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Original Research Article

Lateral Internal Sphincterotomy versus Anal Dilatation in Chronic Anal Fissure - An Observational Study

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ABSTRACT

Background and Objectives: Both anal dilatation (AD) and lateral internal sphincterotomy (LIS) are practiced in our hospital for treatment of chronic anal fissure (CAF). The objective of the study was to compare the two procedures especially regarding pain relief, ulcer healing, incontinence and recurrence.
Material and Methods: This is an observational study and included 50 patients of AD (Group A) and 44 patients of LIS (Group B). The average follow-up was 3.5 ± 4.9 (range, 1-9) months.
Results: By the end of 1 month pain relief was observed in 45 (90%) and 42 (95.45%) patients and ulcer healing in 47 (94%) and 43 (97.7%) patients in group A and B respectively. By the end of 3 months, minor incontinence including mucous discharge was observed in 12 (24%) and 3 (6.8%) patients in group A and B respectively and the difference was significant (p=0.046). None had major incontinence. Eight (16%) and 1 (2.27%) patients in group A and group B respectively reported with recurrence (p = 0.05) during the study period and thereafter.
Conclusion: Both AD and LIS provides early pain relief and high ulcer healing rate. However, LIS appears to be safer with regard to incontinence, and the chance of recurrence is also lower compared to AD. Larger scale randomized study with longer follow up should be conducted to better define the issue of incontinence and recurrence.

Key words: anal fissure, sphincterotomy, anal pain, incontinence

INTRODUCTION

Anal fissure is a linear ulcer of the anoderm distal to the dentate line. It is generally located in the posterior anoderm in the midline. [1] Anal fissure of less than 6 weeks duration is generally considered as acute. When it persists for more than6 weeks it is called chronic. Additionally chronic anal fissure may also possess associated sentinel piles, hypertrophied anal papillae or visible internal sphincter fibers. [2-4] Though its prevalence is not known in our context, chronic anal fissure is very commonly seen in day to day clinical practice. Manometric studies have demonstrated that most chronic anal fissures are associated with a raised internal anal sphincter pressure and reduced blood flow at the base. [5,6] This results in ischemia of the anoderm which in turn predisposes to chronicity or recurrence of ulcer. Based on this observation, most contemporary

treatment modalities focuses on reducing the resting anal pressure by diminishing sphincter tone and improving blood supply at the site of the fissure, thus promoting the ulcer healing rate. [7] There are various treatment options for chronic anal fissure (CAF), but no consensus has so far reached regarding the best modality of treatment. Conservative treatment may heal the ulcers without risking incontinence. However, recurrence is common in these groups of patients. So most surgeons prefer surgical treatment in CAF as it expedites ulcer healing with less recurrence. [8,9] However, incontinence is an important concern.

Among different surgical techniques for the treatment of CAF most popular are anal dilatation (AD) and lateral internal sphincterotomy (LIS). Many surgeons advocate superiority of LIS over AD. [9-11] AD has been criticized for recurrence varying from 2% to 80%, [12,13] and incontinence up to 51%. [14] But proponents of AD advocate that when performed in properly controlled manner, it results in significant success rates safely. [15,16] At our hospital some surgeons prefer AD while the others opt for LIS. We lack valid evidence to justify superiority of one over the other. So, the current study was carried out with an objective of evaluating the results of the two procedures in terms of pain relief, ulcer healing, incontinence and recurrence.

MATERIALS AND METHODS

This is a prospective and observational study carried out at Janaki Medical College Teaching Hospital, Janakpur, Nepal and enrolled patients over 18 years of age operated for CAF from August 2016 to June 2018. During this period 128 patients were operated for CAF. All the patients had previously received one or more sessions of conservative treatment at various clinics outside and had recurrence of symptoms and signs of CAF. The data were recorded at admission for surgery. Approval for the study was obtained from the ethical committee of the college.

