

Comparison of Complications of Open versus Closed Lateral Internal Sphincterotomy in Chronic Anal Fissures

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ABSTRACT

Aim: To compare the complications of open lateral internal sphincterotomy (OLIS) with closed lateral internal sphincterotomy (CLIS) in patients of chronic anal fissure (CAF).

Methods: In this prospective, randomized clinical study, one hundred (100) patients of CAF who underwent open (n=50) or closed (n=50) lateral internal sphincterotomy at Bolan medical complex hospital Quetta from Jan-2016 to July 2017 were analyzed. Post-op pain severity at 12 and 24 hours after surgery, fecal incontinence at 5ht post-op day and hospital stay were the main outcome parameters.

Results: The mean age was 39.12±12.34 years in CLIS group patients and 41.40±11.6 years in OLIS group patients. Pain during defecation was the commonest presenting symptom in both of the study patients. In CLIS group, 94% patients were having CAF on posterior side and 92% in OLIS group having it on posterior side. Intensity of pain after 12 hours of surgery was less in CLIS group, 5.76±0.91 versus 6.45±0.79 on OLIS group (p-value <0.0001). Similarly after 24 hours of surgery pain score was 2.00±0.29 in CLIS group and 2.39±0.61 in OLIS group (p-value <0.0001). Hospital stay duration was 2.36±1.41 days in CLIS patients and 3.32±2.23 in OLIS patients (p-value 0.01). Incidence of fecal incontinence was only 6.0% in CLIS group and 18.0% in OLIS group (p-value 0.06).

Conclusion: Closed lateral internal sphincterotomy (CLIS) is superior to open lateral internal sphincterotomy (OLIS) for the surgical management of chronic anal fissure (CAF).

Keywords: Chronic anal fissure, open lateral internal sphincterotomy, closed lateral internal sphincterotomy.

INTRODUCTION

Chronic anal fissure (CAF) is a common disease and is associated with severe pain discomfort, thereby adversely affecting the quality of life of affected subjects.¹ CAF is a longitudinal tear of the anal canal associated with hypertrophy of the anal papilla. CAF may occur on the anterior mid line or posterior midline. Posterior fissures are more common with the incidence of about 90.0% in women and 98.0% in men population^{2,3}. CAF is thought to be the result of constipation associated with hard stools or due to prolonged diarrhea resulting in stretching of anal canal and at the end anal fissure. Mostly it only occurs on the epithelial surface of the anal canal but it may also involve the full thickness⁴.

Medical treatment of CAF involve the administration of drugs that helps to reduce the tone of internal sphincter such as Ca²⁺ channel blockers, Botulinum toxins and Alpha-receptor blockers and β-receptor agonists^{5,6,7}.

Surgical treatment of CAF include manual dilatation of anus (MDA) and lateral internal sphincterotomy (LIS). MDA has now become nearly absolute and current guideline has recommended LIC as a procedure of choice for CAF. However, LIC is associated with some complications. To overcome these complications advancements in basic LIS have been made such as the open and closed LIS.⁸⁻¹⁰ In this study, we compared the complication of open lateral internal sphincterotomy (OLIS) with closed lateral internal sphincterotomy (CLIS) in patients of CAF.

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METHODS

We conducted this prospective, randomized clinical study in department of general surgery, Bolan Medical Complex Hospital Quetta. We took approval regarding ethical approval from IRB of hospital. We included 100 patients of CAF having age 20 years to 70 years. While patients of anal fissure with associated other anorectal disorders e.g. anorectal abscess or fistula, with history of previous dilatation of anus and previous perineal surgery were excluded. This study duration was 1.5 years from Jan-2016 to July 2017.

We randomly divided patients equally to OLIS and CLIS groups. All procedures were done either under general or local anesthesia. For OLIS, we use endoscope for anal canal visualization. A longitudinal entry point was made in the anoderm, and the distal portion of the internal anal sphincter was partitioned under direct vision took after by closing of the mucosa. IN CLIS patients, a cut entry point was made with a Von Graffe's sharp edge, either into the inter-sphincteric groove or into the submucosa. The front line of the cutting edge was pivoted toward the interior sphincter and a halfway sphincterotomy was finished. The skin wound entry point was left open.

Post-op antibiotics cover using metronidazole and cefoxitin was given for seven day after surgery. Food softeners e.g. laxatives were prescribed for 3 weeks after surgery. Oral analgesic drugs were advised in case of pain. Post-op pain severity at 12 and 24 hours after surgery, fecal incontinence at 5ht post-op day and hospital stay were the main outcome parameters.

We used Chi-square test for comparing the fecal incontinence, gender and presenting symptoms of patients and independent sample t-test for comparison of age, post-

pain severity using VAS score and hospital stay. Both tests were applied using SPSS v23.

