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ORIGINAL ARTICLE

To Compare the Mean Post-Operative Pain between Manual Dilatation of Anus and Lateral Internal Sphincterotomy in the Treatment of Acute Anal Fissure

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ABSTRACT

Aim: To compare the mean post-operative pain between manual dilatation of anus and lateral internal sphincterotomy in the treatment of acute anal fissure.
Study design: Randomized Controlled Trial
Settings: Department of General Surgery, Bahawal Victoria Hospital, Bahawalpur
Study duration: 4th October 2020 to 3rd April 2021.
Methods: Total 88 patients with acute anal fissure, 30-70 years of age of both genders were selected. Patients with secondary hemorrhoids as a result of abdominal malignancy, anorectal deformity, hypotonic sphincter, underwent previous anorectal surgery, previous anal sphincterotomy or anal dilatation, hemorrhoids, proctitis, abscess, perianal sepsis, proctalgia fugax and fissure were excluded. In group A patients, lateral internal sphincterotomy with open technique was done. Patients in group B were undergone manual dilatation of anus under general anesthesia.
Results: The mean age of women in group A was 46.73±8.58 years and in group B was 46.86±10.26 years. Majority of the patients 65 (73.86%) were between 25 to 40 years of age. Out of 88 patients, 60 (61.18%) were males and 28 (38.88%) were females with male to female ratio of 2.1:1. In my study, mean postoperative pain after 10th day was 0.80 ± 0.73 after lateral internal sphincterotomy vs 2.20 ±0.85 after manual dilatation of anus with p-value of 0.0001.
Conclusion: This study concluded that the postoperative pain after lateral internal sphincterotomy is less as compared to manual dilatation of anus in the treatment of acute anal fissure.
Keywords: Acute anal fissure, lateral internal sphincterotomy, manual dilatation of anus.

INTRIDUCTION

The definition of anal fissure is longitudinal tear in the anoderm extending from the anal border towards the dentate line up. Patients usually experience pain and rectal bleeding during defecation. Fissure is diagnosed clinically (on history/examination). Anal fissures have predilection for the posterior midline (80- 90%). About 90% of anal fissures occur in the posterior midline. Ten percent are found in the anterior midline, more commonly in women. Only 1% occurs off midline[1].

While the exact etiology is often unknown, passage of hard stools and anal trauma are often associated with anal fissures. Other causes of anal fissures can be observed in patients with chronic diarrhea, during childbirth, and those with a habitual use of cathartics[2].

The anal fissure present in atypical location, it can also be associated with STDs and syphilis, leukemia, tuberculosis and inflammatory bowel disorders such as Crohn disease, preceding anal surgery, HIV disease, and anal cancer[3].

Once a fissure is formed, ongoing pain can cause the internal anal sphincter to spasm (hypertonicity), which causes the wound edges of the fissure to pull apart, impairing healing. Local ischemia is also thought to contribute to anal fissure, especially in the posteriorquadrant where blood flow is significantly less than other quadrants. As the anal sphincter continues to spasm, increased pressures are thought to further impede blood flow[4,5].

The management of anal fissure includes conservative and operative measures. The conservative treatment consists of avoidance of constipation, use of local anaesthetic ointments and use of anal dilators[6]. The operative methods are manual anal dilatation, internal anal sphincterotomy and fissurectomy[7]. In a study mean postoperative pain after 10th day was 1.05±0.22 after lateral internal sphincterotomy vs 1.26±0.44 after manual dilatation of anus[8].

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METHODOLOGY

This Randomized controlled trial study done in the Department of Surgery, Bahawal Victoria Hospital, Bahawalpur after permission from Ethical Review Board. Total 88 patients with acute anal fissure, 30-70 years of age of both genders were selected. Patients with abdominal malignancy as the result of secondary hemorrodoids, hypotonic sphincter and anorectal deformity, underwent previous anal dilatation, proctitis, fugax and fissure abscess, hemorrhoids, anorectal surgery, previous anal sphincterotomy, perianal sepsis and proctalgia were excluded. In group A patients, lateral internal sphincterotomy with open technique was done. Patients in group B were undergone manual dilatation of anus under general anesthesia. Patients were followed post-operatively by the researcher himself for assessment of post-operative pain and final pain score was noted at 10th day post-operatively.

