Original Article

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Surgery Section

Surgical Outcome and Complications of Lateral Internal Sphincterotomy in Chronic Anal Fissure- A Cross-sectional Study

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ABSTRACT

Introduction: Despite the advent of new methods in the conservative treatment of Chronic Anal Fissure (CAF), such as nitric oxide donors, they often require surgical treatment. The gold standard surgical option for the CAF is Lateral Internal Sphincterotomy (LIS). This procedure usually involves dividing the Internal Anal Sphincter (IAS) from the distal end to the fissure or dentate line (whichever comes first).

Aim: To evaluate the surgical outcome and complications of LIS in CAF.

Materials and Methods: This cross-sectional descriptive study was conducted on 60 patients with CAFs who underwent LIS in Imam Reza Hospital, Tabriz, Iran. The study was approved by the Ethical Committee of Tabriz University of Medical Sciences and was done from February 2017 to March 2019. The following data were recorded: age, sex, history of constipation, constipation duration, history of prolonged diarrhoea, child birth history, type of delivery, history of receiving pharmacological treatment for fissure, history of past fissure surgery, postoperative pain, postoperative complications and recurrence rates. The results were analysed using statistical methods (mean±Standard Deviation (SD)) for quantitative variables and frequencies and percentages for categorical variables.

Results: The mean age of the patients was 36.6±12 years (18-70 years). During surgery, haemorrhoids, anal polyps, perianal fistulas, and anal masses were observed in 27 (45%), 7 (11.66%), 1 (1.6%), and 1 (1.6%) patients, respectively. After surgery, the patients' symptoms decreased. Anal pain, bleeding and constipation decreased in 52 (86.67%), 50 (88.33%) and 43 (71.67%) patients respectively. Urinary retention, anal itching, and flatus incontinence were observed in 3 (5%), 1 (1.67%), and 9 (15%) patients, respectively. None of the patients had faecal incontinence and none had a recurrence. Complete healing was observed in all patients.

Conclusion: The LIS is an effective and safe option in the surgical treatment of patients with anal fissure.

Keywords: Fissure in ano, Haemorrhoids, Quality of life, Recurrence

INTRODUCTION

Anal fissure is a known cause of acute and chronic anal pain. It is described as a superficial linear tear in the anoderm distal to the dentate line that is mostly caused by the passage of hard faecal matter [1] but also by acute diarrhoea, pregnancy, and other medical conditions [2]. It is a common complication that occurs in coloproctology clinics. The annual incidence is estimated to be 1.1 per 1000 person/years, with the peak incidence in females during adolescence and adulthood and in middle-aged men [3].

The aetiology of a regular or benign cleft is unclear, and there are no accepted methods to prevent fissures. The most resolute finding in typical fissures is the hypertonic internal sphincter, which is so severe that the pain is thought to be caused by an ischaemia fissure [4]. More than half of patients with CAF recover with conservative medical treatment, including bowel adjustment and topical treatment with muscle relaxant creams [5,6], with less than 10% recovery without treatment and is aimed at reducing anal spasm and thus improving blood flow [7,8].

Many studies combined anal dilatation with Lateral Sphincterotomy (LS), but studies on LS for CAF management are scarce [9]. Among these techniques anal dilation is the most common LS procedure that has been recently added for IAS [10]. Brady performed the first internal sphincterotomy to treat CAF in 1835 and it became popular after the Eisenhammer report in 1951 [11]. The gold standard surgical option for CAF is LIS. This procedure usually involves dividing the IAS from the distal end to the fissure or dentate line (whichever comes first). Common complications of LIS include recurrence upto 6% and incontinence or flatus or faecal incontinence (usually transient) in up to 17% of patients [5]. A study reported that although incontinence is the most common complication but it is transient [12]. This study aimed to evaluate the surgical results and complications of LIS in CAF.

MATERIALS AND METHODS

This cross-sectional study included 60 patients that underwent LIS during three years February 2017 to March 2019. The study was approved by the Ethical Committee of Tabriz University of Medical Sciences (letter number:54/29649). All procedures, performed were in accordance with the 1964 Helsinki Declaration [13] and its later amendments. Informed consent was obtained from all individual participants included in the study.

Inclusion criteria: Patients with CAF with no age or sex limitations were included in the study.

Exclusion criteria: Patients with a history of anal surgery were excluded from the study.

The following data were recorded: age, sex, history of constipation, constipation duration, history of prolonged diarrhoea, child birth history (in females), type of delivery, history of receiving pharmacological treatment for fissure, history of fissure surgery, postoperative pain, Visual Analog Scale (VAS) scores, postoperative complications (infection, faecal incontinence, anal itching, bleeding, urinary retention, etc.,) and recurrence rates.

STATISTICAL ANALYSIS

Statistical analysis were performed using Statistical Package for the Social Sciences (SPSS) 16.0 for Windows. Evaluation of the data included descriptive statistical methods (i.e., mean, SD).

RESULTS

Sixty patients with CAFs underwent LIS of which 39 patients were female and 21 were male. The mean age of the patients was 36.6±12 years (range=18-70 years). All of the patients had a history

of constipation. None of them had a history of prolonged diarrhoea. Twenty-five female patients (64.1%) had history of child birth. All of the patients had a history of receiving pharmacological treatment for fissure. The mean follow-up time was 17 months (range=10-27 months) [Table/Fig-1].

