



ORIGINAL RESEARCH PAPER

Surgery

CLOSED COMPARED WITH OPEN LATERAL INTERNAL SPHINCTEROTOMY IN ANAL FISSURE – A PROSPECTIVE SINGLE CENTRE STUDY OUTCOMES AT OUR BASE TEACHING HOSPITAL, SRINAGAR (UTTARAKHAND).

KEY WORDS: chronic anal fissure (CAF), closed lateral internal sphincterotomy (CLIS), open lateral internal sphincterotomy (OLIS).

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ABSTRACT

Aim: Anal fissure is usually common in middle age groups & associated with severe pain in anal area during act of defecation. Lateral internal sphincterotomy (LIS) has been considered the treatment option for chronic anal fissure (CAF) since years. In this study, our aim was to compare & assess the outcomes of closed & open techniques of LIS at our centre.

Material and Methods: Total 183 patients underwent for operative interventions after prospective randomization considering 98 patients for closed lateral internal sphincterotomy (CLIS) & 85 patients for open lateral internal sphincterotomy (OLIS) with diagnosis of chronic anal fissure. Z-Test was used for calculation of p-values.

Result: As compared to OLIS, CLIS was associated with less operating time (3.61 vs 7.6 minutes, $p < 0.01$) shorter hospital stay (3.03 vs 5.58 days), normal activity (4.17 vs 6.02 days, $p < 0.05$) with less incontinence (3 vs 14, $p < 0.01$) & recurrences (4 vs 8, $p < 0.05$). The need of analgesic either by iv (2 doses Vs 4 doses, $p < 0.01$) or oral (CLIS: 2 doses, OLIS: 6 doses, $p < 0.01$) route was also less in (CLIS) groups.

Conclusion: We conclude that CLIS for chronic anal fissure is safe & beneficial operative procedure & post op. outcomes including hospital stay was significantly short with fewer rate of infection, incontinence & recurrences.

Introduction-

Lateral internal sphincterotomy (LIS) was considered by Eisenhammer in 1951⁽¹⁾ which now become the treatment for chronic anal fissure (CAF). Patients with anal fissure present with pain at anal canal during & after defecation. It is due to anal sphincter spasm⁽²⁾. Pain may be either associated with constipation & bleeding per rectum.

The most common site of fissure in ano is the posterior midline^(3,4,5,6,7). CAF may be associated with induration & tenderness at anal verge at 6 or 12 o'clock position usually. CAF is needed surgical intervention in the form of lateral internal sphincterotomy (LIS).

In the present study we have compared the outcomes of (CLIS) with that of open (OLIS) in patients with diagnosis CAF considering operating time, hospital stay, normal activity & important post-op. complications.

Material and Methods-

This prospective unicentre study was carried out from October-2014 to December-2017 included patients with clinical diagnosis of CAF. Patients with age group between 18- 64 years were considered for study. Total 183 patients underwent for surgery after randomization. About 98 patients underwent for (CLIS) & 85 (OLIS). The two treatment groups were well matched regarding age & sex but not for severity of anal fissure. Patients with fissure with inflammatory bowel diseases, infection, anorectal surgery, malignancy were not included in this study.

The variables were incidence of post-op. complications, duration of surgery, hospital stay, analgesics doses (inj tramadol) required, normal activity & assessment of pain on visual analogue scale (VAS) score.

Each patient underwent thorough history taking and clinical examination regarding starting of painful defecation with associated complaints. Fissure with induration & fibrosis, sentinel tag or anal papilla & failure of conservative treatment since more than 6 weeks were considered CAF. All the patients subjected to routine investigations & few more tests from anaesthesia point of view.

An informed consent was taken from all the patients undergoing for surgery.

Digital rectal examination & proctoscopy was also done in all cases under general or regional anaesthesia.

Patients undergoing for CLIS by using surgical blade no-11 by stab incision at intersphincteric groove at either 3 or 9 o'clock position. 30 to 35% of internal sphincter fibres were divided by directing cutting edge of blade towards internal sphincter completing the procedure.

In (OLIS) a radial/longitudinal incision was made divide distal half of internal anal sphincter under vision by electrocautery followed by closing the incision.

All patients received iv antibiotics; 30 minutes prior to surgery as single dose of third generation cephalosporin & inj. metrogyl in both groups. Opioids (inj tramadol; 50-100mg/dose) analgesics were used iv in post-op followed by orally. Pain was measured by VAS, a score of integrated numbers ranging from 0 (no pain) to 10 (severe pain).

