

A Comparative Study of Anal Dilatation and Lateral Anal Sphincterotomy in Patients of Chronic Anal Fissure

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Research Article

Abstract: Introduction: Anal fissure is a common problem that causes significant morbidity in a young and otherwise healthy population. Lateral anal sphincterotomy and anal dilatation are the two procedures most widely performed around in the hospitals. Current literature has shown conflicting evidence about the superiority of any one of these procedures for chronic anal fissure. The present study was done to compare the two procedures and make suitable recommendations. **Material and Methods:** The present longitudinal intervention study was conducted at Department of Surgery, Government Medical College, Kota (Rajasthan) from August 2010 to November 2011. A total of 50 patients of chronic anal fissure were selected and divided in two groups of 25 patients each by simple random sampling. Group A patients were treated by Lateral anal sphincterotomy and group B by Anal dilatation. Patients were followed up after 6 weeks and data was collected using semi structured questionnaire and was analysed using appropriate tests by SPSS ver. 19. **Results:** A significantly less number of patients complained of pain and anal spasms after lateral anal sphincterotomy ($p < 0.05$). These patients also required significantly lesser stay in hospital and had less frequent visits to the hospital ($p < 0.05$) after the procedure. **Conclusion:** After analyzing the results, lateral anal sphincterotomy is indeed proven superior to anal dilatation in terms of post operative complication and cost effectiveness. But a study with a greater sample size needed to be done to further strengthen our claim.

Keywords: Anal dilatation, Anal fissure, Cost-effectiveness, Lateral anal sphincterotomy, Post operative complications.

Introduction

Anal fissure is a distinct clinic-pathological condition of the lower anal canal and is the most common cause of severe anal pain. Anal fissure is a common problem that causes significant morbidity in a young and otherwise healthy population. Epidemiological survey conducted in 1994 among proctology clinics in Italy has shown that 10% of consecutive outpatients were affected by anal fissure.^[1] It may extend from the muco-cutaneous junction to the dentate line and is maintained by the contraction of the internal anal sphincter. It can be acute or chronic. Recamier^[2] is widely cited as giving the first description of anal stretch. Since then, its popularity for treatment of anal fissure has waxed and waned. Its use was recommended by Goodsall by the turn of the century and later by Gobriel and other surgeons have

been attracted to the procedure for its extreme simplicity and because it can be easily performed by relatively junior staff without any special equipment. Sohn N et al.^[3] has done a study of standardized technique of anal dilation with either a parks retractor or a balloon, precludes the possibility of permanent incontinence or wound complications and was found to be safe (1.3 percent frequency of transient minor incontinence) and effective (94 percent cure rate). Nelson R. reached to the conclusion that anal stretch significantly increased rates of incontinence as compared to Lateral anal sphincterotomy.^[4] Rick Nelson did a systemic review and he found that anal stretch significantly increased rates of flatus incontinence.^[5] Muhammed tayab et al. studied the role of Lateral anal sphincterotomy (LAS) in the surgical treatment of chronic anal fissure. They concluded that LAS is the suitable and safe procedure for patients with chronic and fissure. It can be done effectively and safely on outpatient basis and is associated with complete healing of the tear. Lateral anal sphincterotomy was the preferred procedure in their study which has been reported with encouraging results and less post-operative complication in various studies.^[6, 7] At present, both these procedures are being performed in all the hospitals of the country. The present study was done to compare the cure rate, post operative complications and cost effectiveness between anal dilatation & lateral anal sphincterotomy in patients of chronic anal fissure.

Materials and Method

The study was conducted at Department of Surgery, Government Medical College, Kota (Rajasthan) from August 2010 to November 2011. All the patients, fitting the inclusion criteria, who visited the surgery outpatient department during above mentioned period, were included in study. All patients below 12 years of age, patients with secondary type of fissures, those with fissure of less than 6 week duration, having no organic changes and patients declared unfit for general or spinal anesthesia and surgery due to other

co-morbid factors were excluded from the study. After approval of the study protocol by the Institutional Ethical Committee (IEC) and obtaining fully informed written consents, 50 patients were finally selected for the study. Patients were completely counseled regarding these two procedures and their outcome with possible complications. They were divided in two groups by simple random sampling and were allocated to procedure of Lateral anal sphincterotomy (group A) & four fingers Anal dilatation (group B) respectively (25 patients each). Baseline data was collected using pre-formed, pre-tested, semi structured interview schedule before intervention. Patients were followed up after 6 weeks and further data regarding the post operative complications and other complaints were obtained. The collected data was numerically coded and entered in Microsoft Excel 2007 and then transferred to SPSS version 19.0. Added data was analyzed with appropriate test like Fisher's test and t-test to see the association between various parameters, with p value less than 0.05 considered as significant. The procedures were done in the Department of Surgery, free of charge, including investigation, hospital charges and drugs. So, the cost effectiveness was compared by using parameters like total number of days in hospital (hospital stay) and number of subsequent hospital visits after the respective procedures.

Surgical Technique

Anal dilatation was done by placing fully lubricated index finger of each hand in the anal canal after one and other. Then exerting gentle but continuous outward pressure and with gradual relaxation of the internal sphincter the middle finger of each hand was also placed in the anal canal. During this procedure the hands repeatedly moved all around in order to relax all the segments of the lower part of the internal sphincter. The procedure was stopped when the internal anal sphincter was so much relaxed that the anal canal was

accepting four fingers (two fingers of each hand) at a time without much force. Lateral anal sphincterotomy was done by division of internal anal sphincter up to 4 mm from medial to lateral.

