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ORIGINAL ARTICLE

A Comparative Study of Lateral Sphincterotomy Vs Topical Application of Glyceryl Trinitrate 0.2% in the Treatment of Chronic Anal Fissure an Observational Study

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ABSTRACT

0.2% Glyceryl trinitrate is vastly used for treatment of chronic anal fissure and it has proven its effectiveness by decreasing anal tone and promoting healing. However, lateral sphincterotomy is considered a standard treatment for anal fissures. OBJECTIVE: The aim of our study was to compare application of 0.2% GTN and lateral sphincterotomy as a treatment for chronic anal fissure. STUDY DESIGN: It was an observational prospective cohort study. METHODOLOGY: This study was conducted in General Surgery unit 2 of Dow University Hospital Ojha, Karachi. A total of 192 participants were included in the study with their signed consent 96 of whom were given GTN and the remaining 96 were advised lateral sphincterotomy RESULTS: Both treatment modalities showed promising results. Upon follow up after 2 and 4 weeks, patients' symptoms decreased more in the lateral spincterotomy group. Around 29.17% patients became asymptomatic at 2weeks and 87.5% at 4 weeks in the lateral spincterotomy group. While 11.46% became asymptomatic at 2 weeks and 87.5% at 4 weeks in the conservative management group. CONCLUSION: Lateral sphincterotomy shows more effective results in treating chronic anal fissure as compared to application of 0.2% GTN however, as 0.2% GTN has quite comparable results as well, surgeons should opt for it as the first line of management before resorting to lateral sphincterotomy.

Keywords: Chronic anal fissure, 0.2% Glyceryl Trinitrate, lateral sphincterotomy.

INTRODUCTION

Anal fissures are known to be caused by a tear in the mucosal layer of the anal canal extending from the anal verge to the dentate line. The tear in the anal canal is most likely located in the anterior or posterior midline[1]. Acute anal fissures are mostly managed with dietary modifications such as high fiber diet, stool bulking agents and increased water intake however, for chronic anal fissures, there are two treatment modalities. First is conservative management which is most commonly used and includes topical GTN, smooth muscle relaxants (e.g.diltiazem), dietary improvements, and sitz bath[2]. Failure in healing of fissure despite taking conservative management, or non-compliance to medical management prompts surgical intervention i.e., lateral sphincterotomy to avoid further damage. This management technique despite its efficacy has certain complications such as fecal/flatus incontinence, because of which more people want to opt for the medical treatment rather than the surgical one[3]. There are ample reported benefits of lateral sphincterotomy but given its risk vs benefit, its evaluation is necessary[4]. We conducted an observational prospective study involving patients presenting with the clinical history of an active chronic anal fissure and analyzed the outcomes of medical treatment and lateral sphincterotomy over a course of two to four week period with an aim to observe symptom resolution indicating healing of fissure and subsequent patient satisfaction.

MATERIAL AND METHODS

This is an observational prospective cohort study that was conducted after approval from ethical committee in the surgery department of Dow University Hospital, Ojha campus, Karachi, Pakistan from January 2022 to October 2022. A total of 182 patients were included in the study. Written consent was obtained from all participants. The patients were divided into two groups comprising of 96 patients for lateral sphincterotomy and 96 for conservative management. INCLUSION AND EXCLUSION CRITERIA: Patients included in the study were aged between 19 and 47 years, were clinically diagnosed as fissure in ano and were symptomatic for more than 6 weeks. Pregnant women, people with other diseases like inflammatory bowel disease, rectal cancer were excluded from the study. PROCEDURE: A detailed history was taken from the patients about painful defecation, bleeding per rectum and hard stools. One group was prepared for lateral sphincterotomy under spinal anesthesia by an expert surgeon and another group was prescribed application of 0.2% Glyceryl trinitrate around the anal margins in a clockwise manner for 10 seconds, thrice a day for 4 weeks. The patients were called for follow up visits after two and four weeks. STATISTICAL ANALYSIS: To compare the difference between the two mentioned groups STATA 16.0 software was used. Categorical variables were presented as frequencies and percentages, whereas continuous variables were presented as means and standard deviations. Chi-square tests were used to compare categorical variables. A P-value less than 0.05 was considered significant.