Exclusion criteria: Patients who had suspected or proven inflammatory bowel disease, hemorrhoids, fistula, pregnancy, and previous anal surgeries were excluded from the study.

Diagnosis of CAF: was based on typical symptoms present for more than 6 weeks and signs. History suggestive of fissure included pricking type of pain at defecation and bright red blood drops in lavatory pan after evacuation of stool, blood stain on the surface of the stool or on the toilet tissue paper. History of constipation was present in most patients. Examination findings include done or more of the following features: visible internal sphincter fibers, indurated margins, sentinel piles at the distal aspect and hypertrophied anal papillae at the proximal aspect of the ulcer. [2-4]

Surgical procedure: The patients underwent either AD or LIS depending on individual surgeon's preference. The patients who underwent AD were Grouped 'A' and those who had LIS were grouped 'B'. Caudal or saddle anesthesia was used in all the patients and the procedures were performed in the lithotomy position.

AD was usually performed by technique popularized by Watts and colleagues in 1964. [15] In this procedure anal canal was stretched manually beginning with two fingers and then four fingers stretching the lateral walls of the anal canal. In some cases 5 or 6 fingers were also used. Dilation was performed for about 3-4 minutes. LIS was performed using closed technique as described by Hoffmann and colleague. [17] However, we did not use general anesthesia. In this technique retractors were introduced to stretch the anal canal anteroposteriorly so that the inferior end of the tensed internal sphincter and inter sphincteric groove could be felt. Number 11 surgical blade (Lister) was passed in the groove in left posterolateral aspect of anus and cut medially to divide the entire thickness of the lower internal sphincter. The length of cut was about 1 cm. As the sphincter fibers were divided, a "sudden give" could be felt by the assistant holding

the retractors. Also the division was confirmed by palpation of the defect in the sphincter at the site of division. Care was taken not to rent the mucosal lining of the anal canal except for the point of entry of the blade. Sentinel piles and anal papillae, if prominent, were also excised. One patient with deep long posterior ulcer additionally required Y-V anoplasty after LIS. Most patients were discharged on the first or second post-operative day.

All the patients received preoperative ceftriaxone 1gm and metronidazole or ornidazole 500 mg intravenously. Postoperatively they were given oral antibiotics for 5-7 days, laxative for about two to four weeks and sitz bath for about 10 days. All were advised to take high fiber food, more of water and cut down intake of fried and spices foods, meat and fish.

The patients were followed up at1 week and then at 1 month of surgery. They were interviewed for pain relief, bleeding, mucous discharge and incontinence. Anus was inspected for healing of the ulcer. The primary outcome measure was healing of the fissure. Secondary outcome measures were pain control and anal continence. Patients who had no complaint by the end of a month of surgery were advised to report in case they develop recurrence of symptoms. Others who had persistent symptoms, ulcer and complications were further followed up to variable extent of time maximum being 9 months.

Statistical analysis:

Data were entered in Microsoft Excel version 2010 and analyzed using statistical software SPSS 22. Student's unpaired t-test was used for parametric data and Chi-square test was used for categorical data. Statistical significance was set to $p < 0.05$.

RESULTS

Follow-up record of at least a month was satisfactory for 94 out of 128 patients and their results are presented. Fifty four (57.5%) patients were male, and male to female ratio was1.35:1.Group A and B included 50 (53.2%) and 44 (46.8%) patients respectively. The mean age was 34.8 ± 8.35 (range: 19-62) years, and there was no significant age difference between the two groups (Table).

Pain was present in all the 94 (100%) patients and bleeding in 77 (81.9%) patients. However, pain was the main presenting symptom in 70 (63.7%) patients only while in the others bleeding was predominant. Sixty eight (72.3%) patients complained of constipation. Average duration of symptoms was 11.16 ± 12.17 (range, 1.5-60 months) and the difference between two groups was not significant (Table).

