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Outcome of Lateral Sphincterotomy in Chronic Anal Fissure: A Study of 50 Cases

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Abstract **Original Research Article**

Background: Lateral sphincterotomy is now the standard surgical treatment for chronic anal fissure. ***Aims and Objectives:*** To determine the outcome of closed lateral sphincterotomy in the treatment of chronic anal fissures. **Materials and *Methods:*** This was a prospective cross-sectional study was conducted in the Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh during the period from September 2009 to June 2010 with a view to determine the outcome of lateral sphincterotomy in the treatment of chronic anal fissures. For this purpose, 50 patients of chronic anal fissures were enrolled in this study after inclusion and exclusion criteria. ***Results:*** The age of the respondents was ranging from 23 to 60 years with the mean age of 39.140 ± 8.767 years. Fifty-two percent patients were male and 48.0% were female with the male to female ratio of 1.08:1. The duration of symptoms of the respondents was ranging from 1 to 13 years with the mean 5.920 ± 3.875 years. The mean pain score was decreased from 5.32 at baseline to 0.04 at 6 weeks ($p<0.001$), and 96.0% of patients were pain free at 6 weeks of follow up. Complete healing was occurred in 76.0% at 2nd week, 86.0% at 4th week and 90.0% at 6th week lateral sphincterotomy. Early postoperative complication such as superficial wound infection was in 6.0% and minor incontinence in 8.0% patients. Of the minor incontinence, 6.0% had incontinence of flatus and 2.0% had incontinence of liquid but at 6th week only incontinence of flatus was present in 4.0% of patients. At the end of 6 weeks follow up period, satisfactory outcome was found in 45 (90.0%) and unsatisfactory outcome was found in 10.0% of patients. ***Conclusion:*** Lateral sphincterotomy is a standard surgical treatment for chronic anal fissure with high success rate and patients' satisfaction with low postoperative complication.

Keywords: Lateral sphincterotomy, Chronic anal fissure, Surgical outcome, Postoperative complications, Pain relief.

INTRODUCTION

An anal fissure is a linear tear in the mucosa of the anal canal normally extending distally from the dentate line to the anal verge, causing significant morbidity due to sharp severe anal pain, especially during defecation. Its incidence is equal between male and female patients (Kiyak *et al.*, 2009) [1]. Young adults are the usual sufferers. Though, the exact aetiology of primary anal fissure is still unknown, high resting anal pressure caused by increased internal sphincter tone appears to be the underlying pathological factor (Cuschieri *et al.*, 2002) [2]. There is a vicious cycle beginning from a tear in the anoderm from forceful dilatation of the anal canal during defecation exposing the underlying internal sphincter muscle that eventually goes into spasm and fails to relax during next bowel movement (Way and Doherty 2006) [3]. Further tearing results in persistent muscle spasm leading to relative ischemia of the affected area secondary to spasm of the internal anal sphincter. Internal sphincter spasm is considered to prevent relaxation during defecation causing persistence of symptoms and impairment of healing (Way and Doherty 2006, Kiyak *et al.*, 2009) [3,1]. The majority of fissures is acute and resolve within 6–8 weeks of conservative treatment, with stool softeners, bulking agents and sitz baths (Way and

Doherty 2006) [3], but a significant minority of fissures become chronic. Chronic anal fissure is associated with extension through the submucosa, exposing internal anal sphincter fibres, a sentinel perianal skin tag, and a hypertrophied anal papilla (Kiyak *et al.*, 2009) [1]. Some authors suggest that chronic anal fissure should be present for at least 6–8 weeks (Nugent 2002) [4]. Reduction in the internal anal sphincter tone increases anodermal blood flow leading to symptomatic relief and healing of chronic anal fissure (Lund and Scholefield 1997) [5]. Lateral internal anal sphincterotomy is widely regarded as the treatment of choice for chronic or recurrent anal fissure (Leong and Seow-Choen 1995) [6]. With this procedure of lateral internal sphincterotomy by reducing the sphincteric tone healing of fissures occurs in 98% to 100% of cases (Garcia-Anguilar *et al.*, 1998; Parellada 2004) [7,8] However, a significant number of patients are reported to develop fecal incontinence following this procedure (Lund and Scholefield 1996). Varying degrees of incontinence ranging from 5% to 30% were reported in different studies following surgical sphincterotomy (Nyam and Pemberton 1999; Parellada 2004) [9,8]. There are few data regarding the sphincterotomy in Bangladesh, this study was designed to evaluate the lateral sphincterotomy in the treatment of chronic anal fissure.

Aims and Objectives

General:

- To determine the outcome of lateral sphincterotomy in the treatment of chronic anal fissures. Specific:
- To determine the socio-demographic features of the patients with chronic anal fissures.
- To determine the effectiveness of lateral sphincterotomy in the treatment of chronic anal fissures.
- To determine the complications of lateral sphincterotomy in the treatment of chronic anal fissures.

Materials and Methods

Study Design: Cross sectional and interventional study.

Place of Study: Department of Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka.

Study area: Department of Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka and Dhaka Medical College Hospital, Dhaka.

Study period: First September 2009 to 30th June 2010.

Study population: Patients those were admitted into the Department of Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka and Dhaka Medical College Hospital, Dhaka with chronic anal fissures were considered as the study population in this study.

Study Sample: Patients those were admitted into the Department of Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka and Dhaka Medical College Hospital, Dhaka with chronic anal fissures and fulfilling the selection criteria was considered as study sample.

Inclusion criteria;

- Patients with primary chronic anal fissure
- lasting for more than 6 weeks,
- the presence of indurated fissure edges,
- sentinel pile,
- hypertrophied anal papillae, and
- the presence of circular muscle fibers at the base of the fissure.
- Age above12 years.
- Both sexes.

