

The Difference between Conventional Lateral Internal Sphincterotomy vs One Step Controlled Sphincterotomy as a Treatment for Chronic Anal Fissure

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ABSTRACT

Objective: In this study our main goal is to evaluate the difference between conventional lateral internal sphincterotomy vs one step controlled sphincterotomy as a treatment for chronic anal fissure.

Method: This quasi experimental study was carried out at different Private Hospital, in Dhaka City from November 2008 to October 2010 where 85 patients were included in this study. Grouping was done non randomly. Informed consent was obtained from all patients after explanation of the nature of anal fissure and possible treatment.

Result: During the study, bleeding per rectum was found in 35 (77.8%) in Group A (conventional group) and 30 (75.0%) in Group B (one step controlled group). In Group A (conventional group) pain was relived in mean 5.0(SD 3.8) (range 2-14) days and in Group B (one step controlled group) pain was relived in mean 1.9(SD 1.2) (range 1-7) days. Which was statistically significant ($p < 0.05$).

Conclusion: From our results; we can conclude that, one step

controlled lateral internal sphincterotomy is comparatively better than conventional technique which serves much more convenient treatment for chronic anal fissure. Further study is needed for better outcome.

Keywords: Internal Sphincterotomy, Anal Fissure, Chronic.


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INTRODUCTION

Acute fissure is an acute traumatic lesion due to passage of a large and hard bolus of stool and as such frequently heal with conservative treatment without residual effect. On the other hand it becomes chronic if it does not heal with conservative treatment or is neglected. Repeated trauma leads to persistence of the wound which subsequently produces chronic inflammation. The resultant pain induces spasm of the anal canal which further reduces the capacity and compliance of anal canal, subjecting the chronic wound to become more susceptible to trauma. As chronic inflammation proceeds, fibrosis take over further compromising the capacity and compliance. Lateral Internal sphincterotomy remains the mainstay treatment for chronic anal fissure. It lowers the pressure exerted by the internal anal sphincter, restores normal perfusion of the anoderm and leads to rapid relief of pain and healing of the fissure. However, some authors have reported that 5%-30% or more of the patients experience varying degrees of incontinence after lateral internal sphincterotomy.^{1,2}

The major weak point of Lateral Internal sphincterotomy is the lack of evidence based guideline to determine the extent of sphincterotomy needed for a given patient. Extent of sphincterotomy directly influences the subsequent outcome in terms of healing (or non-healing) and incontinence rate. Controlled sphincterotomy in step procedure according to the degree of anal stenosis (measured by anal calibrators) has been found to decrease the risk of incontinence. In this procedure 2% patient develop anal incontinence.^{3,4} The number of patients facing such problem following conventional lateral internal sphincterotomy is high in Bangladesh. No such study has been undertaken till now to compare the outcome of conventional lateral internal sphincterotomy with an alternate surgical procedure like one step controlled sphincterotomy as a treatment for chronic anal fissure. In this study our main objective is to evaluate the difference between conventional lateral internal sphincterotomy vs one step controlled sphincterotomy as a treatment for chronic anal fissure.

OBJECTIVE

General Objective

- To assess the difference between conventional lateral internal sphincterotomy vs one step controlled sphincterotomy as a treatment for chronic anal fissure.

Specific Objective

- To identify duration of relief of pain (days)
- To detect the complication

METHODOLOGY

Type of Study

Quasi-experimental study

Place of Study

Different Private Hospitals, Dhaka City.

Study Period

November 2008 to October 2010

Study Population

85 Patients with chronic anal fissure admitted in the Department of Surgery, BSMMU according to inclusion and exclusion criteria was included in the study.

Sampling Technique

Purposive

Inclusion Criteria

- Age-18 to 80 years.
- Gender- Both male and female.
- Patient having painful defecation and difficulty in passing stools with or without bleeding per rectum for more than 6 weeks with failure of established medical treatment.

Exclusion Criteria

- Patients aged below 18 years and more than 80 years.
- Patients with a history of fecal incontinence or other anorectal disease (such as Abscess, Haemorrhoid, Fistula etc)
- Patient who underwent any other anorectal procedure at the time of internal sphincterotomy.
- Fissure present in other site rather than midline.
- Anal dilatation under 25 mm or above 31 mm were excluded.

Sample Size

85 cases were included in this study.

Sample Size Determination

Single proportion $n = \text{Proportion}$

$n_0 = \text{Null hypothesis value } u, v \text{ " as bellow}$

Sample size =

$(n - it J^1$

$u = \text{One-sided percentage point of the normal distribution corresponding to } 100\% \text{ the power, e.g. if power } 80\%, u = 0.842$

$v = \text{Percentage point of the normal distribution corresponding to the (two-sided) significance level}$

e.g. if significance level = 5%, $v = 1.96$

Here,

$7T = 0.05 \quad 7l_0 = 0.01$

Sample size = $89.55 \ll 90$.

