



Progress of Wound Healing between One Steps Controlled Lateral Sphincterotomy and Conventional Sphincterotomy

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Abstract

Background: Anal fissure is one of the most common anorectal conditions encountered in clinical practice.

Objective: In this study our main objective is to evaluate the effectiveness of one step controlled lateral sphincterotomy and conventional sphincterotomy in decreasing the wound healing.

Method: This quasi experimental study was carried out at different Private Hospital, Dhaka City from June 2016 to June 2018 where 100 patients were included in this study. Informed consent was obtained from all patients after explanation of the nature of anal fissure and possible treatment.

Results: During the study, overall summary of infection rate during 1st and 2nd follow up was a little bit shorter in group B than Group A. Wound was healed in Group A (conventional group) was mean 2.1 (SD 0.9) (range 1-4) weeks and in Group B (one step controlled group) was mean 1.6 (SD 0.6) (range 1-3) weeks. Which was statistically significant ($p < 0.05$).

Conclusion: From our result we can say that, that one step controlled sphincterotomy provided better healing with lower rate of early and late postoperative disturbance of continence compared with conventional sphincterotomy.

Keywords: One step controlled lateral internal sphincterotomy, Anal fissure, Chronic.

Introduction

Recently lateral internal sphincterotomy remains the main-stay treatment for chronic anal fissure. Though, some article have reported that 30 percent or more of the patients experience varying grades of incontinence after lateral internal sphincterotomy.

Even though not everyone would agree with an occurrence of incontinence as high as this, which troubled continence after lateral internal sphincterotomy, no matter how minor, is a concern. The danger of incontinence has produced an interest in pharmacologic methods, such as chemical sphincterotomy with topical glyceryl

trinitrate and botulinum toxin injection into the internal anal sphincter, which are far less effective and may be poorly accepted.^{[1][2]}

To overcome the risk of incontinence with lateral internal sphincterotomy, surgeons have tried a more narrow division of the internal sphincter. Tailored lateral sphincterotomy can be used for treatment of this disease which divided the internal sphincter to the proximal level of the fissure during the process, pointedly reduced the incontinence rates. Though, concerns have been elevated about fissure persistence or recurrence in patients with anal stenosis.^{[3][4]}

“Controlled” lateral sphincterotomy is another adjustment which minimizes the current situation. The extent of the sphincter division is controlled according to the degree of anal stenosis.

In this study, our main objective is to evaluate the effectiveness of one step controlled lateral sphincterotomy and conventional sphincterotomy in decreasing the wound healing.

Objective

General Objective

- To assess the effectiveness of one step controlled lateral sphincterotomy and conventional sphincterotomy in decreasing the wound healing.

Specific Objective

- To analyze summary of infection during first and second follow-up visits
- To detect duration of hospital stay and operative times of patients

Methodology

Type of study	Quasi-experimental study.
Place of study	Different Private Hospital in Dhaka City
Study period	June 2016 to June 2018
Study population	100 Patients with chronic anal fissure admitted in different private hospital in Dhaka city 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: 100 cases were included in this study.

Method: All patients with chronic anal fissure admitted into Surgery Department at different private hospital in Dhaka City according to inclusion and exclusion criteria were enrolled in this study. Out 100 patients 50 patients underwent conventional sphincterotomy was considered as group A and 50 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.

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 intersphincteric 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 (X²) and Unpaired t-test were used to assess the significance of Quantitative data respectively

Results

In figure-1 shows gender distributions of the patients where in Group A (conventional group) (56%) were male and (43%) were female. In Group B (one step controlled group) (40%) and (60%) were male and female respectively. The following figure is given below in detail:

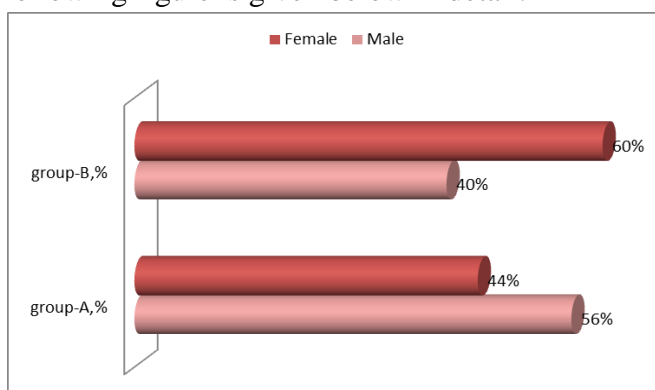


Figure-1: Age distribution of the patients

In table-1 shows demographic characteristics of the patients wherein group A and group B, most of the patients belongs to 31-40 years age group, 39% and 35%. Also, most of the patients were

graduate from both group. The following table is given below in detail:

Table-1: Demographic characteristics of the patients

Variable	Group A (conventional group)	Group B (one step controlled group)
Age Group		
<20	1%	8%
20-30	25%	32%
31-40	39%	35%
41-50	23%	15%
51-60	6%	7%
>60	4%	3%
Weight	68±9.0	65±9.1
Height	172±6.0	174±5.0
Educational Status		
Illiterate	6%	1%
Primary	12%	19%
Secondary	23%	21%
Graduate	59%	60%
Working status:		
Service holder	32%	28%
Business Man	15%	11%
House wife	27%	25%
Others	26%	36%

In figure-2 shows Summary of infection during first and second follow- up visits where overall summary of infection rate during 1st and 2nd follow up was a little bit shorter in group B than Group A. the following figure is given below in detail