Exclusion criteria:

- Recurrent anal fissure
- chronic fissure that occurred in patients following previous lateral sphincterotomy
- Those with secondary fissures,
- fissures complicated with fistula and
- anal stenosis
- Patients with previous anorectal surgery.
- Associated with malignancy and tuberculosis
- Associated with incontinence.
- Age below 12 years.

Sample Size:

- Sample size was 50.

Sampling technique:

- Consecutive and purposive sampling.

Data collection tools:

- Pre-designed collection sheet.

Study Procedure:

- Informed written consent was obtained from the patients after full explanation of the details of the disease process, options of treatment, ultimate outcome, possible side effects and complications and chances of recurrences in this operative procedure. They were informed of their right to withdraw from the study at any stage.
- The protocol was approved by the Institutional Ethical Committee of BSMMU. The protocol was considered violated if the patient failed to come for a regular follow-up or had withdrawn from the study. All patients for whom the protocol was deemed violated were excluded from the final analysis.
- After a complete pre-operative evaluation lateral internal sphincterotomy was done under spinal anesthesia and in the lithotomy position. A Parks retractor was inserted into the anus,

rotated so that the blades occupy the 12 and 6 O' clock positions and gently opened. Downward retraction was applied on the retractor. The internal anal sphincter was then identified by palpation following downward retraction. A 0.5-cm vertical incision was made over the internal anal sphincter and two clips were applied to the internal sphincter muscle. A 'penicillate' diathermy was then used to divide no more than 5 mm of the muscle. Associated sentinel skin tag at the outer end of the fissure and sometimes a fibroepithelial polyp at the inner end were also excised if present. The wounds were left open.

- Patients of both groups were advised to have sits baths and to take high fiber diet.
- They were followed up at 2 weeks' interval for 6 weeks and pain relief, fissure healing, compliance and continence scores were evaluated during each follow-up. Pain was assay using the visual analog scale (0-10). Pain relief was defined as complete absence of pain. Healing of fissure was accepted when there was no visual lesion in anoderm. A patient as defined fully continent when there was no soiling of perianal region or undergarments under normal circumstances or during stress. Incontinence to flatus or mucus only while on stress was designated as minor incontinence.
- Data regarding sex, age, position of fissure, length operation, length of hospital stay, wound sepsis, fissure healing, and anal continence were collected in a pre-designed questionnaire.

Statistical Analysis

After collecting data, editing was done manually and analyzed with the help of computer software program such as SPSS version 16.0 (Statistical package for social science). Mean and standard deviation were calculated for continuous data and unpaired t test was employed for detection of test of significance; and percentage for categorical data. For all analytical tests, a value of 5% or less ($p=0.05$ or $p<0.05$) was considered significant.

Ethical consideration:

- All the participants in the study was informed about the purpose of the study and written consent was taken before participation in this study.
- All information were collected confidentially with complete respect to the patient wish and without any force or pressure.
- The protocol was approved by the Institutional Ethics Committee of BSMMU. The protocol was considered violated if the patient failed to come for a regular follow-up or had withdrawn from the study.

RESULTS

This prospective cross-sectional study was conducted in the Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh during the period from September 2009 to June 2010 with a view to determine the outcome of lateral sphincterotomy in the treatment of chronic anal fissures. For this purpose, 50 patients of chronic anal fissures were enrolled in this study after inclusion and exclusion criteria. The outcome of the study was as follows:

Age distribution of the patients:

The age of the respondents was ranging from 23 to 60 years with the mean age of 39.140 ± 8.767 years (mean ± standard deviation). The age of the male respondents was ranging from 23 to 60 years with the mean age of 38.692 ± 9.632 years and the age of the female respondents was ranging from 30 to 55 years with the mean age of 39.625 ± 7.901 years. The mean age of the male and female were almost identical (p=0.711). Age distribution of the patients was shown in table 1.

Table 1: Age distribution of the patients

Study group	Age in years			p* value
	Range	Mean	Standard deviation	
Total (n=50)	23-60	39.140	± 7.236	0.617
Male (n=26)	23-60	38.692	± 9.632	
Female (n=24)	30-55	39.625	± 7.901	

*Unpaired t test was employed to analyze the data.

Distribution of the age group of the respondents:

Figure 1 showed the distribution of the age group of the respondents. Forty percent of the patients were in the age group of 31 to 40 years, 28.0% were in the age group of 41 to 50 years, 20.0% were in 21-30 years and 12.0% were in 51-60 years.

