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Comparative study of lateral anal internal sphincterotomy versus lord's anal dilatation in chronic anal fissure

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Abstract

Background: Fissure in ano is a tear in the anoderm distal to the dentate line. Surgical techniques for management of chronic anal fissure are Lords anal dilatation (LAD) and Lateral internal sphincterotomy (LIS). The aim of this study is to compare the symptoms, post-operative complications and recurrence risk of the above two techniques.

Methods: It was a prospective, randomized controlled trial done in department of General Surgery, ESIC Medical College, Kalaburagi from June 2016-May 2017. A total of 80 patients lined up for surgical management of chronic anal fissure were divided into two groups (40 each). In group A, 40 patients underwent LAD and in group B, 40 underwent LIS. Patients were followed up for 6 months following surgery for pain, bleeding, incontinence, post-operative hospital stay and recurrence. Wong Baker scale, Modified Longo score and Wexner scales were used for assessment of pain, constipation and incontinence respectively. Various post-operative symptoms, complications and recurrence risk were evaluated post operatively at 24 hours, before discharge from the hospital, 1st, 3rd and 6th months of operation respectively.

Results: Male female ratio was 1:1.8. Most common presenting complaint was pain seen in 97% patients. Sentinel tag at 6 o'clock position was seen in the majority (90%) patients on presentation. Except for pain score, which was statistically more significant at 24 hours postoperatively in the LAD group ($p=0.012$), recurrence is there was no statistical difference between the two groups when compared at different points of evaluation for symptoms, complications and recurrence ($p=0.565$).

Conclusions: With minor difference in pain, Lord's dilatation compared to sphincterotomy, since there were no findings of incontinence, or situations which resulted in sphincter damage, we conclude that LAD is suitable for patients with chronic anal fissures because it is less invasive than LIS, with equivalent efficacy and safety.

Keywords: Chronic anal fissure, lords anal dilatation, lateral internal sphincterotomy, postoperative complications

Introduction

Anal fissure or fissure-in-ano is a common yet troublesome condition. Chronic anal fissure (CAF) is a linear tear in the anoderm extending proximally from anal verge to the dentate line^[1]. It presents as pain, bleeding during defecation and constipation and is the most commonly encountered problem in proctology^[2]. Hard stools and internal sphincter hypertonia are some of the main etiological factors^[3]. Treatment of anal fissure focuses on breaking the cycle of pain, spasm, and ischemia.

Management ranges from medical to surgical, but medical applications do not achieve satisfactory results while surgical techniques have their own advantages and disadvantages.

Two widely performed surgeries include Lord's anal dilatation (LAD) and Lateral internal sphincterotomy (LIS). LAD is one of the ancient and simple surgical techniques, but with high incidence of recurrence and incontinence^[4]. LIS is the preferred surgical technique these days, but again with high incidence of incontinence^[2]. Aim of this study was done to compare LAD with LIS in the treatment of anal fissure with regard to symptoms, post-operative complications and recurrence.

Methods

The study design was a prospective, randomized, single blinded trial done in department of General Surgery ESIC medical college and hospital, Gulbarga from June 2016 to May 2017.

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All patients with anal pain for ≥ 8 weeks with induration of the edges of the fissure and exposure of the fibers of the internal sphincter in the floor of the fissure with sentinel tag were defined as having CAF^[5].

Inclusion criteria

- Age between 18-50 years.
- Having CAF
- Failed medical management^[6]. (Not responded to medical management of CAF for ≥ 6 weeks).

Patients were randomly assigned to either group; randomization was done by computer generated random table.

Exclusion criteria

- Patients with inflammatory bowel disease, AIDS, tuberculosis, Sexually transmitted diseases
- Pregnancy/Puerperium
- Patients on anticoagulation/immunosuppression medications
- Patients with other conditions affecting anal canal (tumours, Incontinence, abscess, fistulas, hemorrhoids, stenosis)
- Any previous anorectal surgery
- Obstetric trauma.
- Critically ill or moribund patient
- Consent not obtained

Data collection

Written informed consent was obtained in the language understood by the patient, after approval from institutional ethical committee. Patient's particular, clinical details and examination findings were recorded on standardized proforma. Pre and post-operative pain was accessed using Wong-baker faces pain rating scale^[7]. Constipation was accessed by modified Longo score^[8]. Incontinence was accessed by scoring system reported by Wexner^[9].

