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ORIGINAL ARTICLE

**Comparison of the Outcome of Lateral Internal Anal Sphincterotomy
with Manual Anal Dilatation for Chronic Anal Fissure**

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CONFLICT ON INTERESTS

There is no conflict of interests and there is nothing to declare.

ABSTRACT

INTRODUCTION:

To compare the healing of fissure and post operative incontinence of flatus and faeces in patients undergoing lateral internal sphincterotomy with anal dilatation in patients with chronic anal fissure.

METHODS:

Randomized Controlled Trial from March 2020 to March 2021 over a period of 1 year was conducted at the department of Surgery, Fauji Foundation Hospital, Rawalpindi. 108 patients presenting to the department of surgery FFH, diagnosed as having chronic anal fissure were included. For 54 patients, lateral internal anal sphincterotomy and for other 54 patients manual anal dilatation was performed. All relevant details about patient outcome after these procedures, collected, processed and analyzed on SPSS version 10.0.

RESULTS:

The age range of our study population was from 17 years to 63 years with the mean age of 46.77 years. 52 patients having lateral internal anal sphincterotomy showed complete wound healing after 6 weeks as compared to 50 patients in the manual anal dilatation group. Flatus incontinence was noted in 2 patients in lateral internal anal sphincterotomy group as compared to 4 patients in the manual anal dilatation group. Feecal incontinence was noted in none of the patients in lateral internal anal sphincterotomy as well as manual anal dilatation group. In 1 patient undergoing lateral internal sphincterotomy haematoma formed, which resolved spontaneously.

CONCLUSION:

Lateral internal sphincterotomy, remains the method of choice for treatment of chronic anal fissures. It is a safe and effective procedure that leads to symptomatic improvement and betterment of quality of life, while only occasionally impairs continence.

KEY WORDS:

Lateral internal sphincterotomy, Manual Anal dilatation, Chronic anal fissure.

INTRODUCTION

Anal fissure is one of the most frequently reported proctological diseases ¹, and was first described by Recamier in 1829 ². Anal fissure can be described as a split in the anoderm, just distal to the dentate line. It may heal by itself or may progress to a chronic fissure. Anal fissure is the most common cause of severe anal pain and also a common reason for bleeding per anus, because of their location involving exquisitely sensitive anoderm, characterized by severe anal pain associated with defecation, which usually resolves spontaneously after a variable time only to recur at the next evacuation, as well as the passage of fresh blood, normally noticed on the tissue after wiping. A fissure is defined as chronic when it fails to heal within 6 weeks from an acute attack ³, also characterized by hypertrophied anal papilla internally and a sentinel tag externally. The exact cause of anal fissure is not known but current evidence suggests that anal fissures are associated with persistent hypertonia of the internal anal sphincter with manometric evidence of internal sphincter spasm ⁴. Persistent hypertonia and spasm of the internal anal sphincter causes high resting anal pressure and reduced perfusion at the fissure site ⁵.

It has been proven that constipation is the primary and sole cause of initiation of a fissure ⁶. Various therapies are employed to treat this common disease, relieve the intolerable pain and reduce the discomfort due to discharge and bleeding per anus. Different modalities employed for anal fissure management include conservative measures, various pharmacological agents and surgical procedures. The relief of internal anal sphincter spasm is the key for providing fissure healing, that is why all the methods of treatment of chronic anal fissure are directed at reducing the spasm of the internal anal sphincter ⁷.

Conservative therapy may be applied for chronic anal fissure but is less effective than surgery (30 – 60% vs. 90 – 97%) ⁸. Anal fissure can be treated conservatively by warm sitz bath ⁹, adequate analgesia prior to defecation, stool softeners, high fiber diet,

Application of local anesthetic cream or gel and avoidance of spicy food¹⁰. Warm water sitz bath with or without adding boric powder, povidone iodine solution, or potassium permanganate in the water. This treatment soothes the pain and relaxes the spasm of the internal sphincter for some time¹¹.