Comparison was made in view of operating time, hospital stay (number of days in hospital after the day of surgery) & complications like, haemorrhage, wound infection, incontinence, recurrences & pain. Patients were discharged as soon as they resume normal activity (usual activity of domestic and social life at the discretion of the patients). They were followed up after 10 days for one month then at two weeks for next month to monitor wound healing. Later they were also kept in touch at one month interval till one year.

Plan for data analysis-

For comparison of two groups, Z-test was used to compare frequency of qualitative variable (infection, incontinence) & Ordinal data (operating time, hospital stay). A probability (p value) less than 0.05 was considered significant.

Results-

The mean age for CLIS was 36.8 years & OLIS (38.3 years) and F:M

ratio(38:60 vs 34:51) respectively. The M:F % sex ratio was (61 % &: 39% vs 60%:40%).(Table-1).

About 73% patients had painful defecation in CLIS group & 65% in OLIS group. Pain with rectal bleeding was seen in 25% cases in both groups. Posterior fissure was seen in 86(87.75%) cases in closed & 70(82.35%) cases in open group. Anterior fissure was seen in 17(17.34%) cases in closed group also. sentinel tag were present in all closed& open groups.(Table- 2)

Wound Infection was noted in one case of CLIS where as in OLIS it was eight cases while Only 3 cases of incontinence was reported in CLIS group.More recurrences were seen 9.41% (8 cases) in OLIS group. (Table-3)

In our study, mean operating time was less in CLIS (3.61 minutes) as compared to OLIS group(7.6 minutes) while hospital stay was more in OLIS group(5.58 days) significantly.It was observed that return to normal activity was 4.17 days in CLIS

The mean requirement of analgesic by(iv) route as well as oral route was significantly less in CLIS group(2doses). (Table-4)

Mean pain assessment after CLIS was(6.30),where as for OLIS (7.70) after 12 hours of operation($p>0.05$).

Discussion-

Most common surgical modality for CAF is LIS .This can done either by closed or open techniques^(6,8)

Most of the patients were in the middle age groups with 61.22% male & 38.77% female in closed & 60% male &40% female in open group. In a study, Nehas et al⁽⁸⁾ also reported about 70% male& 30% female patients of CAF

Oh C observed [50.3% male& 49.7% female] & Melange [52.2% male&48.8%female] cases distribution in their study sample.^(9,10)

The mean age was 36.8 year in closed group where as 38.3 years in open group which is compared with previous studies^(3,11,12,9)

Painful defecation was the chief complaints in most of the patients in both groups (73.46% vs 64.70%) Where as Hanel et al shows 45.4% vs 35.7% cases in a study respectively. Pain is due to spasm of anal sphincter&spasm^(13,14)

In this study most of the patients were having posterior midline anal fissure in both open &closed groups(87.75% vs 82.35%) respectively which is consistent with many previous studies^(3,4,5,6,7) 98% of fissures are posterior and 2% anterior has been reported in male in various past studies^(15,16,17,18). Multiple fissures were also seen in 7.14% cases of closed groups

Post-op complications rate was less in CLIS group as compared to OLIS group in our study. Similar results were found by several other investigators.^(19,20,21,22)

Pernikoff et al, Kortbeek et al &Shafiq Ullah has reported CLIS is more effective for CAF in terms of short hospital stay, less discomfort & decreased rate of complications when compared with OLIS^(19,20,15)

CLIS technique causes less tissue injury so chances of pain, bleeding, wound infection becomes less in postop period.In both CLIS & OLIS,the chances of incontinence was due to partial cutting of internal sphincters.

Since OLIS takes more time for surgery explaining more chances of post-op complications in view of above parameters in comparison to closed sphincterotomy⁽¹⁵⁾

Hemorrhage was seen in only two cases of CLIS group where as pain was noted in 3.06% closed LIS cases as compared to open LIS(12.94%) significantly.Where as less wound Infection was noted in CLIS group

Incontinence for mostly flatus were noted in both groups (3vs14, $p<0.01$) respectively. Only two cases of liquid faeces incontinence were also noted in open LIS group .More recurrences were noted in OLIS(9.41%) as compared to CLIS(4.08%) ($p<0.05$).