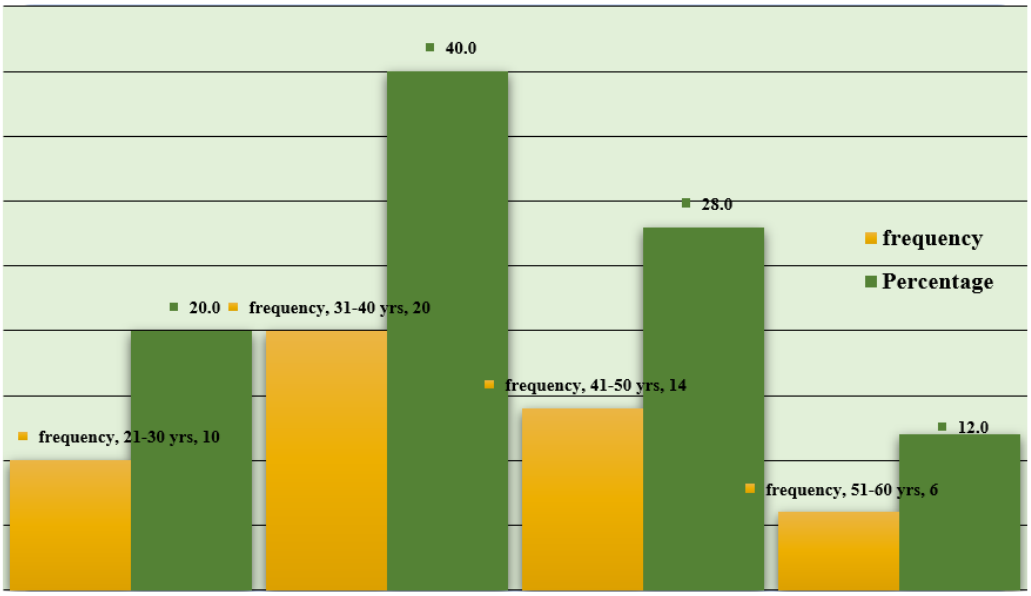

Figure 1: Distribution of the respondents on age group (n=50)

Distribution of respondents according to sex:

In this study out of 50 respondents 26 (52.0%) patients were male and 24(48.0%) patients were female with the male to female ratio of 1.08:1. Distribution of respondents according to sex was shown in figure 2.

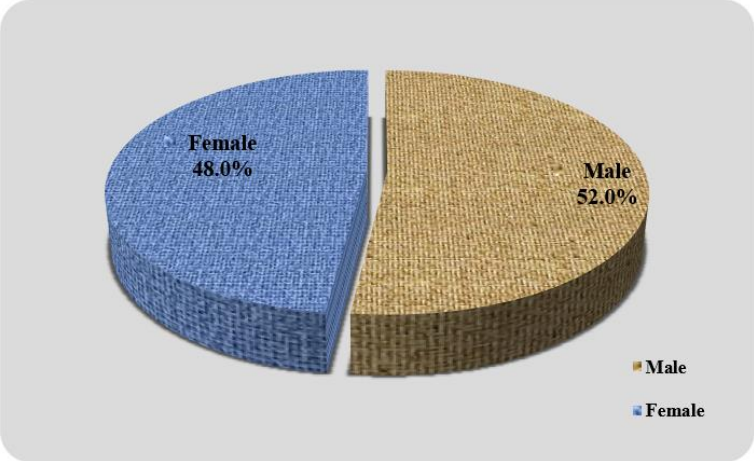

Figure 2: Distribution of patients according to sex (n=50)

Distribution of patients according to religion of the patients: Maximum 42 (84.0%) respondents were Islam by religion and 8 (16.0%) patients were Hinduism by religion. Distribution of patients on the basis of religion of the patients was shown in figure 3.

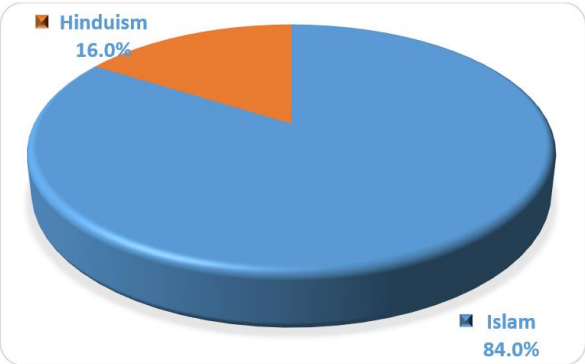

Figure 3: Distribution of respondents according to religion (n=50)

Distribution of patients according to occupation:

In this study 22 (44.0%) patients were house wife, 14 (28.0%) were service holder, 9 (18.0%) were business man, 4 (8.0%) were farmer and 1 (2.0%) were student. Distribution of respondents according to occupation was shown in table 4.