RESULTS

Of the 192 patients included in this study, 96 patients were placed in one group and another 96 were placed in the other group i.e. lateral spincterotomy and conservative management respectively. There were 76 (79.17%) males, and 20 (20.83%) females in lateral spincterotomy group while 70 (72.92%) males, and 26 (27.08%) females in the conservative management group. The mean ages of the patients were 28.6 and 29.2 in both groups respectively. The mean duration of symptoms were 2.86 months.

Pain during defecation, bleeding per rectum and hard bowel movements were the most common symptoms patients were presenting with. Hence at the time of presentation, a score was given to each patient according to the number of symptoms from 1 to 3. At presentation 72.9% patients were having a score of 3, 26% patients were having a score of 2, while 1% patients were having a score of 1. On follow up after 2 and 4 weeks, patients' symptom score decreased but it did more in the lateral spincterotomy group. Around 29.17% patients became asymptomatic at two weeks and 87.5% at four weeks in the lateral spincterotomy group. While 11.46% became asymptomatic at two weeks and 87.5% at four weeks in the conservative treatment group. This was also statistically significant with a P-value less than 0.001 at both 2 and 4 weeks. (As shown in table 2)

Table 1: multivariable model association with both groups

	Lateral spincterotomy	Conservative	P-value
Age	28.6 ± 6.7	29.2 ± 6.7	0.5537
Gender			
Male	76 (79.17)	70 (72.92)	0.310
Female	20 (20.83)	26 (27.08)	
Duration (months)	2.97 ± 1.28	2.77 ± 1.59	0.3421

Table 2: *symp = Symptoms

No. of symptoms	N(%)	Presenting symptoms			2-week post treatment				4-week post treatment			
		3 symp	2 symp	1 symp	3 symp	2 symp	1 symp	Asymp	3 symp	2 symp	1 symp	Asymp
Conservative	96 (50)	65 (67.7)	31 (32.3)	0	10 (10.4)	41 (42.7)	34 (35.4)	11 (11.46)	2 (2.1)	19 (19.8)	17 (17.7)	58 (60.4)
Lateral spinchterotomy	96 (50)	70 (72.9)	25 (26.0)	1 (1.04)	2 (2.08)	16 (16.7)	50 (52.1)	28 (29.17)	0	3 (3.1)	9(9.4)	84 (87.5)
P-value		0.401	<0.001	<0.001								

Table 2: Results of cure of anal fissure with two different type of treatment methods

Asymptomatic patients after treatment	Lateral spinchterotomy (N=96)	Conservative (N=96)	P-value
Presenting symptoms	0	0	0.401
2 weeks	28 (29.17)	11 (11.46)	<0.001
4 weeks	84 (87.5)	58 (60.4)	<0.001

DISCUSSIONS

The research we conducted showed that 87.5% of the patients who underwent lateral sphincterotomy showed healing while 60.4% of the patients on 0.2% GTN showed improvement. These results were comparable.

Patients with anal fissures usually present with anorectal pain, bleeding, and emotional distress effecting lifestyle significantly. It is characterized as a longitudinal tear in the epidermal lining of the anus below the dentate line. Anal fissures lasting for ≥ 6 weeks are termed as chronic anal fissures, along with the exposure of fibers of the internal sphincter, appearance of sentinel tubercle, hypertrophy of anal papillae and with the passage of time scarring and fibrosis tend to occur[5-6]. The American Society of Colon and Rectal Surgeons issued clear guidelines in the management of anal fissures with a non-operative initial approach carrying a strong recommendation with a moderate quality of evidence where benefits outweigh the risks. 0.2% GTN has shown promising results in treating chronic anal fissures at an early stage and in patients who are elderly and not fit for surgical treatments. [7,8,9] Lateral Internal Sphincterotomy remains gold standard when medical therapy fails and carries the highest recommendation with a strong level of evidence thereof[2].

CONCLUSION

Lateral sphincterotomy shows more effective results in treating chronic anal fissure as compared to application of 0.2% GTN however, as 0.2% GTN has quite comparable results as well, surgeons should opt for it as the first line of management before resorting to lateral sphincterotomy.

Conflict of Interest: None.

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