A suitable dose of analgesic consumed half an hour before going for defecation gives a good amount of post defecation pain relief. Stool softening is essential as soft and formed stools negotiate the rectum and anal canal in non-traumatic physiologic maneuver. Plenty of oral fluids also help in keeping the stools soft. High-fiber-diet and bulk-forming agents such as Isaphgula; green leafy vegetables and fibrous fruits go a long way in increasing the bulk of stool leading to a smooth and swift act of defecation.

Ointments containing opiates, xylocain, amethocain, and cinchocain to relieve pain, belladonna to alleviate sphincter spasm and silver nitrate to promote healing have been in vogue since long. These mixtures are introduced on the finger or a short rectal bougie to ensure a through application over the desired part of the fissure¹².

The modern practice is to insert the ointment over an anal dilator, which in addition helps relieve sphincter spasm. The possible complication of this treatment includes pruritus due to allergy with the anesthetic agents and loss of anal dilator in the rectum¹³.

Surgery is the treatment of choice when pharmacologic therapy fails or fissures recur frequently¹⁴. In the United Kingdom, surgery for chronic anal fissure has consisted of manual dilatation of the anus or lateral internal sphincterotomy. Both of these procedures reduce internal anal sphincter hypertonia. This is postulated to improve anal canal blood supply resulting in the healing of an ischaemic ulcer¹⁵. Both the procedures can be done either under a local or a general anesthesia depending upon personal preference of the surgeon based on his experience and the attitude of the patient. The purported significance of this study is to select safest and fast relieving procedure with minimal of complications.

METHODS

A randomized control trial study was conducted in the department of surgery, Fauji Foundation Hospital, Rawalpindi over a period of 1 year. A total of 108 patients presenting with chronic anal fissure in surgical outpatient department irrespective of age or sex were recruited in the study by using non-probability consecutive sampling technique. 54 patients in group A underwent lateral internal sphincterotomy while 54 patients in group B underwent manual anal dilatation.

Fissures associated with inflammatory bowel disease, cancer, anal infections or with history of previous sphincterotomy or anal dilation and suspicion of malignant fissure or ulcer were excluded from the study. After confirmation of the diagnosis in the OPD on the basis of detailed history and anal examination, with exclusion of secondary causes of anal fissure, patients of chronic anal fissure are selected and included in the study. They were admitted in surgical ward.

Base line investigations like full blood count, blood sugar, urea, urine RE and hepatitis screening were done. Lateral internal anal sphincterotomy and manual anal dilatation were done according to the group category in spinal or general anaesthesia whatever needed in lithotomy position. Per operative dose of infusion metronidazole 500mg was given as prophylaxis in all patients. Manual Anal dilatation (Lords') performed for group B, while lateral internal anal sphincterotomy performed for group A by consultant surgeon.

In group A, the internal sphincter was divided away from the fissure itself-usually in the right or the left lateral positions. The distal internal sphincter was palpated with a finger and a bivalved speculum was inserted in to stretch the anal canal. In the closed method a small longitudinal incision was made over this and the submucosal and intersphincteric planes were carefully developed to allow precise division of the internal sphincter with a knife or scissor to the level of the apex of the fissure, the wound is then closed with absorbable sutures.