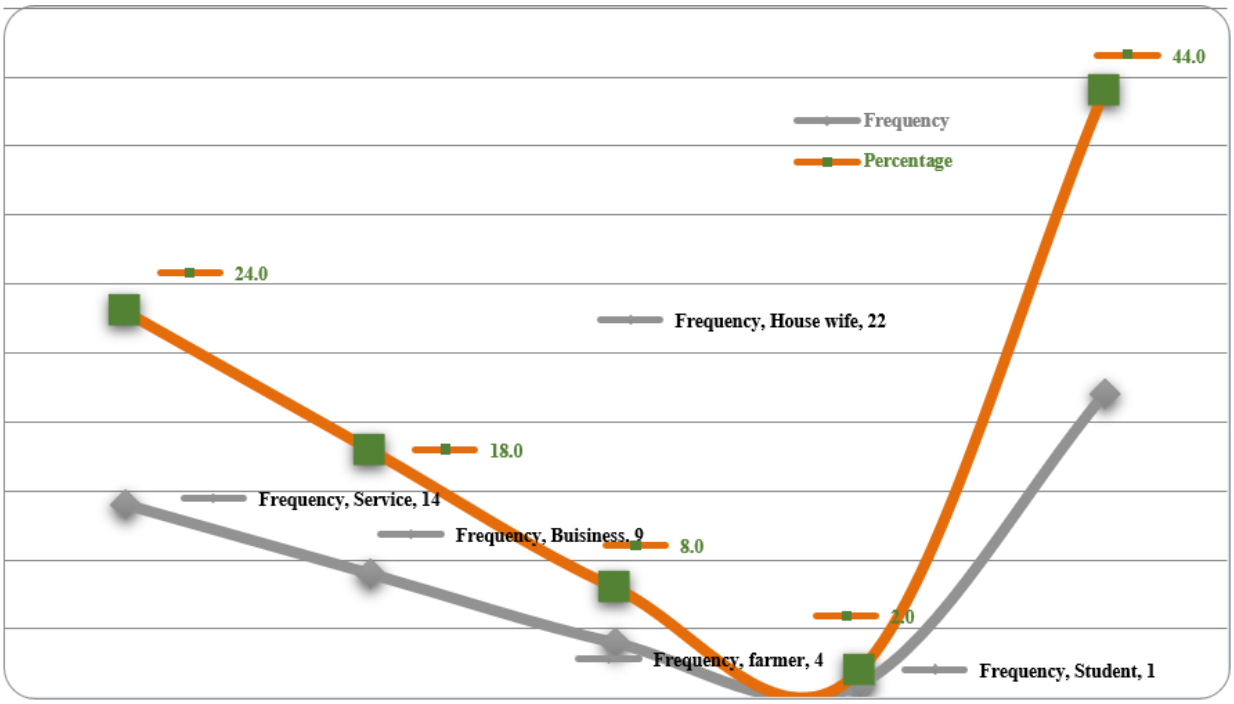

Figure 4: Distribution of patients according to occupation (n=50)

Distribution of patients according to marital status:

Most of the patients were married (92%) and rest of the patients was unmarried (8.0%). Distribution of patients according to marital status was shown in figure-5.

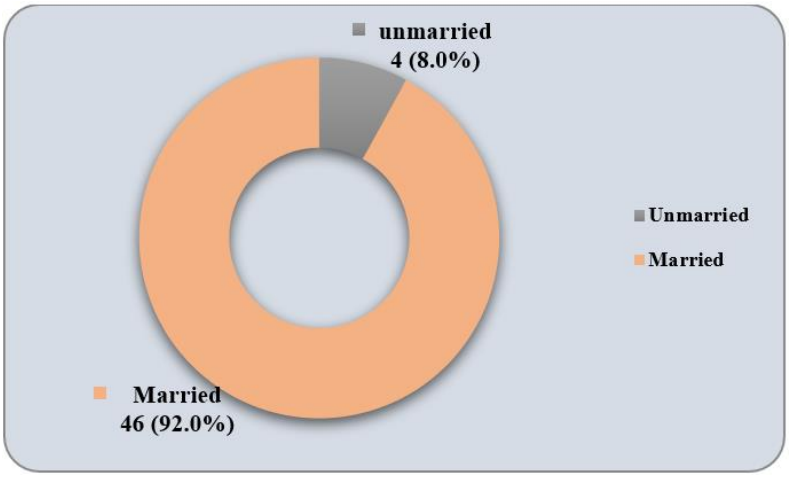

Figure 5: Distribution of patients according to marital status (n=50)

Distribution of patients according to socio-economic status:

Maximum 35 (70.0%) were from middle class of socio-economic status, 8 (18.0%) were from lower class of socio-economic status and 6 (12.0%) were from upper class of socio-economic status. Distribution of patients according to socio-economic status was shown in table 6.

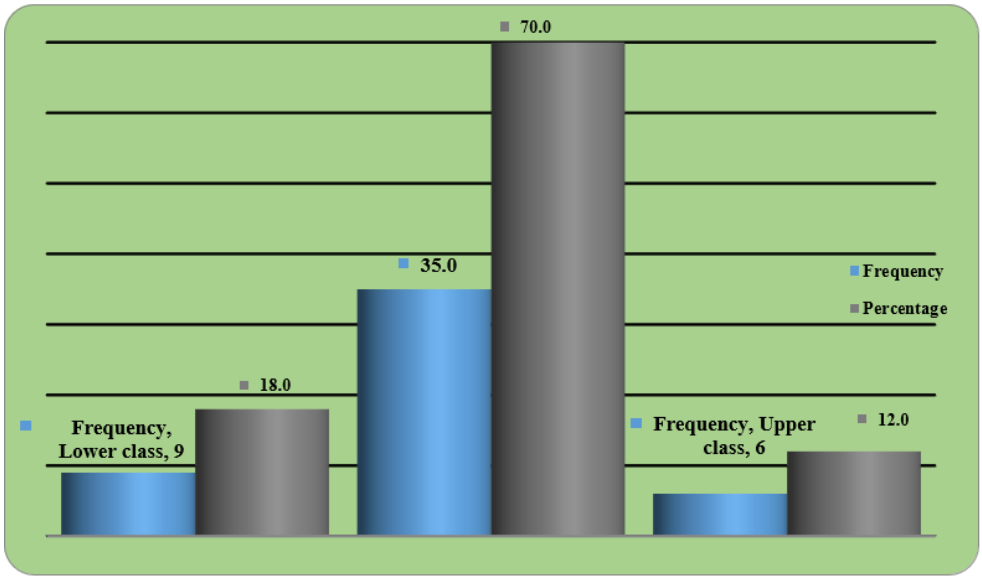

Figure 6: Distribution of patients according to socio-economic status (n=50)

Duration of symptoms:

The duration of symptoms of the respondents was ranging from 1 to 13 years with the mean 5.920 ± 3.875 years. The duration of symptoms of the male respondents was ranging from 2 to 13 years with the mean 6.200 ± 3.651 years and the duration of symptoms of the female respondents was ranging from 1 to 13 years with the mean 5.583 ± 4.221 years. The duration of symptoms of the male and female were almost similar (p=0.560). Unpaired t test was employed to analyze the data.

Table 2: Duration of symptoms of the respondents

Study group	Age in years			p* value
	Range	Mean	Standard deviation	
Total (n=50)	1-13	5.920	± 3.875	
Male (n=26)	2-13	6.231	± 3.651	0.560
Female (n=24)	1-13	5.583	± 4.221	

*Unpaired t test was employed to analyze the data.