Results

From analysis of table 1 and 2, we observed that majority of the patients were in 30 to 40 years age group (32%). Male forms the majority of the cases (54%). Painful defecation (100%) and Bleeding (92%) were the most common symptoms in patients across both treatment arms, followed by constipation (86%) and anal spasms (72%). On comparing the age-distribution, sex-distribution and clinical symptoms (table 2) by appropriate statistical tests, we found that both groups were properly matched and there is no significant difference (p>0.05) in the two groups regarding above attributes. The matching of groups regarding the age, sex and clinical symptoms assures that the significant results, if found during the study, were not influenced by any of the pre-treatment factors. Table 3 showed that most common complication was anal spasms (44%) followed by Pain (36%). A significantly less number of patients complained of pain and anal spasms after lateral anal sphincterotomy (p<0.05). While frequency of bleeding and other minor complaints like constipation, etc. were similar in both treatment arms (p>0.05). We compared the cost effectiveness of both treatment modalities (table 4) by applying Mann Whitney U test, as data failed the test of normality (Kolmogorov Smirnov test, p<0.05). The patients who underwent lateral anal sphincterotomy required significantly (p<0.05) lesser stay in hospital (Mean days of hospitalization – 2.4 days for group A, 2.56 for group B) and had less frequent subsequent hospital visits (Mean Visits – 2.2 days for group A, 2.48 for group B).

Table 1: Age and Sex distribution

S.No.	Age(yrs.)	Group A				Group B			
		Males	% age	Females	% age	Males	% age	Females	% age
1	20-30	3	12%	4	16%	3	12%	1	4%
2	30-40	4	16%	3	12%	6	24%	3	12%
3	40-50	2	8%	3	12%	3	12%	3	12%
4	50-60	2	8%	2	8%	1	4%	2	8%
5	>60	1	4%	1	4%	2	8%	1	4%
Total		12	48%	13	52%	15	60%	10	40%

Table 2: Comparison of symptom in both treatment arms

Symptoms	Group A		Group B	
	N	% age	N	% age
Constipation	22	88%	21	84%
Painful defecation	25	100%	25	100%
Bleeding	22	88%	24	96%
spasm	19	76%	17	68%

Table 3: Pre Treatment comparison

Attribute	Group	N	Test	df	P-value
Age	A	25	Unpaired t-test	48	0.63
	B	25			
Sex	A	25	Fisher's test	1	0.77
	B	25			
Constipation	A	25	Fisher's test	1	0.56
	B	25			
Painful defecation	A	25	Fisher's test	1	1
	B	25			
Bleeding	A	25	Fisher's test	1	0.6
	B	25			
Spasms	A	25	Fisher's test	1	0.75
	B	25			

Table 4: Post Treatment comparison

Attribute	Group	N	Test	df	P-value
Pain	A	25	Fisher's test	1	0.02
	B	25			
Bleeding	A	25	Fisher's test	1	1
	B	25			
Spasms	A	25	Fisher's test	1	0.04
	B	25			
Others	A	25	Fisher's test	1	0.14
	B	25			

Table 5: Comparison of cost effectiveness

Attribute	Group	Test	N	Sum of ranks in column A,B	Mann-Whitney U test	P-value
Hospital stay (days)	A	Mann Whitney test	25	513.5,761.5	188.5	0.01
	B		25			
No. of visits	A	Mann Whitney test	25	5,40,735	215	0.04
	B		25			

Discussion

The age and sex distribution of the patients in our study revealed that majority of the patients were in 30 to 40 year age group (32%) and males formed the majority of these patients (54%). Our findings were supported by various studies, which suggest that anal fissure is more common in young adult age group. Although the sex distribution is equal in case of anal fissure, as supported by many studies,^[8] the results of our study which showed male preponderance, was may be due to various social factors prevalent in our society which leads to under-reporting of the symptoms in case of females.^[9] The clinical findings, which showed that painful defecation and bleeding per rectum were most common complaints, was supported by study of Morgan et al.^[10] Various other literature also supported that constipation and anal spasms were the next most common clinical features.^[10-13] A significantly lesser pain and anal spasms was noted in patients after lateral anal sphincterotomy(LAS) than anal Dilatation ($p<0.05$). Similar observation were found by Ouedat D.A. et al. in which 275 patients were studied and divided among anal dilatation group and anal sphincterotomy group. The findings suggested high complication rates in patients treated with anal dilatation in terms of the persistence in pain, incontinence to flatus or feces and recurrence of anal fissure.^[1] Similar results were also obtained by Nelson

R^[14] and Muhammed ali et al.^[15] who concluded that anal stretch has significantly increased rates of incontinence, persistence of anal spasms and recurrence as compared to lateral anal sphincterotomy. Their study concluded that LAS is the suitable and safe procedure for patients with chronic and fissure, which can be done effectively and safely on outpatient basis and is associated with complete healing of the tear. Lateral anal sphincterotomy was the preferred procedure in comparison to anal dilatation in their study which has been reported with encouraging results and less post operative complication in various studies.^[16, 17] The findings of the study suggested that lateral anal sphincterotomy was more cost effective modality of treatment of chronic anal fissure with significant lesser hospital stay and less frequent hospital visits after the procedure. It causes less discomfort to patients and also decrease their financial burden (as most patients were daily wage workers and have to miss their day's work during hospital stay and visits). The findings of our study has been indirectly supported by many other similar studies, who showed incomplete healing, more complications and greater recurrence of anal fissure in patients who underwent anal dilatation.^[1, 14-17]

Recommendations

The study findings showed that lateral anal sphincterotomy is indeed superior to anal dilatation in terms of post operative complications. It is also more cost effective to patients, as duration of hospitalization is less and due to low complication rate; the number of subsequent hospital visits required is also less. We, therefore recommend that lateral anal sphincterotomy as the preferred treatment modality for patients of chronic anal fissure, although a multicentre study with larger sample size is needed to further strengthen our claim.

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