Outcome Variable

- Duration of pain relief by pain score by visual analogue scale.
- Complication of treatment -Headache, Hematoma, Hypotension and Incontinence

Method

All patients with chronic anal fissure admitted into Surgery Department of DSMMU according to inclusion and exclusion criteria were enrolled in this study. A total of 90 cases were selected in this study. Out of which 45 patients underwent conventional sphincterotomy was considered as group A and 40 patients underwent sphincterotomy up to the fissure apex was considered as group B. 5 patients were excluded from the Group B due to anal dilatation was under 25 mm and above 35 mm.

Finally 85 patients were included in this study. Grouping was done non randomly. Informed consent was obtained from all patients after explanation of the nature of anal fissure and possible treatment. In conventional lateral internal sphincterotomy group patient was placed in lithotomy position after giving Sub Arachnoid Block (SAB). A circumanal incision was made just distal to the intersphincteric groove on the left lateral aspect of the anus after inserting an Eisenhammer speculum. The endoderm was lifted from the underlying internal sphincter and the intersphinctric plane was developed. The full thickness of the internal sphincter was divided from its lower to the level of the dentate line.

In one step controlled lateral internal sphincterotomy group patient was placed in lithotomy position after giving SAB. Then anal stenosis was evaluated in unstressed condition using conical calibrator scaled in 1 mm diameter increments. There were three different sizes of anal calibrator: 5 to 15 mm, 16 to 30 mm and 27 to 43 mm.

Data collected both from primary & secondary survey by both qualitative & quantitative method and recorded methodically in the data collection sheet designed for the study. Data was collected by researcher himself and by a qualified doctor nominated by the researcher who was blind to the hypothesis.

Statistical Analysis

Qualitative data are summarized by ratio and percentage. Qualitative data are summarized by mean and standard deviation (SD). Chi square (X^2) and Unpaired t-test were used to assess the significance of Quantitative data respectively.

Table 1: Age distributions of the patients

Group	Group A %	Group B %
<20	0%	7.5%
20-30	26.67%	30%
31-40	37.78%	33.34%
41-50	24.45%	17.5%
51-60	8.89%	5%
>60	2.21%	6.66%

Table 2: Distributions of patients according to symptom

Symptoms	Group A	Group B
	(Conventional) (n=45)	(One step controlled) (n=40)
	n (%)	n (%)
Painful defecation	45 (100)	40 (100)
Bleeding per rectum	35 (77.8)	30 (75.0)
Difficulty in passing stools	45 (100)	40 (100)
Perianal itching/stinging sensation	45 (100)	40 (100)
Serous discharge per rectum	0 (0.0)	0 (0.0)
Fecal soiling	0 (0.0)	0 (0.0)

Table 3: Distributions of patients according to duration of relief of pain (days) in both groups following sphincterotomy

Symptoms relief (days)	Group A	Group B P
	(Conventional) (n=45)	(One step controlled) value (n=40)
Pain	Mean 5.0(SD 3.8)	Mean 1.9(SD 1.2) 0.001 ^s

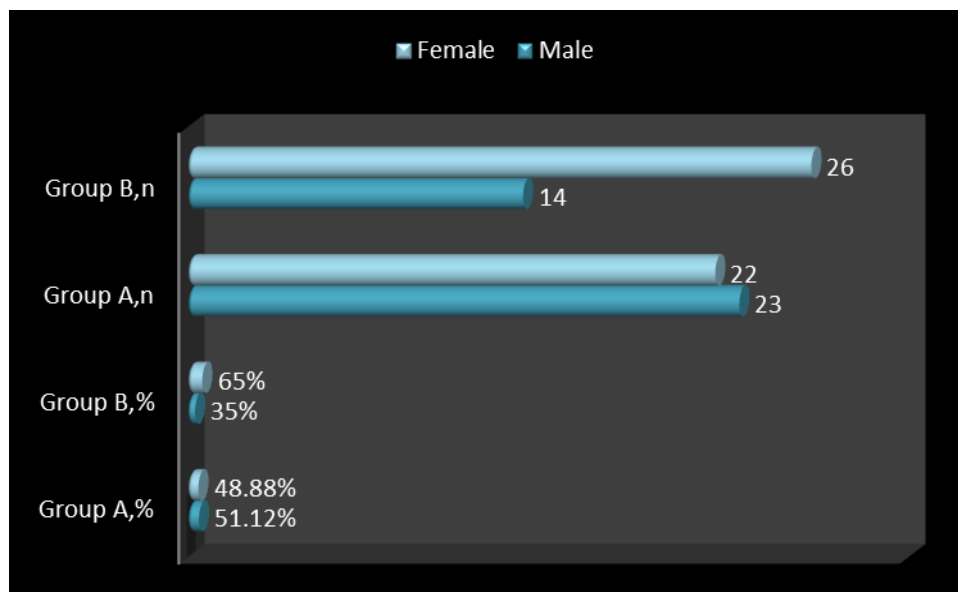


Figure 1: Gender distributions of the patients.