RESULTS

Age vary in this study was from 30 to 70 years with mean age of 46.81±9.78 years. The suggested age of females in group A was 46.73±8.58 years and in group B was 46.86±10.26 years. Majority of the subjects in the study was 65(73.86%) were between 25 to 40 years of age as shown in Table I. Out of 88 patients, 60(61.18%) were male and 28(38.88%) were female. Male to female ratio was 2.1:1 (Table II). Mean duration of disorder was 55.39±2.08 months (Table III). Mean BMI was 28.56±3.55kg/m2 (Table IV). In my study, suggested that postoperative pain after tenth day was 0.80±0.73 after lateral interior sphincterotomy vs 2.20±0.85 after dilatation of anus with p-value of 0.0001 (Table VIII). Stratification of post-operative pain with reference to age, gender, length of disease, BMI, area of living, diabetes mellitus and occupation is shown in Table IX to XV respectively.

Table-I: Age distribution for both groups (n=88).

Age (years)	Group A		Group B		Total	
	n	%age	n	%age	n	%age
30-50	33	75.0	32	72.73	65	73.86
51-70	11	25.0	12	27.27	23	26.14
Mean±SD	46.73±8.58		46.86±10.26		46.81±9.78	

Table-II: Gender distribution for both groups (n=88).

Gender	Group A		Group B		Total	
	n	%age	n	%age	n	%age
Male	31	70.45	29	65.91	60	68.18
Female	13	29.55	15	34.09	28	31.82

Table III: Distribution of patients according to duration of disease in both groups.

Duration of disease (months)	Group A		Group B		Total (n=88)	
	Frequency	%age	Frequency	%age	Frequency	%age
≤6months	29	65.91	29	65.91	58	65.91
>6months	15	34.09	15	34.09	20	34.09
Mean±SD	5.45±2.01		5.27±2.12		5.39±2.08	

Table IV: Distribution of patients according to BMI in both groups.

BMI(kg/m^2)	Group A		Group B		Total	
	Frequency	%age	Frequency	%age	Frequency	%age
≤27	26	59.09	24	54.55	50	56.82
>27	18	40.91	20	45.45	38	43.18
Mean±SD	28.50±3.43		28.61±3.67		28.56±3.55	

Table V: Distribution of patients according to place of living n both groups.

Place of living	Group A		Group B		Total (n=88)	
	Frequency	%age	Frequency	%age	Frequency	%age
Rural	28	63.64	30	68.18	58	65.91
Urban	16	36.36	14	31.82	30	34.09

Table VI: Distribution of patients according to diabetes mellitus in both groups.

DM	Group A		Group B		Total	
	Frequency	%age	Frequency	%age	Frequency	%age
Yes	20	45.45	21	47.73	41	46.59
No	24	54.55	23	52.27	47	53.41

Table VII: Distribution of patients according to occupation in both groups.

Occupation	Group A		Group B		Total	
	Frequency	%age	Frequency	%age	Frequency	%age
Office	20	45.45	19	43.18	39	44.32
Domestic	08	18.18	08	18.18	16	18.18
Field	16	36.36	17	38.64	33	37.50

Table IX: Stratification of post-operative pain with respect to age.

Age (years)	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
30-50	0.70	0.68	2.19	0.93	0.0001
51-70	1.09	0.83	2.25	0.62	0.0001

Table-VIII: Comparison of the mean postop pain between manual dilatation of anus and lateral internal sphincterotomy in treatment of acute anal fissure.

Post-operative pain	Group A	GroupB	P value
	Mean±SD	Mean±SD	
	0.80±0.73	2.20±0.85	0.0001

Table X: Stratification of post-operative pain with respect to gender.

Gender	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
Male	0.81	0.70	2.38	0.82	0.0001
Female	0.77	0.83	1.87	0.83	0.0001

Table XI: Stratification of post-operative pain with respect to duration.

Duration (months)	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
≤6	0.76	0.69	2.28	0.84	0.0001
>6	0.87	0.83	2.07	0.88	0.0001

Table XII: Stratification of post-operative pain with respect to BMI

BMI (kg/m^2)	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
≤30	0.85	0.68	2.21	0.78	0.0001
>30	0.72	0.83	2.20	0.95	0.0001

Table XIII: Stratification of post-operative pain with respect to place of living.

Place of living	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
Rural	0.82	0.67	1.86	0.77	0.0001
Urban	0.72	0.86	2.37	0.85	0.0001

Table XIV: Stratification of post-operative pain with respect to DM.

DM	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
Yes	0.80	0.77	2.14	0.85	0.0001
No	0.79	0.72	2.26	0.86	0.0001

Table XV: Stratification of post-operative pain with respect to occupation.