The difference between the pre and postoperative complains is shown in [Table/Fig-2].

Demographic parameters		n (%)
Age (mean±SD) (years)		36.6±12
Gender	Male	21 (35)
	Female	39 (65)
History of constipation		60 (100)
History of prolonged diarrhoea		0
History of childbirth (39)		25 (64.1)
Type of delivery (25)	Normal vaginal delivery	20 (80)
	Caesarean section	5 (20)
History of receiving pharmacological treatment		60 (100)
History of fissure surgery		8 (13.3)
Follow-up (months) (range)		17 (10-27)

[Table/Fig-1]: Demographic data of the patients.

Complaints	Preoperative n (%)	Postoperative n (%)
Anal pain	60 (100)	8 (13.33)
Bleeding	58 (96.67)	5 (8.33)
Constipation	60 (100)	17 (28.33)

[Table/Fig-2]: The pre and postoperative complaints.

Anal pain, bleeding, and constipation decreased in 52 (86.67%), 53 (88.33%) and 43 (71.67%) patients respectively. The percentage of postoperative complications is shown in [Table/Fig-3]. Urinary retention, anal itching, and flatus incontinence were observed none of the patients had faecal incontinence and recurrence [Table/Fig-3]. The most common anorectal co-morbidity was haemorrhoids, seen in 27 (45%) patients [Table/Fig-4].

Postoperative complications	n (%)
Flatus incontinence	9 (15)
Anal itching	1 (1.67)
Recurrence	0
Urinary retention	3 (5)
Faecal incontinence	0

[Table/Fig-3]: Postoperative complications.

Anorectal comorbidities	n (%)
Haemorrhoids	27 (45)
Anal polyps	7 (11.66)
Perianal fistulas	1 (1.6)
Anal masses	1 (1.6)

[Table/Fig-4]: Anorectal co-morbidities.

Two years of follow-up was done after surgery which showed urinary retention, anal itching and flatus incontinence in patients with these complications were eliminated. Anal itching and flatus incontinence were temporary and eliminated one month after surgery and patients with urinary retention were treated with catheterisation and alpha-adrenergic blocking agents. Complete healing was observed in all patients.

DISCUSSION

In this study, the therapeutic effects and complications of LIS were investigated. There were minor postoperative complications that underwent self-resolution. None of the patients had faecal incontinence. Complete healing was observed among all the patients.

Oh C et al., examined the results of surgical treatment for the anal fissure, over 20 years [14]. Satisfactory improvement was achieved in 95% of patients. Temporary and early postoperative complications included urinary retention (1.4%), bleeding (1.1%), and anal abscess or fistula (0.7%). In comparison, urinary retention, anal itching, and flatus incontinence were greater in this study.

In a study by Nyam DC and Pemberton JH 487 patients were followed-up for an average of 72 months after LIS [15]. Complete healing was reported in 96% of the patients three weeks after surgery. During follow-up recurrence was reported in 8%, flatus incontinence in 39% and faecal incontinence in 45% of patients. However, only 3% of patients complained of faecal incontinence. The results of the study are almost identical to present study. However, no faecal incontinence was observed in this study. Also, the rate of flatus incontinence was lower in this study.

In a study by Hyman N the improvement in symptoms after six months was 94%. No complications were reported during this follow-up [16]. In the study by Casillas S et al., 298 patients were followed for 4.3 years [17]. The recurrence rate was 5.6%. Flatus incontinence was reported in 30% of patients. No faecal incontinence was reported.

In the study by Hananel N and Gordon PH, 312 patients were followed-up for 20 months after LIS [18]. During this time, complete healing was reported in all patients. Only 0.3% of the patients needed reoperation. In the index study, complete healing was observed in all patients. In the study of Evans J et al., 31 patients were followed-up for six weeks after internal sphincterotomy [19]. 97% of patients recovered during this period and no complications were reported. In the study of Rotholtz NA et al., 68 patients were followed-up for 66.6 months after LIS [20]. No recurrence was reported in these patients, but faecal incontinence was reported in 10.2% of patients. In a study by Elsebae MM 108 patients were followed-up after LIS [21]. Faecal incontinence was reported in 6.5% of patients. In a study, Mousavi SR et al., 32 patients were followed after LIS [22]. None of the patients had bleeding or anal pain one week after the surgery. The only complication reported was urinary retention in 3.1% of patients. Although the rate of flatus incontinence was higher in this study, the overall outcomes of the study were similar to the present study. The most common complication in this study was flatus incontinence (15%). None of the patients had faecal incontinence and recurrence. The authors believe that the optimum follow-up period after LIS is five years. Based on this study's results, LIS is a safe, feasible and effective surgical method for the CAF.

Limitation(s)

First, the number of patients was limited. Second, only one type of surgical method was evaluated with no comparative group.

CONCLUSION(S)

The LIS is effective in reducing symptoms and complications and is a safe procedure. Complete healing was observed in all patients and none of the patients had faecal incontinence and recurrence. Also, the rate of flatus incontinence was low. Larger studies with longer term follow-up are recommended.

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