RESULTS

Regarding baseline characteristics, the mean age was 39.12±12.34 years in CLIS group patients and 41.40±11.6 years in OLIS group patients. There were 64.0% males in CLIS group and 70% in OLIS group. Pain during defecation was the commonest presenting symptom in both of the study patients. In CLIS group, 94% patients were having CAF on posterior side and 92.0% in OLIS group having it on posterior side. Intensity of pain after 12 hours of surgery was less in CLIS group, 5.76±0.91 versus 6.45±0.79 on OLIS group (p-value <0.0001). Similarly after 24 hours of surgery pain score was 2.00±0.29 in CLIS group and 2.39±0.61 in OLIS group (p-value <0.0001). Hospital stay duration was 2.36±1.41 days in CLIS patients and 3.32±2.23 in OLIS patients (p-value 0.01). Incidence of fecal incontinence was only 6.0% in CLIS group and 18.0% in OLIS group (p-value 0.06).

Table 1. Baseline Characteristics of Patients.

Variable	CLIS	OLIS	P-value
Age (Y)	39.12±12.34	41.40±11.6	0.35
Male Gender (%)	32 (64.0%)	35(70%)	0.52
Female Gender (%)	18 (36.0%)	15 (30%)	
Presenting Symptoms (%)			
Pain during defecation	26 (52%)	27 (54%)	0.60
Pain during defecation plus bleeding	11 (22%)	13 (26%)	
Constipation	8 (16.0%)	4 (8%)	
Fissure Position (%)			
Anterior	2 (4.0%)	2 (4%)	0.84
Posterior	47 (94.0%)	46 (92%)	
Both	1 (2.0%)	2 (4%)	

Table 2. Comparison of Study Outcomes.

Variable	CLIS	OLIS	P-value
Pain Score after 12 hours	5.76±0.91	6.45±0.79	<0.0001
Pain Score after 24 hours	2.00±0.29	2.39±0.61	<0.0001
Hospital Stay (Days)	2.36±1.41	3.32±2.23	0.01
Fecal Incontinence(%)	3 (6.0%)	9 (18.0%)	0.06

DISCUSSION

Since now there is a huge advancement in the medical treatments of CAF, despite all these medical therapies lateral internal sphincterotomy (LIS) is still the choice of standard for the management of CAF.¹¹ Sphincterotomy was done in 1818 for the first time by Boyer.¹² Then in 1951 Eisenhammer performed lateral internal sphincterotomy.¹³ Now a days, LIS is performed by several techniques which are divided as open and close methods. Both of these have their own benefits. In this study, we compared the OLIS with CLIS regarding their short term outcomes and complications.

In our study, male population was 67.0%. Similar trend of male predominance has been reported by other

studies. Nahas et al¹⁴ reported 70%, Ghayas et al¹⁵ reported 86.2% and Gupta et al.¹⁶ reported 58.0% prevalence of male population in CAF patients. In our study, Pain during defecation was the commonest presenting symptom, present in 52% and 54% in CLIS and OLIS group patients respectively. Anandaravi et al¹⁷ found painful defecation in 62% patients in CAF. And Gupta et al¹⁶ found pain during defecation in 54% patients in CLIS group and 45.6% patients in OLIS group.

In our study, 93% patients presented with posterior anal fissure. Sarhan et al¹⁸ found posterior anal fissure in 85% of his patients of CAF. Gupta et al¹⁶ found posterior CAF in 89% patients. Many other studies have also reported similar frequency of CAF.

In our study, we found that post-op pain at 12 and 24 hours after surgery was significantly high in OLIS group as compared to CLIS patients. Gupta et al.¹⁶ also found higher pain score in OLIS patients. However, Wiley et al¹⁹ did not found any significant difference in post-op pain scores in CLIS and OLIS patients.

In our study, mean hospital stay was 2.36±1.41 days in CLIS patients and 3.32±2.23 in OCLIS patients. Gupta et al., Bano et al and Kortbeek et al. also found shorter hospital stay along with fewer complications in CLIS patients as compared to the OLIS ones^{3,16,20}. Furthermore in our study, fecal incontinence on 5th post-op day was noted in 6% patients in CLIS group and 18% patients in OLIS groups. Ghayas et al¹⁵ reported fecal incontinence in 4.3% patients in CLIS patients and 32.3% in OLIS patients. Sanniyasi et al²¹ reported fecal incontinence in 10.0% patients in CLIS group and in 32.3% patients in OLIS group. Anandaravi et al.¹⁷ found fecal incontinence in 9.0% patients in CLIS group and in 20% patients in OLIS group.

A cohort study conducted by Garcia-Aguilar et al²² have found CLIS as a superior option as compared to the OLIS regarding long term outcomes. Altomare et al. and other investigators have also recommended CLIS as a first line choice for CAF.²³

CONCLUSION

Closed lateral internal sphincterotomy (CLIS) is superior to open lateral internal sphincterotomy (OLIS) for the surgical management of chronic anal fissure (CAF).

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