Table: Demography, ulcer details and results of surgery in AD and LIS patients

Parameter	Group A (n=50)	Group B (n=44)	p Value
Age in years: mean (range)	34.8 ± 8.07 (20-60)	35.1 ± 8.7 (19-62)	0.434
Male to female ratio	1.38	1.32	
Duration of symptoms (months): mean (range)	10.7 ± 11.98 (1.5-60)	11.6 ± 12.5 (2-60)	0.717
Posterior ulcer, n (%)	43 (86%)	37 (84%)	0.974
Pain relief in 1 week, n (%)	36 (68%)	32 (72.7%)	0.784
Pain relief in 1 month, n (%)	45 (90%)	42 (95.4%)	0.541
Ulcer healed in 1 month, n (%)	47 (94%)	43 (97.7%)	0.703
Minor incontinence and Mucous discharge, n (%)	12 (24%)	3 (6.8%)	0.046
Recurrence	8 (16%)	1 (2.27%)	0.05

No patient had significant intra-operative complication. One patient in group A, had bleeding from fissure site on the first post-operative day. This patient had significant bleeding pre-operatively also. However, no bleeding diathesis was revealed on routine pre-operatively coagulation profile. It was controlled by digital pressure alone and the dressing applied for 24 hours. One patient in group B complained of pain and some discharge on the fifth post-operative day. He was suspected of having infection based on clinical judgment. It was controlled by

switching over the oral antibiotic to intravenous ceftriaxone and tazobactam combination.

The average follow-up was 3.2 ± 2.19 (range, 1-9) months. Pain relief was observed in 34 (68%) and 32 (72.72%) patients by the end of 1 week and 45 (90%) and 42 (95.45%) patients by the end of 1 month. One patient in group B took about two and half months but pain got relieved. By one month, healing of the ulcer was observed in 47 (94%) and 43 (97.7%) in group A and B respectively.

By the end of 3 months, minor incontinence including mucous discharge was observed in 12 (24%) and 3 (6.8%) patients in group A and B respectively and the difference was significant (p=0.046). True fecal incontinence occurred only in 3 (6%) patients in group A and was minor. No patient had major incontinence. A few among these patients who followed up till late, incontinence was found to gradually improve. Regarding recurrence, over the period of 9 month follow-up, 8 (16%) and 1 (2.27%) patients in group A and group B respectively reported with recurrence of symptoms and the fissure was evident on examination also (p = 0.05).

DISCUSSION

Basis of surgical treatment is founded on the cause of CAF suggested to be due to internal sphincter hypertonia. [18,19] Both AD and LIS lead to reduction of resting anal pressure. Both the techniques have been found to result is quick pain relief and high ulcer healing rate. Watt et al reported satisfactory early relief of symptoms in 95% of patients with AD. [15] Hoffmann reported that about 93% patients were quite free of pain in 1 week of LIS. Littlejohn reported 99% initial healing with tailored LIS. Current study also revealed rapid improvement in symptoms and ulcer healing in both the groups.

Regarding incontinence there exists marked variation in literature and in between AD and LIS. AD is associated with uncontrolled damage to the internal sphincter fibers, and in some cases external anal sphincter may also be damaged. [12-14] In 1968 Lord suggested anal dilatation technique in which four fingers of each hand are inserted into the anal canal and stretched for 3 to 4 minutes. [20] Konsten et al, in a prospective randomized trial involving 138 patients treated by Lord's anal sphincter stretch technique, and 17-year follow-up, demonstrated that 52% of patients had varying degrees of incontinence after Lord's procedure. [20] In 1992 MacDonald and colleagues reported incontinence as high as 27%. [13] Strugnell and colleagues performed controlled digital dilatation of anus in 273 patients and over a median follow up of 7.8 years revealed that incontinence rate was as low as 9 (3.8%). [21] In the current study, minor incontinence rate was relatively lower compared to studies in the past. The high rate of incontinence reported by Lord's technique was not observed in the current study because the extent of stretch was limited to four fingers and in a few patients only to five or six fingers.