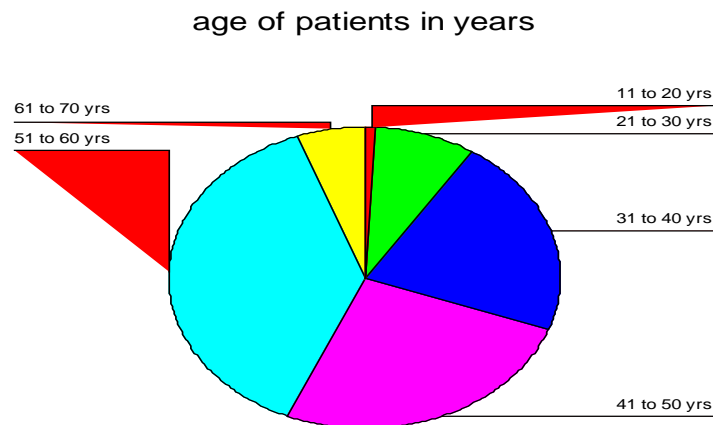
In the open technique, the anoderm overlying the distal internal sphincter was divided longitudinally to expose the sphincter, which was divided, and the wound was closed with absorbable sutures.

In group B, anal canal was stretched until four fingers could be inserted. Anus was gradually stretched over 3 – 4 minutes. Once the fingers were inserted, they were pronated and distracted in opposite directions. The strain was applied to the 3 and 9 o'clock positions and the 6 and 12 o'clock positions were avoided as they are weaker. Procedure was conducted under general anaesthesia or spinal anaesthesia.

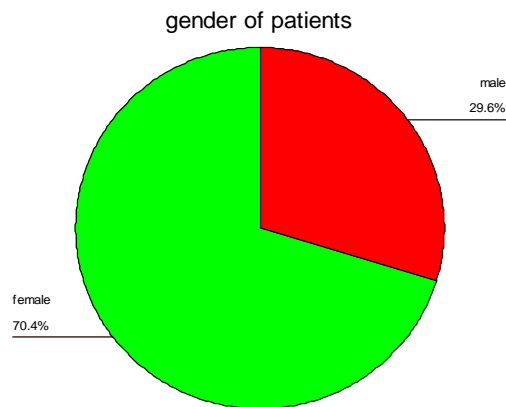
Post operatively warm baths and local anesthetic agent relieved pain, stool softener used to ease less traumatic passage of stool. Patients were also asked to intermittently insert an anal dilator once at home. By doing so, the anal sphincter will be dilated and it reduces the discomfort during defecation. Patient discharged home upon improvement after procedure. Patients regularly followed up in outpatient department on their respective days on two weekly basis up to six weeks. All data was collected on Performa. All data was processed and analyzed on SPSS version 10.0. A P-value of <0.05 was considered statistically significant.

RESULT

A total of 108 patients were assessed, 54 in each group. The age range of our study population was from 17 years to 63 years. The mean age was 46.77 years. The mean age in the group 1 was 47.20 years while in the group 2 was 46.33 years.



Out of 108 patients, there were 76 women (70.4 %) and 32 men (29.6%). There were 43 women and 11 men in the group 1 and 33 women and 21 men in the group 2.



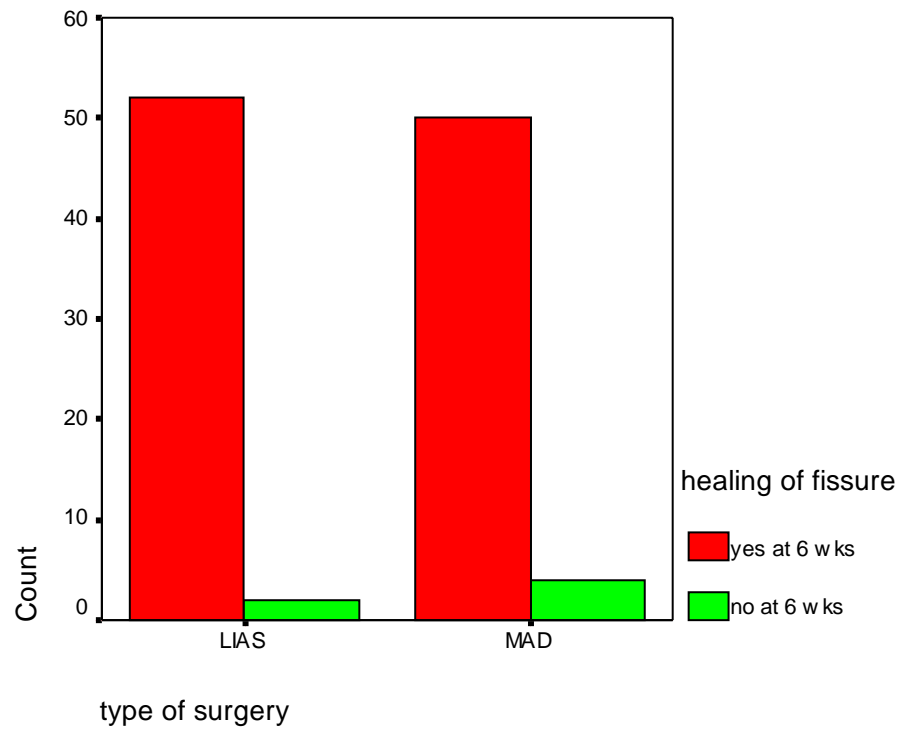
Operative time for lateral internal anal sphincterotomy (L.I.A.S) was from 10 min to 15 min while for manual anal dilatation (M.A.D) was from 5 min to 10 min.