Clinical presentation:

Clinical presentation of the patients with anal fissure was shown in table. All patients were presented with anal pain, 90.0% patients were presented with bleeding, constipation was present in 74.0% of patients and Skin tag was present in 64.0% of patients.

Table 3: Clinical presentation of the patients with anal fissure (n=50)

Clinical presentation	Frequency	Percentage
Anal pain	50	100.0
Bleeding	45	90.0
Skin tag	32	64.0
Constipation	37	74.0
Total	**100**	**100.0**

Distribution of patients on position of the fissure:

The most common position of anal fissure was posterior mid line in 64.0% of patients, followed by anterior mid line in 26.0% of patients; and both anterior and posterior mid line was in 10.0% of patients. Distribution of patients on position of the fissure was shown table 2.

Table 4: Distribution of patients on position of the fissure (n=50)

Position	Frequency	Percentage
Anterior	13	26.0
Posterior	32	64.0
Both	5	10.0
Total	**100**	**100.0**

Hospital stays:

Hospital stay of the respondents was ranging from 1 to 4 days with the mean 1.600 ± 0.808 days. Hospital stay of the male respondents was ranging from 1 to 3 days with the mean 1.557 ± 0.758 days and Hospital stay of the female respondents was ranging from 1 to 4 days with the mean 1.625 ± 0.875 days. Hospital stay of the male and female respondents did not differ statistically significant (p=0.836). Unpaired t test was employed to analyze the data.

Table 5: Hospital stays of the respondents

Study group	Hospital stays in days			p* value
	Range	Mean	Standard deviation	
Total (n=50)	1-1	1.600	± 0.808	
Male (n=26)	1-3	1.557	± 0.758	0.836
Female (n=24)	1-4	1.625	± 0.875	

*Unpaired t test was employed to analyze the data.

Evaluation of pain score at different follow up:

Table 4.6 and figure 4.7 showed the changes of pain score determined by visual analogue scale at different interval of time. The mean pain score was 5.32 at baseline which decreased sharply to 1.7 at 2 weeks then gradually decreases to 0.58 and 0.04 at 4th and 6 weeks respectively. The decreased pain score was statistically significant (p<0.001).

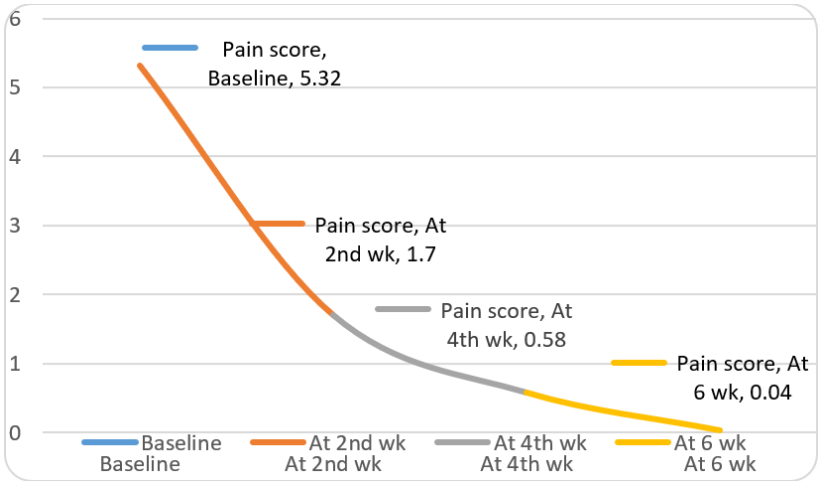

Figure 7: Evaluation of pain score at different follow up (n=50)

Pain relief:

Pain was relief in 46.0% of patients at 2nd week, 66.0% of patients at 4th week and 96.0% of patients at 6th week after lateral sphincterotomy. Pain relief at follow up was shown in table 4.6.

Table 6: Pain relief at follow up (n=50)

Pain relief	Complete	Incomplete
At 2nd week	23 (46.0)	27 (54.0)
At 4th week	33 (66.0)	17 (34.0)
At 6th week	48 (96.0)	2 (4.0)

Figure in the parenthesis indicate corresponding percentage.

Evaluation of fissure healing at different follow up:

Evaluation of fissure healing at different follow up was shown in table. At 2nd week complete healing was occurred in 76.0% of patients, at 4th week complete healing was occurred in 86.0% of patients and at 6th week complete healing was occurred in 90.0% of patients.

Table 7: Evaluation of fissure healing at different follow up (n=50)

Evaluation at	Healing	
	Complete	Incomplete
2nd week	38 (76.0)	12 (24.0)
4th week	43 (86.0)	7 (14.0)
6th week	45 (90.0)	5 (10.0)

Figure in the parenthesis indicate corresponding percentage.

Early complication after lateral sphincterotomy:

In the postoperative period superficial wound infection was developed in 3 (6.0%) patients and minor incontinence 4 (8.0%) patients. Of the minor incontinence, 3 (6.0%) developed incontinence of flatus and another 1(2.0%) developed incontinence of liquid. Early complication after lateral sphincterotomy was shown in table 8.

Table 8: Early complication after lateral sphincterotomy (n=50)

Complication	Frequency	Percentage
Wound infection	3	6.0
Minor incontinence	4	8.0
Flatus	3	6.0
Liquid	1	2.0

Evaluation of incontinence at different follow up:

Evaluation of incontinence at different follow up was shown in table 9. At baseline no incontinence was present, at 2nd week incontinence of flatus was present in 6.0% and liquid in 2.0% of patients; at 4th week incontinence of flatus was present in 4.0% and liquid in 2.0% of patients; and at 6th week incontinence of flatus was present only in 4.0% of patients.

