

Comparison of controlled-intermittent anal dilatation and lateral internal sphincterotomy in the treatment of chronic anal fissures: a prospective randomized study

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Abstract

Objectives: To compare lateral internal sphincterotomy (LIS) with controlled intermittent anal dilatation (CIAD) in terms of patient satisfaction

Design: Prospective randomized controlled study

Place and duration of study: Khyber Teaching Hospital, Department of Surgery, March 2014 to March 2015.

Patients and methods: 48 patients were randomly allocated into two groups. 20 patients in group A underwent LIS while 28 patients in group B had CIAD. All patients were evaluated pre-op, at first bowel movement and followed till 10th post-operative day for pain during defecation

Results: Mean age in group A was 38.40 years \pm 13.9 and 35.56 \pm 13.96 in group B. Anterior fissure was more common in both groups as compared to posterior (70% vs 30%) and (53% vs 42%). The VAS score at first post-op defecation was comparable but significantly reduced in Group A on 10th post operative day (1.05 \pm 0.22 vs 1.26 \pm 0.44) $p=0.059$.

Conclusion: The two procedures have comparable results in terms of patient satisfaction, although LIS is gold standard, CIAD can also be offered to selected patients.

Keywords: Anal fissure, controlled intermittent anal dilatation (CIAD), lateral internal sphincterotomy (LIS)

Introduction:

Anal fissure is the most common proctologic symptom encountered in general surgical practice worldwide. There are approximately 342,000 new AF cases diagnosed in the US each year. This is similar to the annual incidence of appendectomies in the US (approximately 280,000 cases per year, or 0.7 to 1.7 cases per 1,000 person-years depending on age). The overall incidence of 1.1 per 1,000 person-years translates to an average life time risk of 7.8%, and thus AF is indeed a common problem.¹

Acute anal fissure is defined as a longitudinal tear in the anal mucosa and anoderm extending from the dentate line upto the anal verge. Acute fissures present with anal pain, spasm, and/

or bleeding with defecation. The diagnosis can typically be confirmed by physical examination and anoscopy in the out patient department if tolerated by the patient.² Acute fissures usually respond to medical treatments including topical glyceryltrinitrate, calcium channel blockers, local anesthetic, botulinum toxins, hydrocortisone, pyodine sits bath and dietary modifications.

Chronic anal fissure is defined as ulcerated lesions that do not heal with conservative management and have some features of chronicity such as a sentinel pile externally, hypertrophic papilla internally or exposed anal sphincter. Although there is no defined time period distinguishing acute from chronic fissures, some authors sug-

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gest a chronic fissure should be present for at least 6–8 weeks.³

Approximately 90% of anal fissures in both men and women are located posteriorly in the midline. Anterior fissures occur in 10% of patients, more commonly women. Less than 1% of cases fissure is located off a midline position or are multiple in number. These atypical fissures may be associated with Crohn's disease, sexually transmitted diseases (human immunodeficiency disease [HIV], syphilis, or herpes), anal cancer, or tuberculosis.²

Regarding the epidemiology of anal fissure Douglas W Mapel found that the mean age among women with AF was 40.9 years and among men was 46.6 years ($p < 0.001$). The overall annual incidence was 0.11% (1.1 cases per 1000 person-years).¹

The recent Cochrane review states that around 90% of patients have recommended operative procedures as a treatment of chronic anal fissure. There are several surgical options in treatment for chronic anal fissure which include closed lateral sphincterotomy, open lateral internal sphincterotomy, anal stretch, balloon dilation, wound closure, perineoplasty, length of sphincterotomy and fissurectomy. The technique for cutting the muscle has been refined in recent years and appears to improve cure and diminish the risk of bowel control problems. LIS is considered as the gold standard in the operative treatment of chronic anal fissures.^{4,5}

First described in 1829 by Recamier, anal stretching has been used in the past based on the concept of loosening the sphincter muscle and increasing the blood flow to the anoderm. There are several methods of anal dilatation in literature such as inserting a Parks anal retractor and slowly expanding it to its full diameter for 15 min.⁶

Anal dilatation has been found to be associated with long term incontinence and sphincter damage by several studies. The recurrence rate of the fissures was significantly higher after anal dilata-

tion than after Sphincterotomy.⁷

However unlike the traditional methods described in 1969 by Peter Lord, a new method employed currently is controlled intermittent anal dilatation, which has been found to be associated with less adverse effects in long term follow up.⁸ The aim of this study was to compare controlled intermittent anal dilatation with the current gold standard treatment of chronic anal fissure.