Since the description of the technique of LIS by Eisenhammer in the 1950s, practice was to divide the internal sphincter to the dentate line. [22] Khubchandani et al documented complication up to 35% of cases following LIS. [23] Littlejohn et al reported a retrospective review of 287 patients who underwent division of the internal anal sphincter tailored to the length of the fissure and there was 35% incidence of minor staining. [24] After the report of Littlejohn various studies have compared the results of extent of division of internal sphincter. Sphincterotomy tailored to the apex of fissure has been shown to have lower rates of mild incontinence (2%) compared with sphincterotomy to the dentate line (11%).However, this comes with a higher overall treatment failure rate on long-term follow-up (13%) compared with a larger sphincterotomy either to the dentate line (0%) or to an anal diameter of 30 mm (3%). [25] We adhered to traditional longer

sphincterotomy with fewer treatment failures and an acceptable rate of minor staining in the form of mucous discharge and no true incontinence most of which also improved satisfactorily in due course of a few months.

Regarding incontinence, Watts et al had at least 5 month follow up of 99 patients treated by sphincter stretch and reported recurrence rate of16%. [15] Sphincterotomy results in sustained reduction of maximum resting anal pressure. [26] Hiltunen et al, after 2 months of surgery found that the basal pressure was significantly lower in the patients who underwent LIS, however, there were 4 failures among the 19 patients who underwent AD. [27] This might be the reason for less chance of recurrence observed in the current study also.

Several studies have demonstrated lower incontinence rate following LIS compared to AD. [10,11,13] A recent randomized controlled enrolling 108 patients with average follow-up were 11.2 demonstrated that significantly more patients reported minor incontinence with the AD than with the LIS. Also recurrence occurred in 11% of AD patients versus 2% of LLS patients. [10] A Cochrane Review of seven randomized controlled trials significantly favored sphincterotomy over anal stretch. [11] The current study also demonstrated lower rate on incontinence and recurrence with LIS compared to AD. American Society of Colon and Rectal Surgeons recommended LIS as the surgical treatment of choice for refractory anal fissures. [28]

There are a few limitations of the current study. First the number of patients is relatively low and not all patients had long follow up record. Secondly, though there was a consistency in the technique of LIS, there was some variation in AD technique regarding the number of digits employed. Thirdly there was no provision of anal manometer to monitor anal pressure. Despite these limitations, this study demonstrates significant benefits of LIS over anal dilatation in the treatment of CAF.

CONCLUSION

Both AD and LIS provides early pain relief and high ulcer healing rate. However, LIS appears to be safer with regard to incontinence, and the chance of recurrence is also lower compared to AD. Larger scale randomized study with longer follow up should be conducted to better define the issue of incontinence and recurrence.

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REFERENCES

1. Lund JN, Scholefield JH. Aetiology and treatment of anal fissure. Br J Surg.1996; 83:1335-1344.
2. American Gastroenterology Association. American gastroenterological association medical position statement: diagnosis and care of patients with anal fissure. Gastroenterology.2003;124:233–234.
3. Collins EE, Lund N. A review of chronic anal fissure management. Tech Coloproctol J. 2007;11:209-223 8.
4. Lindsey I, Jones OM, Cunningham C, et al. Chronic anal fissure. Br J Surg.2004;91:270-279.
5. Schouten WR, Briel JW, Auwerda JJ. Relationship between anal pressure and anodermal blood flow. Dis Colon Rectum.1994;37:664–669 24.
6. Schouten WR, Briel JW, Auwerda JJ, et al.Ischaemic nature of anal fissure. Br J Surg.1996;83:63–65.
7. Bhardwaj R, Parker MC. Modern perspectives in the treatment of chronic anal fissures. Ann R CollSurg Engl. 2007;89: 472–478.
8. Steele SR, Madoff RD. Systematic review: the treatment of anal fissure. Aliment PharmacolTher.2006;24:247–257.
9. Vaithianathan R, Panneerselvam S. Randomised Prospective Controlled Trial of Topical 2 % Diltiazem Versus Lateral Internal Sphincterotomy for the Treatment of Chronic Fissure in Ano. Indian J Surg. 2015; 77(3):1484-1487.
10. Ram E, Vishne T, Lerner I, Dreznik Z. Anal dilatation versus left lateral sphincterotomy for chronic anal fissure: a