Table 9: Evaluation of incontinence at different follow up

Incontinence	Evaluation at			
	Baseline	2nd week	4th week	6 week
Flatus	0 (0.0)	3 (4.0)	2 (2.0)	2 (2.0)
Liquid	0 (0.0)	1 (2.0)	1 (2.0)	0 (0.0)
Solid	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)

Figure in the parenthesis indicate corresponding percentage.

Final outcome at the end of follow up period:

At the end of 6 weeks follow up period satisfactory outcome was found in 45 (90.0%) and unsatisfactory outcome was found in 10.0% of patients. Final outcome at the end of follow up period was shown in table 10.

Table 10: Final outcome at the end of follow up period (n=50)

Final outcome	Frequency	Percentage
Satisfactory	45	90.0
Unsatisfactory	5	10.0
Total	**50**	**100.0**

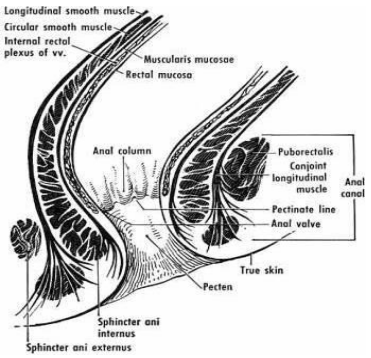

Figure 8: Anatomy of anal canal (section view)