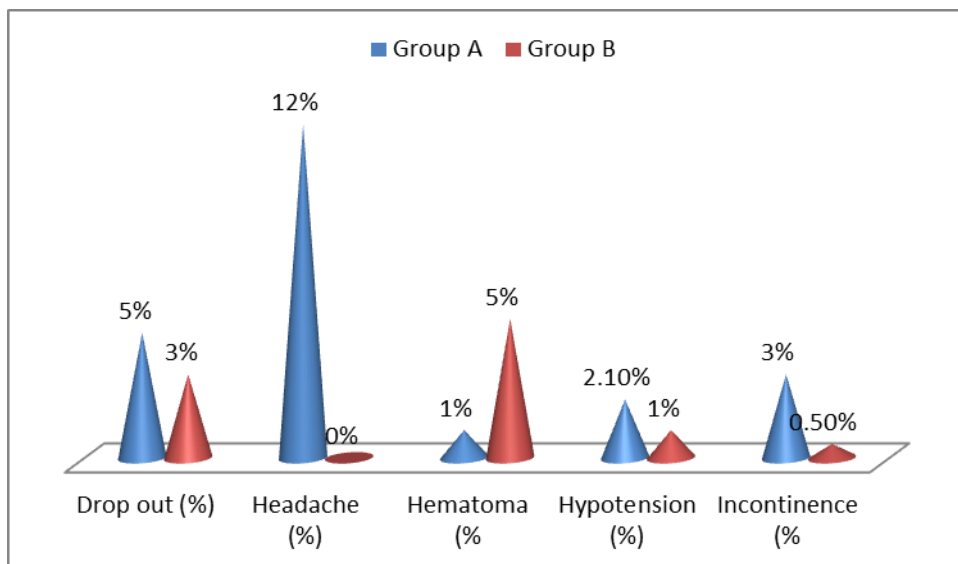


Figure 2: Complications of the treatment in both group

RESULTS

In table-1 shows age distributions of the patients where most of the patients belong to 31-40 years age group for both Group A (37.78%) and group B (33.34%).

In figure-1 shows gender distributions of the patients where This study patient was divided into male and female groups. In Group A (conventional group) 23 were male and 22 were female. In Group B (one step controlled group) 14 and 26 were male and female respectively. Male female ratio was almost 1:1.3 in the whole study patients.

In table-2 shows distributions of patients according to symptom where it was observed that painful defecation, difficulty in passing stools and perianal itching were present in all study patients (100%) in both groups. Bleeding per rectum was found in 35 (77.8%) in Group A (conventional group) and 30 (75.0%) in Group B (one step controlled group).

In table-3 shows distributions of patients according to duration of relief of pain (days) in both groups following sphincterotomy where In Group A (conventional group) pain was relived in mean 5.0(SD 3.8) (range 2-14) days and in Group B (one step controlled group) pain was relived in mean 1.9(SD 1.2) (range 1-7) days. Which was statistically significant ($p < 0.05$).

In figure-2 shows complications of the treatment in both group where 12% patients had headache in group A and where as in group B no patients had headache after treatment, 1% of patients had hematoma in group A whereas in group B 5% of patients had hematoma after treatment. In group A 2.10 % patients had Hypotension and 3% patients had incontinence before treatment whereas 1% of patients had hypotension and .50% patients had incontinence after treatment.

DISCUSSION

One study mentioned that chronic anal fissure presents a common anorectal disease affecting all ages with approximately equal incidence in both gender.⁶

In another study, demonstrated that chronic anal fissures often associated with anatomic anal stenosis resulting from a fibrotic internal sphincter, in conjunction with functional anal stenosis caused by internal sphincter spasm.⁷

Another report showed excellent results with LIS, recurrence or failed healing in range of 1.1 to 3 % and subsequent incontinence in range of 1 to 8 %. However, another have reported a significant incidence of fecal incontinence, where the authors reported 37.8% after LIS complicating with some changes of anal continence.⁷

One report mentioned that the incontinence following LIS may be due to a wide sphincteric division; perhaps more than the surgeon had intended. In addition the investigators obtained that several factors may contribute to wide variation in incontinence risk, including patients' selection, follow up length, definition of incontinence and surgical technique.⁷

One study showed that the extent of the division of internal sphincter may be the main factor.

All patients presented with painful defecation, difficulty in passing stools and perianal itching in both groups. Similarly, one report showed all patients had history of painful defecation, thus support the present study.⁷

In this study it was observed that duration of pain relived was significantly earlier in Group B (one step controlled group), which

was mean 5.0(SD 3.8) (range 2-14) days in Group A (conventional group) and mean 1.9(SD 1.2) (range 1-7) days in Group B (one step controlled group), which may be due to spasm released earlier. One report have showed duration of pain relived was significantly earlier in conventional group, which is reverse with the current study; this may be due to undefined cause.⁷

LIMITATIONS

- Short duration of study period as well as small sample size and the study was done in one tertiary level hospital.
- Non random sampling.

CONCLUSION

After many examination we can conclude that, one step controlled lateral internal sphincterotomy is comparatively better than conventional technique which serves much more convenient treatment for chronic anal fissure.

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