Operative technique	Operative time
L.I.A.S	10-15 min
M.A.D	5-10 min

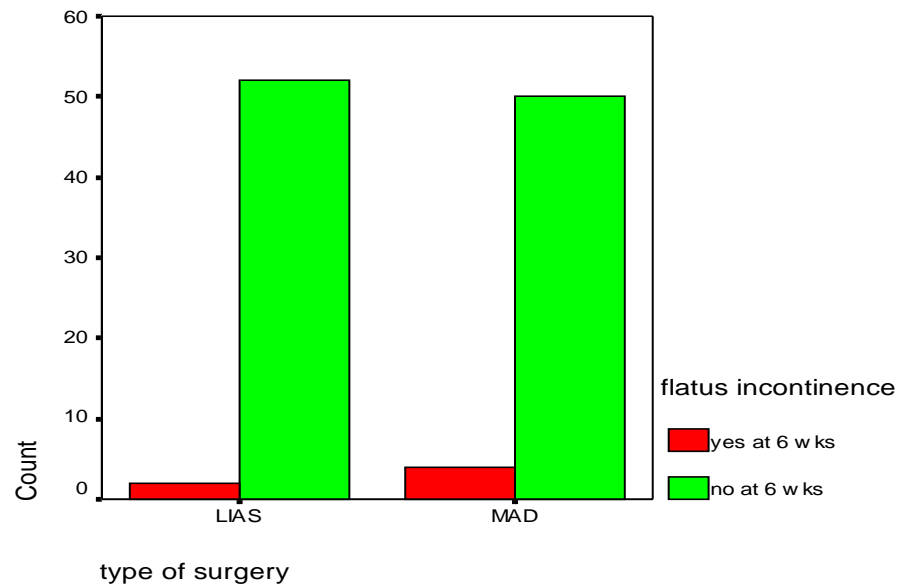
L.I.A.S = Lateral internal anal sphincterotomy

M.A.D = Manual anal dilatation

52(96.29 %) patients in the lateral internal anal sphincterotomy showed complete wound healing after 6 weeks as compared to 50(92.59 %) patients in the manual anal dilatation group with $P < 0.401$.



Flatus incontinence was noted in 2 (3.70 %) patients in lateral internal sphincterotomy group as compared to 4 (7.40 %) patients in the manual anal dilatation group with $P < 0.401$.



Feecal incontinence was noted in none of the patients in lateral internal anal sphincterotomy as well as manual anal dilatation group.

DISCUSSION

Anal fissure is a longitudinal defect of the anal canal mucosa and anoderm, extending usually from the dentate line to the external verge of the anal canal and was recognized as a clinical entity in 1934. Reduction of high resting anal tone in patients with chronic anal fissure leads to increased anodermal blood flow with resultant symptomatic relief and healing of fissure ¹⁵.