Methods and Materials:

This was a randomized control trial conducted at the Surgical Department of Khyber Teaching Hospital Peshawar starting from March 2014 to March 2015; up to 48 patients were randomly allocated into two groups. 20 patients in group A underwent Lateral Internal Sphincterotomy while 28 patients in group B underwent controlled intermittent anal dilatation. All patients were followed up till the tenth post-operative day for painful defecation. The last patient was recorded in March 2015; thus the total duration of the study was 8 months.

All female patients between the age 18-50 years who came with signs and symptoms of acute anal fissure (painful or difficult defecation, fresh bleed per rectum, burning, pruritis or anal tags) and patients with anterior or posterior anal fissures who had not responded to 6 weeks of medical therapy (topical GTN, hydrocortisone/lidocaine) were included in the study. Those patients who presented with atypical fissures such as lateral anal fissures, fissures associated with inflammatory bowel disease, cancer, or anal infections were excluded from the study, patients with combined anal fissure and hemorrhoidal disease, patients who did not consent for surgical treatment or patients who were >50 years and had a risk of developing incontinence were excluded from the study.

Patients in group A underwent LIS with open technique. After general anesthesia, patients were put in lithotomy position; digital rectal examination and proctoscopy were done to exclude internal hemorrhoids. Park's anal retrac-

Table 1: Frequency of various pre-operative symptoms in both groups

	Painful defecation	Burning sensation	Fresh bleed P/R	constipation	peri-anal swelling/tag	site of fissure
Group - A	19/20 (95%)	14/20 (70%)	14/20 (70%)	17/20 (85%)	12/20 (60%)	Anterior=14/20=70% Posterior=6/20=30%
Group - B	28/28 (100%)	17/28 (60%)	17/28 (60%)	24/28 (85%)	15/28 (53%)	Anterior=15/28=53% Posterior=12/28=42%

VAS= Visual Analogue Score

Table 2: Frequency of various post-operative symptoms in both groups at 10th POD

	Painful defecation	Burning sensation	Fresh bleed P/R	constipation	peri-anal swelling/tag
Group - A	2/20 (10%)	1/20 (5%)	0/20	4/20 (20%)	3/20 (15%)
Group - B	4/28 (14.2%)	2/28 (7.14%)	0/28	6/28 (21.4%)	0/28 (53%)

VAS= Visual Analogue Scor. POD=Post-operative Day

Table 3: Comparison of pre and post-operative pain on 1st and 10th post-operative day

	Group - A	Group - B	P value
VAS at 1st bowel movement	Minimum 1 Maximum 5 (2.00±1.33)	Minimum 1 Maximum 6 (2.33±1.59)	(0.95)
VAS at 10th bowel movement	Minimum 1 Maximum 2 (1.05±0.22)	Minimum 1 Maximum 2 (1.26±0.44)	(0.059)

tor was applied to make the internal sphincter taut. An incision was made at 4'oclock position using cautery/blade, the white fibers of internal sphincter were identified and cutup to the level of the dentate line. Anal tone was assessed. Hemostasis was secured and the wound was left open.

Patients in group B underwent controlled intermittent anal dilatation under general anesthesia, the anal speculum, which is capable of being adjusted for CIAD, was placed in the anal canal; the anal speculum was gradually dilated to a diameter of 4.8 cm, and then gradually relaxed 5 in 20s. The dilation-relaxation sequence was repeated 15 times during a 5 min period. We performed this intermittent procedure to avoid ischemic and traumatic sphincter ischemic events are effective in poor healing and recurrence of anal fissures.

The outcome variable was Post-operative pain which was recorded by taking the patients response on the visual analogue score on 1st bowel movement and the follow up at 10th post-operative day. VAS score of 1-4 was taken as mild, 5-7 was moderate and 8-10 was severe.

Data was entered and analyzed using statistical program SPSS version 17.0. Qualitative data (frequencies and percentages) such as gender, painful defecation, bleeding were presented as n(%) and chi square test was applied to compare the proportion between groups A(Lateral Internal Sphincterotomy) and B (Lord's Dilatation). Numerical variables like age (in years), post-operative pain score (during first 24 hours, after 10 days) were presented as Mean + Standard Deviation. All the data was calculated on 95% confidence interval. A p value < 0.05 was considered as statistically significant level for all comparisons.