The mean operating time was less in closed LIS group(7.6 minute) as compared to open LIS group($p<0.01$).The mean hospital stay was less for closed LIS group(3.03 days) as compared to open LIS group(5.68days) $p<0.01$. Several previous studies had found similar results^(4,20).

The present study result shows that time return to normal activity was significantly reduced by closed technique (mean 4.17days vs 6.02days, $p<0.05$). Less pain in the post- operative period was the major contributing factor.

In this study, analgesic requirement in terms of iv & oral doses was significantly less after CLIS as compared to OLIS groups.(CLIS, iv : oraldose (2:2)& (OLIS,iv:oral doses(4:6), $p<0.01$

VAS score was used to assess the post-operative pain found to be less in the CLIS group with the same dose of parental analgesic per kg body weight as compared to OLIS group after 12 hrs(6.30 vs 7.70, $p>0.05$)

Conclusion-

In our experience , we concluded that CLIS approach to CAF can be considered safe and more effective as compared to OLIS.This study confirm that CLIS had less hospital stay, decreased wound infection, incontinence&recurrences.

Finally, closed lateral internal sphincterotomy(CLIS) is more feasible for routine CAF cases with definite overall advantages allowing a quicker recovery& it should be performed by well trained experienced hands to improve outcomes further.

Abbreviations:

CAF = chronic anal fissure

CLIS = closed lateral internal sphincterotomy

F:M = Female: Male

i.v. = IntraVenous

LIS = lateral internal sphincterotomy

OLIS = open lateral internal sphincterotomy

P = Probability

VAS = Visual Analogue Scale

Vs = Versus

Table-1 DEMOGRAPHIC PROFILE OF PATIENT

Variables	Closed Lateral Internal Sphincterotomy (CLIS) (n=98)	Open Lateral Internal Sphincterotomy (OLIS) (n=85)
Mean Age (years)	36.8Years	38.3Years
Sex Ratio(F:M) & sex Distribution(%)	38:60 (38.77%: 61.22%)	34:51 (40%: 60%)

Table-2 CLINICAL FEATURES OF THE PATIENTS

Clinical Parameters	Closed Lateral Internal Sphincterotomy (CLIS) (n=98)	Open Lateral Internal Sphincterotomy (OLIS) (n=85)
Pain with defecation	(72)73.46%	(55)64.70%
Pain with rectal bleeding	(25)25.51%	(27)31.76%
Constipation	(17)17.34%	(4)4.70%
Swelling/itching at/around anus	(5)5.10%	(6)7.05%
Anterior fissure	(17)17.34%	(5)5.88%
Posterior fissure	(86)87.75%	(70)82.35%
Both anterior & posterior fissure	(5) 5.10%	(2)2.35%
Multiple fissure	(7)7.14%	(1)1.17%
Sentinel tag	(98)100%	(85)100%

Table-3 POST-OPERATIVE COMPLICATIONS

Variables	Closed Lateral Internal Sphincterotomy (CLIS) (n=98)	Open Lateral Internal Sphincterotomy (OLIS) (n=85)	P-value
Hemorrhage	2 / (2.04%)	9/ (10.58%)	p<0.01
Pain	3(3.06%)	11(12.94%)	p<0.01
Wound infection	1(1.02%)	8(9.41%)	p<0.01
Incontinence	3(3.06%)	14(16.47%)	p<0.01
Recurrence	4(4.08%)	8(9.41%)	p<0.05

Table-4 COMPARATIVE OUTCOMES

Variables	Closed Lateral Internal Sphincterotomy (CLIS) (n=98)	Open Lateral Internal Sphincterotomy (OLIS) (n=85)	p-value
1) Hospital stay (days) * Mean	3.03(2-4)	5.58(3- 8)	p<0.01
2) Operating time(minutes) * Mean	3.61(3-8)	7.6(6-20)	p<0.01
3) Analgesic requirement* (Number of parenteral i.v.doses)	2.07(2-4)	4.00(3-8)	p<0.01
(Number of oral-doses)	2.10(2-6)	6.18(6-12)	p<0.01
4)Time to return to normal activity (days) Mean	4.17(3-8)	6.02(5- 11)	p<0.05
5) Pain according to VAS scale	6.30(5- 8)	7.70(6- 10)	p>0.05
After 12 hours	2.36(2- 4)	3.21(2-7)	p<0.05
After 24 hours			

