

Comparative Evaluation of Efficacy of Chemical Versus Surgical Anal Sphincterotomy in patients with Acute Anal Fissure

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ABSTRACT

Background: One of the common causes requiring hospital admission on surgical floor is anal fissure. The quality of life is immensely affected due to painful defecation and bleeding per rectum. Due to poor response to chemical management, acute anal fissure is now treated with surgical methods. Lateral internal sphincterotomy has now become definitive surgical procedure in the treatment of anal fissures.

Aim: To compare the efficacy of chemical and surgical lateral internal sphincterotomy in patients of acute anal fissure.

Methods: This study was conducted in surgical unit 1 from January 2020 to December 2020. A sample size of 100 were segregated in two groups of 50 each. Group-a was treated with local application of glyceryl trinitrate 0.2 percent ointment and group-b was treated with surgical lateral internal sphincterotomy.

Results: Patients were ranged between 15-60 years of age. Mean age of the patients was 36.64±10.05 and 33.42±11.47 in group-a and b respectively. In group-a, 13 patients (26%) and in group-b 15 patients (30%) were male and 37 patients (74%) in group-a and 35 patients (70%) were female. Efficacy was observed in 16 patients (32%) of group-a and 50 patients (100%) of group-b. The p value of <0.001 was found to be statistically significant.

Conclusion: In conclusion, surgical sphincterotomy was significantly more effective in providing postoperative pain relief (p<0.001). However, chemical sphincterotomy is a non-invasive, cost-effective, easier to apply, well tolerated and effective therapy for anal fissure and is a first line treatment especially in patients who are unwilling or unfit for surgery.

Key words: chemical sphincterotomy, lateral internal sphincterotomy, acute anal fissure

INTRODUCTION

Fissure in anal canal is the condition in which there is a cut in the anal mucosa below the dentate line¹. The cause of this tear is either mostly due to chronic constipation, trauma due to vaginal delivery or diarrhoea. Most fissures are located in posterior midline position, however 15% occur in anterior midline². Multiple anal fissures or lateral anal fissure may be due to underlying Crohn's disease, tuberculosis, malignancy or sexually transmitted diseases (STDs)³. Regardless of the cause leading to this pathology the tear in the lower anal mucosa causes spasm of the internal sphincter of anal canal and thereby decreases the blood supply to the mucosa of anal canal³. This causes pain which is moderate to severe in intensity. Ischaemia does not allow the tear to heal and the patient develops a vicious circle of spasm and ischaemia³. Patient also presents with history of bleeding per rectum associated with passage of hard stool. This disease affects both sexes. Females are usually more often affected than men, the ratio being approximately 58-40%, respectively. Anal fissure is seen most commonly in the third decade of life. However paediatric and geriatric group of population also presents with this condition.

Acute anal fissure may become chronic if left untreated or poor compliance of the patient with the prescribed therapy. In such cases the fissure has a pale appearance of the ulcer base, edges may be thickened and there is a sentinel skin tag⁴. Anal fissures are mostly located in posterior midline however 15% occur in anterior midline and fissures in lateral locations constitute 1%⁵. The treatment goal is to lower the internal anal sphincter tone and enhance vascular supply of the area locally to promote healing of the ulcer. Methods used to achieve this goal are broadly divided into medical therapeutic measures and surgical therapy. Conventionally acute anal fissure is managed by chemical sphincterotomy⁶. Majority of anal fissures especially acute anal fissure is treated by this method at onset of disease. It comprises of bulk forming laxatives, stool softeners, oral analgesics, local