prospective randomized study. Tech Coloproctol. 2007;December 3 [Epub ahead of print].
11. Nelson RL. Operative procedures for fissure in ano. Cochrane Database Syst Rev. 2010;1:CD002199.
12. Speakman CT, Burnett SJ, Kamm MA, Bartram CI. Sphincter injury after anal dilatation demonstrated by anal endosonography.Br J Surg. 1991;78(12):1429-30.
13. MacDonald A, Smith A, McNeill AD, Finlay IG. Manual dilatation of the anus.Br J Surg. 1992;79(12):1381-2.
14. Nielsen MB, Rasmussen OO, Pedersen JF, Christiansen J. Risk of sphincter damage and anal incontinence after anal dilatation for fissure in-ano: an endosonographic study. Dis Colon Rectum 1993; 36:677–680.
15. Watts JM, Bennett RC, Goligher JC. Stretching of anal sphincters in treatment of fissure-in-ano. BMJ. 1964; 2:342–3.
16. Sohn N, Eisenberg MM, Weinstein MA, Lugo RN, Ader J. Precise anorectal sphincter dilatation – its role in the therapy of anal fissure. Dis Colon Rectum. 1992; 35:322–327.
17. Hoffmann DC, Goligher JC. Lateral Subcutaneous Internal Sphincterotomy in Treatment ofAnal Fissure. British Medical Journal. 1970;3:673-675.
18. Olsen J, Mortensen PE. Anal sphincter function after treatment of fissure in ano by lateral subcutaneous sphincterotomy: a randomised study. Int J Colorectal Dis.1987;2:155-157.
19. Gibbons CP, Read NW. Anal hypertonia in anal fissure: cause or effects? Br J Surg. 1986;73:443-445.
20. Konsten J, Baeten CG. Hemorrhoidectomy vs. Lord's method: 17year follow-up of a prospective, randomized trial. Dis Colon Rectum. 2000;43(4):503–506.
21. Strugnell NA, Cooke SG, Lucarotti ME, Thomson WH. Controlled digital anal dilatation under total neuromuscular blockade for chronic anal fissure: a justifiable procedure. Br J Surg. 1999;86:651–5.
22. Eisenhammer S. The evaluation of the internal anal sphincterotomy operation with special reference to anal fissure. SurgGynecol Obstet.1959;109:583–590.
23. Khubchandani IT, Reed JF.Sequelae of internal sphincterotomy for chronic fissure in ano. Br J Surg.1989;76:431–434.
24. Littlejohn DR, Newstead GL. Tailored lateral sphincterotomy for anal fissure. Dis Colon Rectum. 1997;40(12):1439–1442.
25. Mente BB, Ege B, Leventoglu S, Oguz M, Karadag A. Extent of lateral internal sphincterotomy: up to the dentate line or up to the fissure apex? Dis Colon Rectum. 2005;48(2):365–370.
26. Chowcat NL, Araujo JG, Boulos PB. Internal sphincterotomy for chronic anal fissure: long term effects on anal pressure. Br J Surg. 1986;73: 915–6.
27. Hiltunen KM, Matikainen M. Anal manometric evaluation in anal fissure. Effect of anal dilatation and lateral subcutaneous sphincterotomy. ActaChir Scand.1986;152:65-68.
28. PerryWB, DykesSL, Buie WD, RaffertyJF; Standards practice task force of the american society of colon and rectal surgeons. Practice parameters for the management of anal fissures (3rd revision). Dis Colon Rectum. 2010;53(8):1110–1115.

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