Figure 9: Anal skin tag

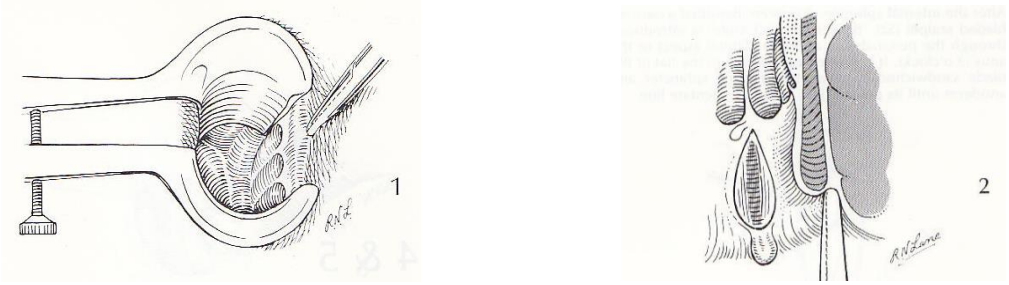

Figure 10: Closed lateral sphincter-rotomy

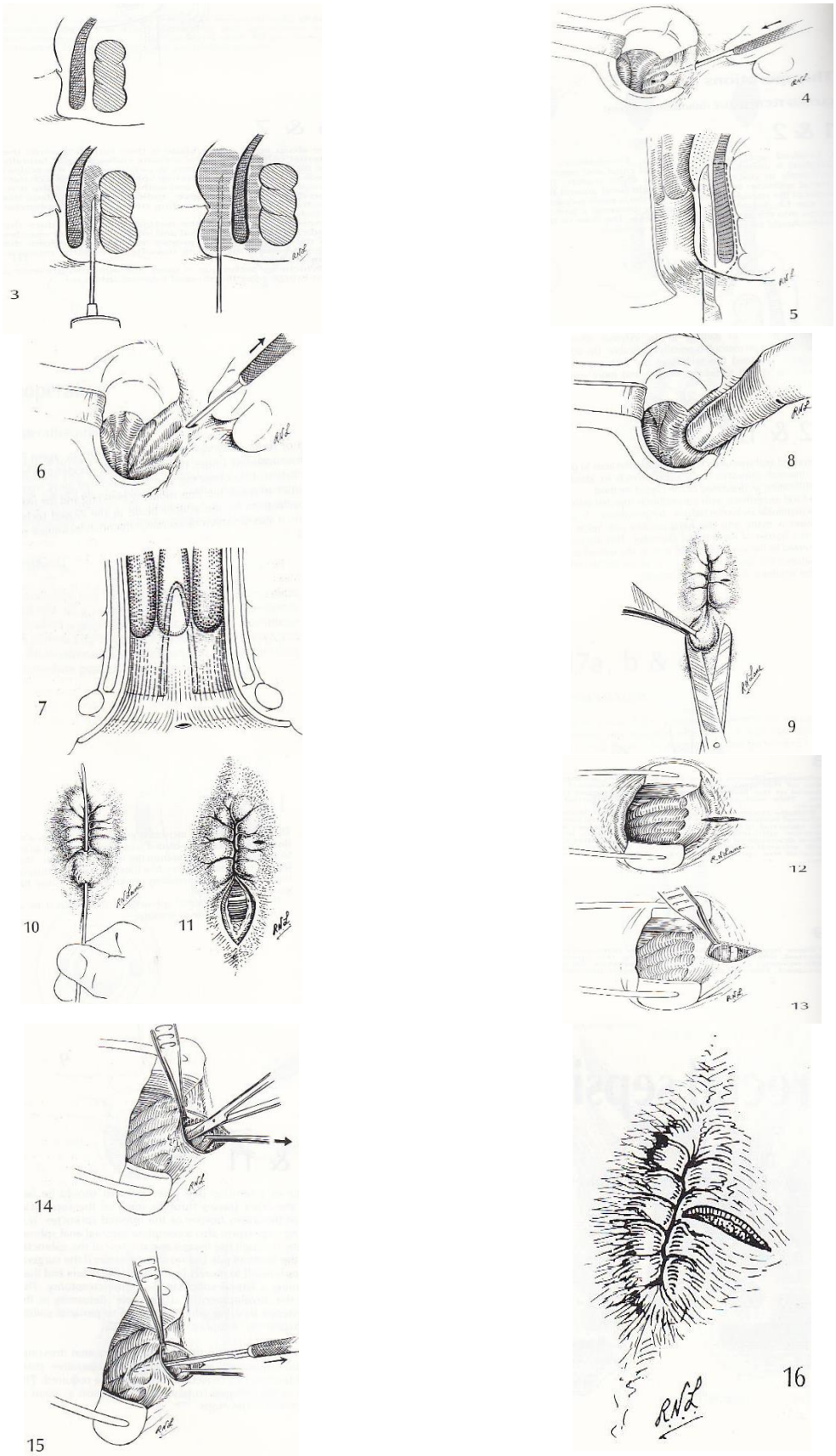

Figure 11: Open lateral sphincter-ostomy

DISCUSSION

This prospective cross-sectional study was conducted in the Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh during the period from September 2009 to June 2010 with a view to determine the outcome of lateral sphincterotomy in the treatment of chronic anal fissures. For this purpose, 50 patients of chronic anal fissures were enrolled in this study after inclusion and exclusion criteria. The outcome of the study was discussed below: In this study, the age of the respondents was ranging from 23 to 60 years with the mean age of 39.140 ± 8.767 years. The age of the male respondents was ranging from 23 to 60 years with the mean age of 38.692 ± 9.632 years and the age of the female respondents was ranging from 30 to 55 years with the mean age of 39.625 ± 7.901 years. The mean age of the male and female were almost identical (p=0.711). This result was supported Ram *et al.,* (2005) and Romero *et al.,* (2004). Ram *et al.,* (2005) [10,11] found that the age of the respondents was ranging from 25 to 60 years with the mean age of 40.4 ± 9.6 years among their patients with anal fissure and Romero *et al.,* (2004) [11] found the age of the respondents was ranging from 21 to 74 years with the mean age of 40.45 years. This result was also supported by El Tinay and Guraya (2005) [12] that the age of the male respondents was ranging from 14 to 70 years with the mean age of 41 years and the age of the female respondents was ranging from 14 to 67 years with the mean age of 40.2 years. But in this regard Mishra *et al.,* (2005) [13] found that the age of the respondents was ranging from 22.5 to 60 years with the mean age of 33 years which was little lower from the current study. In other study Liratzopoulos *et al.,* (2006) [14] the mean age 48.3 years and Ortiz *et al.,* (2006) [15] found the mean age of 44.9 ± 12.3 years. Both these studies the mean age of the patients was higher from the current study. It was also found in this study that 40.0% of the patients were in the age group of 31 to 40 years, 28.0% were in the age group of 41 to 50 years, 20.0% were in 21-30 years and 12.0% were in 51-60 years. This indicated that most of the middle-aged patients with anal fissure undergoing operative procedure in present study out of 50 respondents 26 (52.0%) patients were male and 24(48.0%) patients were female with the male to female ratio of 1.08:1. This result was correlated with the study of Ram *et al.,* (2005). Ram *et al.,* (2005) [10] 54.0% of their patients were male and 46.0% were female. Equal number of male and female was found in the study of Garcia *et al.,* (2003) [16] and Mishra *et al.,* (2005) [13]. Male preponderance was found in the study of Brisinda *et al.,* (2008) [17] (55.0%); Ortiz *et al.,* (2006) [15] (56.5%); Romero *et al.,* (2004) [11] (65.0%) and El Tinay and Guraya (2005) [12] (83.8%). But female preponderance was reported by Liratzopoulos *et al.,* (2006) [14] that 51.2% were women and 48.8% were men. Most of the respondents (84.0%) were Islam by religion and 8 (16.0%) patients were Hinduism by religion in the present study. In this study 22 (44.0%) patients were house wife, 14 (28.0%) were service holder, 9 (18.0%) were business man, 4 (8.0%) were farmer and 1 (2.0%) were student. Most of the patients were married (92%) and rest of the patients was unmarried (8.0%). Maximum 35 (70.0%) were from middle class of socio-economic status, 8 (18.0%) were from lower class of socio-economic status and 6 (12.0%) were from upper class of socio-economic status. The duration of symptoms of the respondents was ranging from 1 to 13 years with the mean 5.920 ± 3.875 years. The duration of symptoms of the male respondents was ranging from 2 to 13 years with the mean 6.200 ± 3.651 years and the duration of symptoms of the female respondents was ranging from 1 to 13 years with the mean 5.583 ± 4.221 years. The duration of symptoms of the male and female were almost similar (p=0.560). In this regard Romero *et al.,* (2004) [11] found that the duration of symptoms of the respondents was ranging from 1 to 70 months with the mean 17.6 months. This was much lower than the present study. This may be due to conservative nature of the people of our country and avoid exposure of the private part to their physician. In the current study, all patients were presented with anal pain, 90.0% patients were presented with bleeding, constipation was present in 74.0% of patients and Skin tag was present in 64.0% of patients. In this regards Romero *et al.,* 2004 [11] found that the clinical presentation of the patients with anal fissure were anal pain in 90.0%, bleeding in 85.0%, constipation in 74.0% skin tag in 70.0% and pruritus in 50.0% of patients with anal fissure. Brisinda *et al.,* (2008) [17] found that 100.0% of their patients were presented with anal pain and 64.0% had constipation. Liratzopoulos *et al.,* (2006) [14] also found that all patients had episodic pain, while pain was connected with bleeding 65.04% of patients. Regarding position of the anal fissure the present study showed that the most common position of anal fissure was posterior mid line in 64.0% of patients, followed by anterior mid line in 26.0% of patients; and both anterior and posterior mid line was in 10.0% of patients. This result was supported by Romareo *et al.,* (2004) [11] and Garcia *et al.,* (2003) [16]. Garcia *et al.,* (2003) [16] found that position of the anal fissure in posterior location in 65.0%, anterior location in 25.0% and both anterior and posterior location in 10.0% of their patients. Romareo *et al.,* (2004) [11] found that position of the anal fissure in posterior location in 70.0%, anterior location in 22.5% and both anterior and posterior location in 7.5% of their patients. Hospital stay of the respondents was ranging from 1 to 4 days with the mean 1.600 ± 0.808 days. Hospital stay of the male respondents was ranging from 1 to 3 days with the mean 1.557 ± 0.758 day and Hospital stay of the female respondents was ranging from 1 to 4 days with the mean 1.625 ± 0.875 days. Hospital stay of the male and female respondents did not differ statistically significant (p=0.836). In this study the mean pain score was 5.32 at baseline which decreased sharply to 1.7 at 2 weeks then gradually decreases to 0.58 and 0.04 at 4th and 6 weeks respectively. The decreased pain score was statistically significant (p<0.001). This study also showed that pain was relief 46.0% of patients at 2nd week after lateral

