on passing stools for the first time using a visual analogue scale, post-operative perianal sepsis, duration of healing of fissure and evaluating the incontinence using Wexner's continence score after one month. Descriptive statistics like mean, standard deviation and table were used for demographic and clinical data.

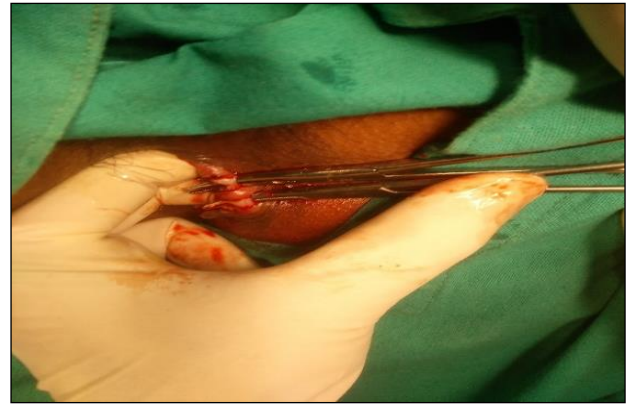


Figure 2: Cutting of half of the upper sphincter fibres on medial aspect.

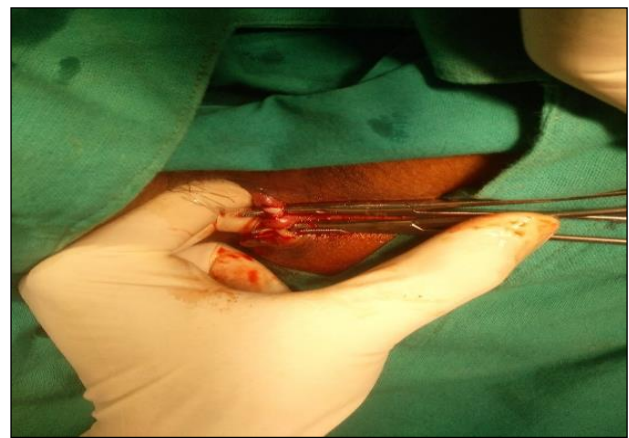


Figure 3: Cutting of half of the lower sphincter fibres on lateral aspect.

The base line features of the two groups were compared to ascertain the equality of the two groups. The continuous variables were analysed by student t-test or Mann-Whitney U test and depending on this normality of the data and categorical variables by Fischer exact test or chi-square test. The study had ethical clearance from IEC of the institution.

RESULTS

Of the 54 patients enrolled in the study, the male:female ratio was 1.07:1 with mean age of 34.76 ± 12.12 years out of which 70.30% patients were in the 3rd and 4th decade of life. A majority of 44 patients (81.5%) consumed mixed diet and only 17 (31.84%) were smokers. Pain on defecation was the presenting complaint in all patients and hard stools in 98.15% patients. Bleeding per rectum was observed in 42 patients (77.8%). The mean duration of pain on defecation was 9.61 ± 10.08 months, hard stools was 12.28 ± 11.07 months and bleeding per rectum was 8.48 ± 9.28 months.

Anal spasm was observed in all patients, followed by sentinel tag in 94.4% patients. The position of the fissure

was 6 o'clock in 83.3% patients, 12 o'clock in 9.3% patients and the rest of the patients (7.4%) had a fissure at both above mentioned sites. The baseline demographic and the etiological factors of the two groups were statistically not significant suggesting that the groups were comparable on these areas and suggesting equality of the two groups despite nonrandom allocation. Postoperative pain on passing stools for the first time was 4.5 with lateral sphincterotomy and 3.91 with segmental

internal sphincterotomy on visual analogue scale. This was the only statistically significant difference observed.

Pain scores on 1st motion was statistically not significant. The duration of fissure healing was observed to be 27.94 days and 28.09 days in lateral sphincterotomy and segmental internal sphincterotomy group respectively which was statistically not significant (p value=0.79) (Table 1).

Table 1: Postoperative comparison of pain and days to be asymptomatic.

Group statistics							
	Surgery	N	Mean	Standard deviation	Standard error mean	T value	P value
Pain on 1st motion	Ls	31	4.55	1.121	0.201	2.089	0.042 (s)
	Sis	23	3.91	1.083	0.226		
Days to be asymptomatic (healed fissure)	Ls	31	27.94	2.032	0.365	-0.268	0.79 (ns)
	Sis	23	28.09	2.087	0.435		

The anal incontinence evaluation was done by using Wexner's continence grading after one month. All the patients in segmental internal sphincterotomy had mean '0' score on Wexner's continence grading scale suggesting that there was no incontinence in any of the

patient, while two patients in lateral internal sphincterotomy group had a score of '2' mainly with flatus incontinence after one month.

These findings are not statistically significant (Table 2).