Surgical procedure

Second generation cephalosporin and metronidazole were administered before surgery as prophylactic antibiotics in stat doses. Both procedures were carried out in spinal anaesthesia with patient in lithotomy position. After cleaning of the surgical field with Povidone-iodine, draping of the field was done.

Lord's anal dilatation

Anal dilatation was performed as described by Watts *et al.*^[10] First digital rectal examination, and proctoscopy was performed to confirm clinical findings, and to rule out other causes of bleeding. Thereafter fully lubricated index finger of right hand was introduced, and constriction band was palpated which corresponds to anorectal line. After palpating the constriction band, fully lubricated index finger of each hand was introduced in the anal canal and continuous gentle outward pressure was applied, till the constriction overcame. During this procedure hand repeatedly moved all around in order to relax all the segment. The procedure was stopped till the anal canal was relaxed enough to accept four fingers (two of each hand) at a time without much force.

Lateral internal sphincterotomy

First digital rectal examination followed by proctoscopy was done. After proctoscopy bivalve type of anal speculum was inserted, the tight distal internal sphincter was palpated as a tight band within the canal. The Intersphincteric groove, which marks

the distal end of the internal sphincter, was palpated. A Vongraefe knife was introduced through the perianal skin at the left lateral aspect of the canal sandwiched parallel between the anoderm and the internal sphincter, when the tip reached the dentate line, the blade was turned outwards and the internal sphincter muscle divided with the blade till the give way feeling was appreciated, this give marked that fibers had been divided, and this ends the sphincterotomy, thereafter the blade was removed, and gentle pressure was applied to control bleeding. Skin tag was removed if any.

Post-operative management

Post-operatively patient was given oral second-generation cephalosporin and metronidazole for three days and make it oral tablets while discharge for one week. Injectable NSAIDs were administered the following evening and oral NSAIDs were started from the next day.

Patients resumed eating after six hours of surgery. Sitz bath and laxatives were advised from the first postoperative day and continued for one week.

Patients were discharged on third post-operative day, and any delay along with reason for the same, was noted. Patients were followed up to assess any complications of the procedure (pain, incontinence, abscess formation, hematoma, recurrence) initially in surgical OPD on weekly basis for four consecutive weeks. They were subsequently followed up monthly, telephonically and examined, if required in subsequent OPD in the third month and six months respectively.

Statistical analysis

Data were entered into MS-EXCEL 2010 spread sheet and analyzed using statistical software SPSS 20.

Results

Majority of the population consisted of female (70%), with male to female ratio 1:1.8. The mean age of the entire study population was 34.13 ± 12.32 years with mean age of men being 38.32 ± 12.32 years and of women 30.32 ± 12.32 years.

Pre-operative findings

Patients had complaints of pain, bleeding per rectum, constipation and itching on presentation. Pain was the most common presenting complaint and was present in 96% of patients. On Wong bakers faces pain score 70% had grade IV and 30% had grade V pain score on presentation. Bleeding per rectum was second most presenting complaints in 84% patients. Average Modified Longo score for constipation was 15^[10-18] in preoperative period. In 30% cases, itching was associated with one or two of the above complaints, but not as a sole complaint. No patient was incontinent in pre-operative period. On examination sentinel tag was present in all the cases out of which 92% was posterior (6 o'clock), 6% anterior (12 o'clock) and multiple in 2% cases.

Post-operative findings

Post-operative complaints were pain, bleeding per rectum, mucous discharge and incontinence. A comparison between pain scores at different points of evaluation is shown in Table 1. Maximum pain score at 24 hours of operation was seen in significantly less numbers of patients in the LIS group compared to LAD group (p value-0.0108, or 5.5045, 95% CI-1.459820.7557). However, there was no significant difference in the pain score between the two groups when evaluated subsequently i.e. before discharge, 1 month, 3 month and 6 months (p value- 0.1390, 0.6186, 0.4665) respectively.

Table 1: Comparison between pain scores.