analgesia in form of xylocaine ointment 2% and glyceryl trinitrate 0.2% ointment local application along with warm sitz baths. However, patients have to follow this regime for 4 to 6 weeks. This period is associated with bearing side effects of medications, the availability and cost of medicines prescribed. Return to normal routine activity is delayed. These factors affect patient compliance leading to failure of medical therapy and relapses⁷. The other modality of treating anal fissure is surgery under local, regional, spinal or general anaesthesia⁸. This gives prompt relief of symptoms and early return to normal routine activity⁹. In literature the cure rate for acute anal fissure is 70% for chemical and 100% for surgical sphincterotomy⁹. Although this method of treatment is reserved for recurrent acute anal fissure and chronic anal fissure, its value in treating acute anal fissure maintains ground that patients do not have to suffer relapse and progress to chronic anal fissure is avoided¹⁰. The associated sentinel skin tag of chronic anal fissure is also avoided. These various surgical techniques include manual dilatation of anal canal, and lateral internal anal sphincterotomy¹¹. Lateral internal anal sphincterotomy is however more controlled method than manual dilatation^{12,13}.

The objective of the study was to compare the efficacy of chemical and surgical lateral internal sphincterotomy in patients of acute anal fissure.

MATERIAL AND METHODS

This study was carried out at Surgical Unit 1, Fatima Memorial Hospital Lahore from January 2020 to December 2020 after approval of Institutional Ethical Review Board. Sample size was estimated as 100 cases (50 each). All the patients between 15-60 years both male and female diagnosed as having acute anal fissure were included in the study. Patients with sentinel skin tag on clinical examination and patients who have medical record of chronic liver disease, diabetes mellitus, collagen disorders (systemic lupus erythematosus) and pregnant women were excluded from the study. One hundred patients were selected on basis of inclusion and exclusion criteria admitted through OPD and asked to sign informed consent for surgery. Demographic profile was recorded

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which included name, age, sex. They were asked detailed history of illness, in terms of types of symptoms, their duration and severity. Patients were segregated in two groups randomly. In Group-A, patients were advised topical application of glyceryl trinitrate 0.2 percent ointment three times a day while in Group-B surgical lateral internal sphincterotomy was advised. Ispaghula husk two tablespoon in glass of water, syrup lactulose two tablespoon thrice a day, hot sitz bath and high fibre diet was advised daily to both groups.

Data analysis procedure: All the information was entered in a computer programme SPSS version 20.0 and analysed. The variables to be analysed comprised of socio-economic details (name, age, sex) along with efficacy (Yes/No) were recorded. Quantitative data such as age was presented as mean \pm standard deviation. Qualitative data like gender and efficacy presented as frequency distribution table. Comparison was made regarding outcome (efficacy) by using Chi square test as the variable was qualitative in nature. P value ≤ 0.05 was considered significant.

RESULTS

The socio-economic details about study subjects in each group is summarised in table 1,2&3 with regards to age, gender and by efficacy distribution respectively.

Table-1: Age case distribution

Age (Years)	Group A		Group B	
	No.	%	No.	%
15-45	40	80.0	43	86.0
46-60	10	20.0	07	14.0
Total	50	100.0	50	100.0
Mean \pm SD	36.64 \pm 10.05		33.42 \pm 11.47	

Table 2 : Gender case distribution

Gender	Group A		Group B	
	No.	%	No.	%
Male	13	26.0	15	30.0
Female	37	74.0	35	70.0
Total	50	100.0	50	100.0

Table-3: Efficacy case distribution

Efficacy	Group A		Group B	
	No.	%	No.	%
Yes	16	32.0	50	100.0
No	34	68.0	-	-
Total	50	100.0	50	100.0

P value <0.001

Table-4: Stratification of age with regard to efficacy

Group	Age 15-45 (Yrs)		Age 46-60(Yrs)	
	Yes	No	Yes	No
Group-A Chemical sphincterotomy	14	26	2	8
Group-B Surgical lateral internal sphincterotomy	43	0	7	0
P value	p<0.001		p<0.001	

Table-5: Stratification of gender with regard to efficacy

Group	Male		Female	
	Yes	No	Yes	No
Group-A Chemical sphincterotomy	4	9	12	25
Group-B Surgical lateral internal sphincterotomy	15	0	35	0
P value	p<0.001		p<0.001	