Table 2: Post-operative complications between two groups.

Variables	Lateral sphincterotomy (n=31)	Segmental internal Sphincterotomy (n=23)	P value
Post op Sepsis	0	1	0.241(NS)
Post op Incontinence	2	0	0.325(NS)

DISCUSSION

Fissure in ano is one of the most common and painful proctologic disease, which is characterized by an ulcer in anoderm in the anal canal.¹ Its pathogenesis is multifactorial ranging from mechanical trauma, sphincter spasm and local ischaemia. The treatment must address these causative factors and therefore, the vicious circle of fissure-sphincter spasm-pain needs to be addressed, initially by traditionally medical management as the first line of treatment. Failure of initial treatment or chronicity of fissure needs to be treated by sphincterotomy which relaxes the hypertonic sphincter thereby reducing anal pain and allowing the ulcer to heal. Lateral internal sphincterotomy is considered as the treatment of choice for chronic fissure in ano.⁷ The major drawback of lateral sphincterotomy which was introduced by Eishemhammer in 1951 was the development of minor anal incontinence, hence need for the surgical technique with a lower probability of incontinence with equal probability of healing and complete relief.⁸ Segmental internal sphincterotomy was one procedure which was evaluated in the present study and the results are compared with

lateral sphincterotomy. Apart from assessing surgical modalities the present study also looked at pre-disposing factors for chronic fissure in ano and its clinical features. The inclusion criteria were kept rigid and included non-responders for conservative treatment for more than one and half months duration with the presence of external skin tag or presence of skin induration. The patients with co-morbid conditions or associated with perianal condition with a history of perianal surgeries or sepsis were excluded from the study so that other confounders are taken care of and results purely depict the result of surgical procedure only.

The mean age in the present study was 34.76±12.12 years which is quite consistent with the literature.^{6,7,9-11} Majority that is 70% are observed in 20 to 40 years which is also consistent with the literature. Male to female ratio was practically equal 1.07:1 suggesting the equal distribution of gender in patients suffering from chronic fissure in ano.^{2,6,9,12} These findings are quite consistent with the studies in the literature except a study from Egypt, where there was a male preponderance the reason for which was females were reluctant to show to male

surgeons, hence male dominated the study.¹¹ Pain on defecation was the chief presenting complaint in all patients of the present study, which is quite consistent with the reported studies from Egypt, United Kingdom, Canada and India.^{9,11,13,14} However except one study from India, only half of the patients had a pain on defecation and a quarter of patients with bleeding per rectum, the reason could be the selection of cases of chronic fissure in ano in remission phase.¹² In the present study, the majority of patients presented with the phase of exacerbation. Hence pain, bleeding per rectum and anal spasm were predominant symptoms and signs. The mean duration of pain was 12 months in the present study, which is quite consistent with the literature and this signifies that the study includes the cases with chronic fissure in ano.^{6,9-11} The site of fissure in the majority of patients (83.3%) was at posterior midline (6 o'clock position). Fissure at anterior midline (12 o'clock) was seen in 9.3% patients and fissure at both anterior and posterior midline is seen in 7.4% patients. All these results are also consistent with statistics given in the literature.^{11-13,15} Sentinel skin tag, a feature of chronicity of fissure in ano was observed in 94.4% patients in the present study which is quite consistent with available Indian studies.^{12,14} The only issue in Indian scenario is to clip off the skin tag as patient after surgery becomes totally asymptomatic except the complaint of the persistent anal skin tag. Hence in present study patients with large skin tags, underwent excision of tag with cutting cautery only for the patient satisfaction.

The mean healing period was 4 weeks with both lateral internal sphincterotomy and segmental internal sphincterotomy. In the present study, the difference between the duration of healing in these two modalities was statistically not significant, suggesting that the newer modality segmental internal sphincterotomy was equally effective in the healing of fissure. These results are consistent with the literature.^{10,11,16} The only theoretical advantage of segmental internal sphincterotomy is decrease in the occurrence of postoperative incontinence. The present study also showed that there was no statistically significant difference between the two procedures in terms flatus incontinence.

Post-operative cellulitis, abscess formation and wound infection were reported to be the septic complications. In present series, there was no case of perineal sepsis after lateral internal sphincterotomy which is quite consistent with the data available. There was only 1 case with a perineal abscess in the study observed after segmental internal sphincterotomy which is again consistent with the study literature.¹⁴

CONCLUSION

Segmental internal sphincterotomy could be a good surgical modality with a valid rationale of the division of internal sphincter at two different levels, and it appears to be a good theoretical option in preventing anal

incontinence. It's healing effect on fissure in ano and post-operative complications are similar to standard lateral internal sphincterotomy as observed in the present study. A large, well planned randomized control trial with anal pressure studies and long-term follow-up would be required to further substantiate the utility of this new procedure.

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