Follow-up time/ max pain score	LAD (n1*)	LIS (n2**)	Odds ratio (95% CI)	p value
24 hours/V	39	28	5.5045 (1.4598-20.7557)	0.0108
Before discharge/IV	27	33	0.4633 (0.1673-1.2831)	0.1388
1st month/I	9	7	0.778 (0.2909-2.0820)	0.6176
3rd month/I	4	5	1.2849 (0.4803-3.4373)	0.6176
6th month/I	2	3	0.5745 (0.1296-2.54)	0.4655

n= Number of patients with the maximum pain score in LAD group (n1*) and LIS group (n2**)

A comparison between the number of patients having bleeding per rectum, post operatively, is shown in Table 2. 30 (75%) in LAD and 34 (85%) in LIS group observed bleeding in first 24

hours post operatively, which was clinically not bothering and subsided in subsequent days and were not found to be statistically significant (p value 0.3365) (Table 2).

Table 2: Comparison of post-operative bleeding.

	LAD	LIS	Odds ratio (95% CI)	p value
24 hours	30	34	0.62 (0.2394-1.6302)	0.3365
Before discharge	17	15	1.1740 (0.5353-2.5744)	0.6890
1st month	4	5	0.8149 (0.2317-2.8653)	0.7495
3rd month	3	1	3.1278 (0.3141-31.1434)	0.3310
6th month	2	1	2.0418 (0.1792-23.2672)	0.5653

Mucous discharge was present in 8 patients (20%) of LAD group, which resolved in due course within weeks, but persisted in 2 patients (5%) for one month; whereas in LIS group it was present in 3 patients (7%), which persisted for one month in 1 patient (2.5%). In both the cases difference was statistically not significant at the time of discharge and after one month of treatment p value being 0.1945 and 0.5653 respectively.

In both group, no patient had complete incontinence at any point of time, but 3 patient had incontinence for liquid and for gas in LAD group, only for 3-4 days, while in LIS group 2 patient had such complaints which also persisted for 3-4 days. No intervention was required for this complaint in any group.

Post-operative hospital stay in LAD group is comparable to LIS group i.e. mean 3.4±0.6701 days (minimum 3 days and maximum 5 days) and mean 3.5 days (minimum 3 and maximum 5 days) respectively.

Follow-up

After three months of treatment complete healing was observed in 38 patients and incomplete in rest of the two patients in LAD group, whereas in LIS group complete healing was observed in 39 patients and incomplete in one patient. The difference in wound healing was statistically not significant (p value 0.565, or 2.0417, 95% CI 0.1792-23.2672).

Recurrence was observed in 2 patients (5%) in LAD group, whereas in 1 patient (2.5%) in LIS group. This again was statistically insignificant (p value 0.5653).

Discussion

LAD had similar post-operative symptoms, complications and recurrence rate, when compared with LIS, in this study. The ratio of male and female (1:1.8) in this study is comparable to other studies as of Nahas *et al.* (2.3: 1) and Gupta V *et al.* (1.4: 1) [6, 11].

In this study pain was main presenting complaint, followed by associated bleeding per rectum and constipation, this was in accordance to results by Mapel *et al.* [12]

On examination posterior anal fissure (6 O' Clock) was most common finding, followed by anterior (12 O' Clock) and mixed. These observations were in accordance with observations of previous studies [6, 13-17].

In this study, pain score in first 24 hours was significantly higher in LAD group as compared to LIS group reason might be due to

inter-individual difference in the application of force in anal dilatation, intra-operatively [4]. This difference was negated in subsequent days and difference at the time of discharge was non-significant.

Incontinence is one of the complications of surgeries around anal canal. In this study also, author had such incidences but were temporary and subsided in due course of time. At the end of three months complete healing occurred in 96-98% cases in both the group which were in accordance to other studies conducted Gupta V *et al.* [6, 11] Recurrence rate in this study was 2-5%, although it was statistically insignificant, but still higher in LAD group (OR:2.0417) which was in accordance to Arroyo *et al.* [10, 18]

Conclusion

With minor difference in pain, Lord's dilatation compared to sphincterotomy, since there were no findings of incontinence, or situations which resulted in sphincter damage, we conclude that LAD is suitable for patients with chronic anal fissures because it is less invasive than LIS, with equivalent efficacy and safety.

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