Acute fissures usually heal with conservative treatment. Fissures lasting longer than two months with features of chronicity (sentinel skin tag, hypertrophied anal papillae and fibrous polyps, exposure of the underlying anal sphincter or anal cicatrization) are unlikely to heal with conservative management.

The cause of anal fissure remains controversial although it has been recognized that anal fissures are, probably, caused by internal anal sphincter hypertonia ^{16, 17} which produces ischemia of the posterior commissure of the anus. This explains the presence of sphincter spasm, ischaemic severe pain, predilection for the posterior midline and poor healing. It also explains how surgery by disrupting the internal anal sphincter and improving anodermal blood flow allows the fissure to heal ^{16, 17}. Surgery achieves high rates of anal fissures healing with a low recurrence rate ¹⁷. Surgical sphincterotomy achieves permanent reduction of sphincter hypertonia and is very successful at healing anal fissures, but requires an operation with associated small morbidity. Lateral internal sphincterotomy is the most commonly used operative technique. This technique consists of a small operation to divide a limited portion of internal anal sphincter. This helps the fissure to heal by preventing pain and spasm, which interferes with healing. Lateral internal anal sphincterotomy rarely interferes with the ability to control bowel movements. Lateral internal sphincterotomy is clearly the gold standard for curing this affliction. Elsebae MM prospectively studied one hundred eight patients with chronic anal fissure before and after lateral internal sphincterotomy. Minor degrees of incontinence were present before surgery in 16 patients (14.8%). Results of the randomized trial revealed that temporary postoperative incontinence was newly developed in 6/92 of patients (6.52 %) who did not have it before surgery. Persistent incontinence occurred (4.35%), all of them were females. All the patients had a history of one or more vaginal deliveries. So he concluded that mild degree of fecal incontinence may be associated with chronic anal fissure at presentation rather than as a result of

internal sphincterotomy. Troublesome fecal incontinence after lateral internal sphincterotomy is uncommon.

In our study 96.29 % patients showed fissure healing in about 6 weeks. Flatus incontinence noted in about 3.70 % patients, while fecal incontinence is noted in none of the patients. (Lord's anal dilatation): Stretching of anal sphincter was described by Recamier in 1829 ³. The primary cause of attraction for the procedure is its extreme simplicity. Since almost no instruments are needed for this procedure, it could be performed at the primary health centers or inadequately equipped hospitals situated at small townships.

Boschetto S et al noticed in their study that anal dilatation performed by them lead to immediate disappearance of pain within 24 hours, anal fissure recovery in 80 % within 10 days and 94.5 % within 30 days. None of the patient presented with incontinence and no recurrence occurred in two years follow up ¹⁸.

In our study 92.59 % patients undergoing controlled anal dilatation showed fissure healing in about 6 weeks. Flatus incontinence occurred in about 7.40% patients, while fecal incontinence is noted in none of the patients.

However there is no way to reliably standardize the procedure and both the internal and external sphincters can be disrupted or fragmented in an irregular mannerⁱ, with a significantly higher risk of minor incontinence than sphincterotomy ¹⁸ (12.5% to 24.3% after anal stretch vs 4.8% after lateral internal sphincterotomy). Anal dilatation has also a higher risk of fissure persistence compared with lateral internal sphincterotomy^{18,19}.

CONCLUSIONS

The study reflects that Lateral internal sphincterotomy remains the method of choice for treatment of chronic anal fissures. Lateral internal anal sphincterotomy has excellent results than manual anal dilatation in patients with chronic anal fissure who do not respond to conservative treatment.

Lateral internal anal sphincterotomy offers early symptomatic relief and rapid healing of fissure with better patient compliance as compared to manual anal dilatation. Lateral internal anal sphincterotomy occasionally impairs continence as compared to manual anal dilatation.

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