References:-

- 1)- Eisenhammer S. The evaluation of the internal anal sphincterotomy operation with special reference to anal fissure. Surg Gynecol Obstet. 1959; 109:583e590.
- 2)- Gibbons CP, Read NW. Anal Hypertonia in fissures: cause or effect? Br J Surg 1986; 73: 443-5
- 3)- Giordano P, Gravante G, Grondona P, Ruggiero B, Porrett T, Lunniss PJ. Simple cutaneous advancement flap anoplasty for resistant chronic anal fissure: a prospective study. World J Surg. 2009;33:1058e1063.
- 4)- Shafiq U, Nadeem M. Closed versus open lateral internal sphincterotomy in chronic anal fissure: a comparative study of postoperative complications and results. Pakistan J Med Res. 2004;43:1e4.
- 5)- Mousavi SR, Sharifi M, Mehdikhah Z. A comparison between the results of fissurectomy and lateral internal sphincterotomy in the surgical management of chronic anal fissure. J Gastrointest Surg. 2009;13:1279e1282.
- 6)- Samuel S. Anal fissure. In: Mazier WP, Leien DH, Luchfeld MA, Senagore AG, eds. Surgery of Colon, Rectum and Anus. Philadelphia: WB Saunders; 1995:255e268.
- 7)- Giles GR. The colon, rectum and canal. In: Cuschieri A, Giles GR, Moosa AR, eds. Essential Surgical Practice. 3rd ed. London: Butterworth Heinemann; 1995: 1362e1407.
- 8)- Nahas SC, Sobrado Jr CW, Araujo SE, Aisaaka AA, Habar GA, Pinotti HW. Chronic anal fissure: results of the treatment of 220 patients. Rev Hosp Clin Fac Med. 1997;52:246e249.
- 9)- Oh C, Divino CM, Steinhagen RN. Anal fissure. 20 years experience. Dis Colon Rectum. 1995;38:378e382
- 10)- Melange M, Colin JF, Van Wymersch T, Vanheu verzwyn R. Anal fissure: correlation between symptoms and manometry before and after surgery. Int J Colorectal Dis 1992;7:108-111
- 11)- Leong AF, Seow-Choen F. Lateral sphincterotomy compared with anal advancement flap for chronic anal fissure. Dis Colon Rectum. 1995;38:69e71.
- 12)- Hanaanel N, Gordon PG. Lateral internal sphincterotomy for fissure in ano e revisited. Dis Colon Rectum. 1997;40:597e602.
- 13)- McNamara MJ, Percy JP, Fielding IR. A mano metric study of anal fissure treated by subcutaneous lateral internal sphincterotomy. Ann Surg 1990;211:235-238
- 14)- Xynos E, Tzortzinis A, Chrysos E, Tzovaras G, Vassilakis JS. Anal manometry in patients with fissure-in-ano before and after internal sphincter-otomy. Int J Colorectal Dis 1993;8:125-128.
- 15)- Ullah S, Nadeem M. Closed versus open lateral internal sphincterotomy in chronic anal fissure: a comparative study of postoperative complications and results. Pakistan J Med Res. 2004;43(1):219-23
- 16)- Gott MD, Peter H. The fresno bee new therapy coming for anal fissures. Life. 1998:E2.
- 17)- American society of colon and rectal surgeons. Anal fissure. Available at <http://colorectal.co.nz/wp-content/uploads/2014/09/Anal-Fissure-more-information-FASCRS.pdf>. Accessed on 12 July 2008
- 18)- Lund JN, Scholefield JH. Aetiology and treatment of anal fissure. Br J Surg. 1996;83: 1335-44.
- 19)- Pernkoff BJ, Eisenstat TE, Oliver GC, Salvati EP. Reappraisal of partial lateral internal sphincterotomy. Dis Colon Rectum. 1994;7:1291e1295
- 20)- Kortbeek JB, Langevin JM, Khoo RE, Heine JA. Chronic fissure-in-ano: a randomized study comparing open and subcutaneous lateral internal sphincterotomy. Dis Colon Rectum. 1992;35: 835e837.
- 21)- Garcia-Aguilar J, Belmonte C, Wong WD, Lowry AC, Madoff RD. Open vs closed sphincterotomy for chronic anal fissure: long term results. Dis Colon Rectum. 1996;39:440e443
- 22)- Cohen A, Dehn TC. Lateral subcutaneous sphincterotomy for the treatment of anal fissure in children. Br J Surg. 1995;82: 1341e1342.