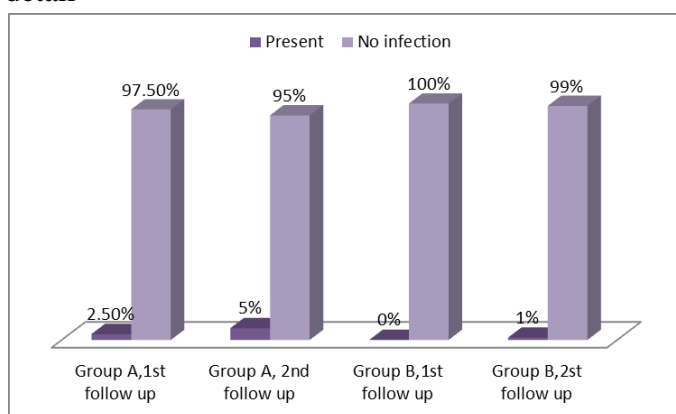


Figure-2: Summary of infection during first and second follow- up visits

In table-2 shows the duration of wound healing (weeks) in both groups following sphincterotomy where wound was healed in Group A (conventional group) was mean 2.1 (SD 0.9) (range 1-4) weeks and in Group B (one step

controlled group) was mean 1.6(SD 0.6) (range 1-3) weeks. Which was statistically significant ($p<0.05$). The following table is given below in detail:

Table-2: The duration of wound healing (weeks) in both groups following sphincterotomy

Variables	Group A (Conventional) (n=45)	Group B P value (One step controlled) (n=40)
Wound healing	Mean 2.1 (SD 0.9)	Mean 1.6(SD 0.6) 0.003 ^s

In table-3 shows overall hospital stay and operative times of patients treated with both method where overall mean hospital stay rate was a little bit shorter in group B than Group A. the following table is given below in detail:

Table-3: Overall hospital stay and operative times of patients treated with both method

Variable	Group A	Group B
Mean Hospital Stay (days)	24.7±13	21±14
Mean operative time (min)	15±2.1	11.5±0.5

Discussion

In this study, in Group A (conventional group) (56%) were male and (43%) were female. In Group B (one step controlled group) (40%) and (60%) were male and female respectively. Also, we found that where in group A and group B, most of the patients belongs to 31-40 years age group, 39% and 35%. This is similar to many other studies.^{[4][5]}

During the study, we also noted that, the duration of wound healing (weeks) in both groups following sphincterotomy where wound was healed in Group A (conventional group) was mean 2.1 (SD 0.9) (range 1-4) weeks and in Group B (one step controlled group) was mean 1.6(SD 0.6) (range 1-3) weeks. Which was statistically significant ($p<0.05$). Which is supported by one study.^[6]

Numerous factors may contribute to the wide variation in the incontinence risk and wound healing including patient selection, follow-up length, meaning of incontinence, and surgical method. The extent of the division of the in-ternal sphincter may be the main causative factor.

In one study compared the results of controlled lateral internal sphincterotomy by using anal calibrators with those of sphincterotomy up to the fissure apex in a randomized, prospective fashion. In the fissure apex group, sphincterotomy was extended to the level of the fissure apex, and in the spasm-controlled group, serial small sphincterotomies and anal caliber measurements followed until an anal caliber of 30 mm was obtained. The pre-operative anal caliber was 24+1.9 (range, 20-28) mm and 24.9±2.44 (range, 19-28) mm in the spasm- controlled and fissure apex groups respectively ($p=0.127$).

Postoperatively, the spasm-controlled group had a mean anal caliber of 31.5±2.33 (range, 30-32) mm, and the fissure apex group had 32.5±2.33 (range, 25-37) mm ($p=0.035$).^[7]

In the fissure apex group, a significant negative correlation was determined between the postoperative anal caliber and time of relief of pain ($r=-0.568$, $p=0.001$). The early (7 and 28 days) postoperative anal incontinence scores were significantly higher in the fissure apex group ($p=0.002$, $p<0.0001$, respectively). A significant positive correlation between the anal caliber measurements and anal incontinence scores at 28 days and 2 months also was noted in the fissure apex group ($r=0.406$, $p=0.023$; and $r=0.364$, $p=0.044$). Controlled sphincterotomy provided a faster relief of pain and it was associated with a lower rate of early postoperative disturbance of continence and an insignificantly lower rate of treatment failure compared with sphincterotomy up to the fissure apex.

Another report compared the results of spasm controlled lateral sphincterotomy by using anal calibrator with those of conventional sphincterotomy. A total of 100 patients with chronic anal fissure enrolled in their study and divided into two groups. In conventional sphincterotomy sphincter was divided at first to the apex of fissure then serial small sphincterotomies and anal caliber measurements followed up until an anal caliber of 30 mm was obtained. The preoperative anal caliber was

26±2.9 (19-26) mm and 26±2.7 (18 to 28) mm in conventional group and spasm controlled group respectively. Postoperatively the spasm controlled group had a mean anal caliber 32.8±2.4 and in conventional group had 34.7±2.4.^[8]

Delayed healings was occurred in 12.5% of patients in conventional group and 4.2% in spasm controlled group (p=0.06). Incontinence to flatus occurred in 4.2% of patients in spasm controlled and 16.7% in conventional group (p=0.05). Relief of pain postoperatively was after 2.1±2.6 days in conventional group and in controlled sphincterotomy group after 3.7±3.5 days (p=0.09).

Conclusion

After many examination and analysis we can conclude that, that one step controlled sphincterotomy provided better healing with lower rate of early and late postoperative disturbance of continence compared with conventional sphincterotomy.

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