sphincterotomy, 66.0% at 4th week and 96.0% of patients at 6th week. This result was supported by Mishra *et al.,* (2005) [13] that pain was relief in 70.0% of patients at 2nd week after lateral sphincterotomy, 90.0% at 4th week and 90.0% of patients at 6th week. At 2nd week complete healing was occurred in 76.0% of patients, at 4th week complete healing was occurred in 86.0% of patients and at 6th week complete healing was occurred in 90.0% of patients in the current study. This result was supported by Liratzopoulos *et al.,* (2006) [14] that 92.6% anal fissure was healed after 6 weeks of lateral sphincterotomy. Garcia *et al.,* (2003) [16] found 97.0% fissure healed after lateral sphincterotomy. Some other study report showed that the lateral internal sphincterotomy was the most commonly used operative technique, which was highly efficient and succeeds in curing the fissure in 90 to100% of patients (Nelson 2003, [18] Wiley *et al.,* 2004; [19] Hyman 2004; [20] Tocchi *et al.,* 2004) [21]. In the postoperative period superficial wound infection was developed in 3 (6.0%) patients and newly developed minor incontinence in 4 (8.0%) patients. Of the minor incontinence, 3 (6.0%) developed incontinence of flatus and another 1 (2.0%) developed incontinence of liquid. Wound infection was treated by dressing and appropriate antibiotics. In this regard Argov *et al.,* (2000) [22] found that among their 2340 patients underwent lateral sphincterotomy 1.5% developed incontinence to flatus and liquid and 1.0% wound infection. In the present study no incontinence was present in any patients at baseline, incontinence of flatus was found in 6.0% and liquid in 2.0% of patients at 2nd week; incontinence of flatus was found in 4.0% and liquid in 2.0% of patients at 4th week; and incontinence of flatus was found only 4.0% of patients at 6th week. In this regard Liratzopoulos *et al.,* (2006) [14] found that incidence of new incontinence after 48 weeks of follow-up was 7.02%. At the end of 6 weeks follow up period in this study, satisfactory outcome was found in 45 (90.0%) and unsatisfactory outcome was found in 10.0% of patients. This result was supported by Neufeld *et al.,* (1995) [23] that good to excellent satisfaction was found in 90.0% of their series. Garcia *et al.,* (2003) [16] found that the overall satisfaction after lateral sphincterotomy was very high at 90.0%. Usatoff *et al.,* (1995) [24] reported that 70.0% were highly satisfied and 27.0% were moderately satisfied and 3.0% failed following lateral sphincterotomy of anal fisture.

CONCLUSION

This prospective cross-sectional study was conducted in the Department of Surgery, Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh during the period from September 2009 to June 2010 with a view to determine the outcome of lateral sphincterotomy in the treatment of chronic anal fissures. For this purpose, 50 patients of chronic anal fissures were enrolled in this study after inclusion and exclusion criteria. The age of the respondents was ranging from 23 to 60 years with the mean age of 39.140 ± 8.767 years. Fifty-two percent patients were male and 48.0% were female with the male to female ratio of 1.08:1. The duration of symptoms of the respondents was ranging from 1 to 13 years with the mean 5.920 ± 3.875 years. The mean pain score was decreased from 5.32 at baseline to 0.04 at 6 weeks ($p<0.001$), and 96.0% of patients were pain free at 6 weeks of follow up. Superficial wound infection was developed in 6.0% of patients and minor incontinence (flatus and liquid) in 8.0% of patients but at the end of 6th week minor incontinence (flatus only) persist only in 4%. Complete healing and satisfactory outcome was occurred in 90.0% of patients. In conclusion, Lateral sphincterotomy is a standard surgical treatment for chronic anal fissure with high success rate and patients' satisfaction with low postoperative complication.

Limitation of study

This study was not without a limitation and followings were the limitation of this study: This study was conducted in tertiary hospital and did not represent the actual situation of the country.

Sample size in this study was small and may not give the actual conclusion.

Follow up period in this study was only 6 weeks.

Recommendation

Considering the finding of the study the following recommendations are made:

- A longitudinal study using large sample size should be conducted to find out the magnitude of the anal fissure.
- A prospective study involving multicenter, large sample size and at least one year follow up should be conducted to evaluate long term efficacy of lateral sphincterotomy in chronic anal fissure.

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