Results:

A total of 48 females were included in the study. The total participants in Group A were 20 females age 19-70 years (mean=38.40 years ±13.9). Whereas the total number of participants in group B was 28 females of ages 18-70 years (mean= 35.56 ±13.96). Site of fissure was anterior=14/20=70% and posterior=6/20=30% in Group A, while in Group B it was Anterior=15/28=53% and Posterior=12/28=42%.

Discussion:

Anal fissure is mostly a disease of young women but the mean patient age in this study was 38 years. The most common complain observed in patients with anal fissure is painful defecation (97.9%) and constipation (84.4%) and burning sensation (64.5%), fresh bleed per rectum

(64.5%), and perianal swelling or tag (56%). As opposed to common observation; in our study anal fissure was more common anterior as compared to posterior (60.4 % vs 37.5%).

In our study we recorded pain at defecation before surgery, at first bowel movement after procedure and on 10th post-operative day of procedure. Before surgery, the mean pain at defecation was VAS= 5 in both groups, at first bowel movement after surgery patients in group A had a mean VAS score of 2.00 ± 1.33 while those in group B had mean VAS of 2.33 ± 1.59 which is comparable. While on the 10th post-op day patients in group A had a mean VAS score of 1.05 ± 0.22 while those in group B had mean VAS of 1.26 ± 0.44 ($p=0.059$), which is again a favorable finding.

According to the study by Jensen, lateral subcutaneous Sphincterotomy is better than simple anal dilatation for chronic anal fissure. The recurrence rate of the fissures is significantly higher after anal dilatation than after sphincterotomy and the functional results with respect to control of flatus and soiling of underwear are significantly better in patients treated by sphincterotomy. Both procedures, however, gave the same degree of immediate relief of pain and healing of the fissures.⁷

Anal dilatation is generally regarded by many colorectal surgeons to be an obsolete method as finger dilatation has been associated with the development of anal incontinence. However, new interest in the technique of anal dilatation has re-emerged after the development of calibrated and controlled procedures with anal dilators or pneumatic balloons. This new technique utilizes controlled dilatation with calibrated equipment to ensure consistency and avoid excessive tearing of the internal anal sphincter with associated incontinence. This has achieved similar healing rates to sphincterotomy with a much lower incontinence rate compared to conventional finger anal dilatation.⁹

Yucel et al in 2009 randomized controlled intermittent anal dilatation (CIAD) vs lateral Sphinc-

terotomy with 40 patients and found no incontinence proving the efficacy of this procedure.⁸

Cariati states that anal stretch, when correctly performed is an excellent and safe procedure for the treatment of medical therapy resistant chronic anal fissure patients. It has more than 95% of good results without a risk of major and persistent anal incontinence. Studies indicating high recurrence and high anal incontinence rate could be related to the old Lord technique (performed using four fingers/each hands) that have been obviously abandoned. The risk of such reports is to underestimate the value of an old operation that in expert hands (and fingers) has very good results.¹⁰

These findings are also advocated by Marby M et al. in their study who found that our months after operation, 93% patients claimed to have been improved by manual dilatation of anus as compared to 78% after Lateral Subcutaneous Sphincteroplasty; thus concluding that MDA gives better results than LSS for treatment of anal fissure and that successful treatment is associated with a reduction in anal pressure.¹¹

Our study had one limitation that we only compared the two procedures in terms of pre and post op symptomatology, further research needs to be done to compare the two methods in terms of healing rate and time, recurrences and incontinence. Also this study was done on female patients alone and to apply results over general population, we also need to incorporate male patients.

Conclusions:

For patients with anal fissure, controlled intermittent dilatation and LIS are both acceptable surgical treatments resulting in an improvement in symptomatology as is proved by our study. CIAD is a more standardized and acceptable procedure as compared to traditional Lord's anal dilatation as it postoperative patient satisfaction is comparable to that of LIS which is considered as a gold standard treatment of chronic anal fissure.

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Role and contribution of authors:

Dr. Tamjeed Gul, Registrar General Surgery, conceived the idea of writing this original article and did the initial writeup, collected the data and wrote the result.

Dr. Mah Muneer Khan, Professor, critically review the article and made the final touchup of the article.

Dr. Maryum Alam Khan, Resident General Surgery collected the data, helped in introduction and methodology writing.

Dr. Uzma Andaleeb, Resident General Surgery, collected the references and helped in methodology and result writing.

Dr. Sana Sahar, Resident General Surgery, also collected the data and helped in result and discussion writing.

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