DISCUSSION

Anal fissure is defined as a linear tear in the lining of the anal canal. It is usually located below dentate line. It is a common proctologic problem affecting all age groups but seen particularly in the young and middle-aged people with nearly equal incidence in

either gender. The usual complaints are pain during/after defecation along with bright red coloured bleeding per rectum. Posterior midline is most common site consisting of 90% of the cases¹⁴. Usually anal fissures heal spontaneously but some enter into a vicious cycle of anal pain, constipation, faecal trauma and sphincter spasm. Acute anal fissure is associated with spasmodic internal anal sphincter. Surgical procedures and pharmacological preparations have generally been aimed at overcoming this spasm¹³. Local application of nitroglycerine is being considered as an alternative to surgery for the treatment of anal fissure¹⁵. Anal fissure is a common condition causing severe pain during defecation. Until recently, the procedure of choice for the treatment for chronic anal fissure was a surgical lateral internal sphincterotomy which, although effective at healing the fissure, has a definite risk of permanent faecal incontinence¹⁶. Acute anal fissure has been documented as a definite surgery issue. It is one of the most common condition to be considered in the differential diagnosis of acute anal pain. Although different treatment modalities are available but the choice of modality in management of acute fissure in anal canal is controversial. Chemical sphincterotomy of internal anal sphincters by topical application of 0.2% GTN ointment is a standard 1st line medical method in the management of acute anal fissure but reported to have side effects such as severe headache, tachyphylaxis, dizziness and treatment failure. As the effects of chemical sphincterotomy are reversible, there are increased rates of recurrence of anal fissure¹⁷. Surgical sphincterotomy i.e. lateral internal sphincterotomy is a well-recognized and standard procedure for treatment of refractory acute and chronic fissure in anal canal. It is reported to have rare problems such as flatus incontinence, wound infection and haemorrhage. As it involves division of internal anal sphincters, recurrence rates are low. The main study goal is to compare the safety and outcome of both treatment modalities in the treatment of fissure in anal canal¹⁷. Symptoms of acute anal fissure are pain on defecation, post defecation pain (constant) and bleeding per rectum in the form of streak on the side of stool¹⁷. High anal resting pressure has previously been proposed to subject anal lining to ischemic effect which contributes to the pain of anal fissures and failure to heal. Surgical procedures and pharmacological preparation have generally been aimed to overcome anal spasm¹³. In a study by Haq et al, a significant fissure healing rate was observed with GTN¹⁹. Libertiny proved 98% alleviation of fissure problem with lateral internal sphincterotomy while GTN proved effective in 56%²⁰. In another study, fissure healing was found in 66.7% but within six months, a recurrence rate of 25% while using GTN locally was found²¹. It is coupled with side effects of headache and nausea. The present study showed efficacy 32% and 100% in chemical sphincterotomy and surgical lateral internal sphincterotomy, respectively. Our findings are comparable with finding of the study carried out by Memon et al⁹. Chemical sphincterotomy (topical application of 0.2% glyceryl trinitrate (GTN) ointment) is emerging as first line treatment as it relaxes the sphincter²². It is economical and cost-effective, but takes longer time for the healing and causes headache⁷. They demonstrated that relief of pain was found in 100% patients in surgical group, but chemical sphincterotomy cured fissure completely only in 30.04% patients.

CONCLUSION

In conclusion, surgical sphincterotomy was significantly more effective in providing postoperative pain relief (p< 0.001). However, chemical sphincterotomy is a non-invasive, cost-effective, easier to apply, well tolerated and effective therapy for anal fissure and is a first line treatment especially in patients who are unwilling or unfit for surgery. For recurrent or persistent chronic fissure, the lateral internal sphincterotomy is superior, curative, easy and safe in the hands of an expert and skilled surgeon with less complications and recurrence.

Conflict of interest: Nil

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