Occupation	Group A (n=44)		Group B (n=44)		P-value
	Mean	SD	Mean	SD	
Office	0.75	0.72	2.05	0.97	0.0001
Field	0.69	0.70	2.47	0.80	0.0001
Domestic	1.13	0.84	2.00	0.54	0.0001

DISCUSSION

An anal fissure is a painful linear tear in direction to the anal canal[9]. It is very regularly referred to as an ischemic ulcer. Anodermal blood flow is negatively correlated with resting pressure of anus. Increasing activity of the inside anal sphincter can also minimize the anodermal blood flow via compressing the arterioles[10]. Historically, underneath regional of anesthesia, guide anal sphincter dilatation is performed to minimize sphincter tone in the cure of recurrent anal fissure.[11] Lateral anal sphincterotomy in which the inner anal sphincter is divided away from the fissure generally both in the proper or the left lateral position is definitive surgical procedure[12].

Age vary in my study was from 30 to 70 years with mean age of 46.81±9.78 years. The suggested age of females in group A was 46.73±8.58 years and in group B was 46.86±10.26 years. Majority of the subjects in the study was 65(73.86%) were between 25 to 40 years of age.

Out of 88 patients, 60(61.18%) were male and 28(38.88%) were female. Male to female ratio was 2.1:1 (Table II). Mean

duration of disorder was 55.39±2.08 months (Table III). Mean BMI was 28.56±3.55kg/m2.In my study, suggested that postoperative pain after tenth day was 0.80±0.73 after lateral interior sphincterotomy vs 2.20±0.85 after dilatation of anus with p-value of 0.0001.

In another study[13] post-operative pain following surgery at 12 hours, 24 hours and 48 hours was compared with the aid of visual analogue scale (VAS). The mean±SD postoperative pain vas score at 12 hours of MAD group [6.30±0.75] is higher than LAS group [5.23±0.57]. There is a significant difference between the MAD and LAS group for postoperative pain vas score at 12 hours ($p<0.0001$).

The mean±SD postoperative pain vas score at 24 hours of MAD group [3.03±0.81] is higher than LAS group [2.73±0.58]. However, there is no significant difference between the MAD and LAS group for postoperative pain vas score at 24 hours ($p=0.131$). The mean±SD postoperative pain vas score at 48 hours for MAD and LAS group is 0.43±0.50 and 0.47±0.51. However, there is no significant difference between the MAD and LAS group for postoperative pain vas score at 48 hours ($p=0.131$)[14].

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[15].

A number of published studies have compared these parameters of pain relief and healing for LIS versus topical glyceryl trinitrate. Evans J et al16 reported 60.6% healing rate at eight weeks with glyceryl trinitrate as compared with 97% with lateral internal sphincterotomy. Libertiny G et al[17] found 98% healing rate of anal fissures with lateral internal sphincterotomy as compared to only 56% healing rate with glyceryl trinitrate. Both AD and LIS lead to reduction of resting anal pressure. Both the techniques have been found to result is quick pain relief and high ulcer healing rate. Watt et al reported satisfactory early relief of symptoms in 95% of patients with AD.71 Hoffmann reported that about 93% patients were quite free of pain in 1 week of LIS. Littlejohn reported 99% initial healing with tailored LIS[18].

Anal dilatation is a method that has been used for a long time in fissure treatment and it is advantageous as it is easily applied, does not require much equipment, and allows patients to be discharged from the hospital one day later[19,20].

However, relapse and the anal incontinence ratio after manual anal dilatation have always been controversial. In literature, healing rate of this method is reported as 83–89%, but recurrence (17%), sphincter damage (50%), and anal incontinence (12.5%) values are represented as serious disadvantages.[21]The shortcomings can be due to uncontrolled approaches in the application of anal dilatation, and it has been stressed that the application should be standardized[22]. In the meta-analysis report, in controlled anal dilatation, acceptable results were obtained, but prospective randomized studies were required.

Currently, LIS is a common surgical method which is utilized for the treatment of chronic anal fissure[24]. In the studies of Arroyo et al. after LIS, minor incontinence was found in 5% of patients, healing occurred in 93–100% of patients, recurrence occurred in 0–25% of patients, and incontinence occurred in 0–38% of patients.[25] In recent studies, regarding to healing and recurrence, LIS has been found better than Lord's method[26] nitroglycerine and glyceryl trinitrate; nifedipine has been shown an alternative to LIS.

CONCLUSION

This study concluded that the postoperative pain after lateral internal sphincterotomy is less as compared to manual dilatation of anus in the treatment of acute anal fissure. So, we recommend that lateral internal sphincterotomy should be used routinely in our general practice for treating acute anal fissure in order to reduce morbidity of our population.

Conflict of interest: Nil

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