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A COMPARATIVE STUDY OF GLYCERYL TRINITRATE TOPICAL OINTMENT VS LATERAL INTERNAL ANAL SPHINCTEROTOMY IN MANAGEMENT OF FISSURE IN ANO

General Surgery

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ABSTRACT

Introduction: Fissure in ano is the commonly encountered proctological problem faced by Indian population. Major pathophysiological factor is Increased resting anal pressure which are documented in patients with chronic anal fissures. Active fissure healing is achieved by therapies which reduces anal sphincter pressure. The most common treatment for chronic anal fissure is lateral internal anal sphincterotomy which can be effective in more than 90% cases. The most common complication after this surgery is fecal incontinence. **Material & Method:** Prospective comparative study was conducted among patients attending the OPD & IPD of General Surgery Department, AVMC, between December 2020 to September 2022. Both male and female patients diagnosed with fissure in ano aged between 18-65 years were included. These patients were divided into two groups, consisting of 75 patients in each group by convenience sampling technique. Complete history, clinical examination, laboratory, and radiological investigations were done, and details entered in the data collection proforma. 75 patients treated with 0.2% glyceryl trinitrate with 75 patients treated with lateral internal sphincterotomy. Patients were followed up over a period of 6 weeks to monitor their progress. Data were collected, analyzed, and tabulated using statistical software SPSS Ver.20. **Results:** In the present study total of 150 patients fulfilling inclusion criteria were included, preponderance of female patients was observed, more common in 3rd decade of life, presented with symptoms like painful defecation & bleeding per rectum. Patients had complete symptomatic relief after lateral anal sphincterotomy while 5 patients did not heal after surgery in comparison to all 75 patients who had received treatment with 0.2% glyceryl trinitrate. **Conclusion:** From this study it can be concluded that chemical sphincterotomy with the use of topical 0.2% glyceryl trinitrate may be considered as the first line treatment for fissure in ano patients despite of some failures in symptomatic relief. Lateral anal sphincterotomy can be reserved for the patients who have failed to respond to initial chemical sphincterotomy.

KEYWORDS

Fissure in ano, 0.2%glyceryl trinirate, lateral anal sphincterotomy

INTRODUCTION

The most typical proctological problem addressed by Indians is anal fissure. It is the most common reason for anal pain. It is the tear distal to the dentate line in the squamous epithelial lining of the anal canal. It strikes both men and women equally and affects people at all ages, however young people are more likely to experience it. It can be found in either the anterior or the posterior midline. It may continue distally until the anal verge or proximally up to the dentate line.[1]The most common causes of ano fissures include poor anal cleanliness, eating hot food, and passing firm stools.

Acute and chronic fissures in ano are the two categories into which they fall. In contrast to chronic fissures, which often appear six weeks or more after the onset of symptoms, acute fissures present within three to six weeks of the onset of symptoms. A high-fiber diet and stool softeners can treat acute fissures, but treatment is necessary for chronic fissures before they can heal.

The most popular and effective treatment for chronic anal fissures is lateral internal anal sphincterotomy, which is successful in more than 90% of patients. Due to the following factors, selecting a course of treatment is still challenging. A systematic evaluation of comparative studies revealed that the total risk of incontinence was around 10%, even though surgery is highly effective and successful in repairing the fissure in ano in more than 90% of patients. There are no studies describing the length of this issue, which was primarily caused by faecal incontinence.[2]

Consequently, a non-surgical approach to treating chronic anal fissures is highly preferred. Glyceryl trinitrate (GTN) ointment is emerging as the first line of treatment among conservative treatments because it breaks the vicious cycle, relaxes the sphincter, and aids in the repair of chronic anal fissures. These substances trigger the release of exogenous nitric oxide into the muscular tissue, which temporarily relaxes the internal anal sphincter.

This procedure, frequently referred to as a "chemical sphincterotomy," carries no risk of permanent incontinence. Up to 40% of individuals who receive topical GTN therapy for anal fissures have headache as a severe side effect.

Patients, particularly women, do not readily accept the surgical therapy because of our social customs and taboos, and as a result they suffer for a very long time. This study compared the effectiveness of lateral anal sphincterotomy with topical glyceryl trinitrate for treating ano fissures.

MATERIAL AND METHODS

This prospective comparative study was carried out in the Department of General Surgery, Aarupadai Veedu Medical College and Hospital, Puducherry. Patients were studied in two groups. Group A treated with Topical 0.2% glyceryl trinitrate ointment applied over perianal region twice daily for 6 weeks and Group B managed by Lateral internal anal sphincterotomy. Male and female patients diagnosed with fissure in ano aged between 18-65 are included in the study. Pregnant/ Lactating women, inflammatory bowel disease, tuberculosis and malignancy, prior anal surgery, associated hemorrhoids and fistula, Patients with significant cardiovascular disease were excluded from the study.

Informed consent was obtained from all the patients. Complete history, clinical examination, laboratory, and radiological investigation were done and entered in the proforma.

75 patients were treated with 0.2% glyceryl trinitrate and 75 patients were treated with lateral internal sphincterotomy. Both groups of patients were adviced oral antibiotics, high fibre diet, plenty of oral fluids and sitz bath thrice daily. Patients were followed up over a period of 6 weeks to monitor their progress. Data analysis was done by SPSS Ver.20. Categorical data was described in form of number and percentage. The Chi- Square test was used to find the association between risk factor and the outcome variable. P value less than 0.05 was considered as statistically significant.

Statistical Analysis

Data analysis was done by SPSS Ver.20. Categorical data was

described in form of number and percentage. The Chi- Square test was used to find the association between risk factor and the outcome variable. P value less than 0.05 was considered as statistically significant.

RESULTS

In the present study total of 150 patients fulfilling inclusion criteria were included with consent.

The incidence of fissure is slightly higher in females than males. The most common clinical presentation is pain during defecation occurring in 129 of 150 patients. Bleeding per rectum was seen in 95 of 150 patients.

Table 1: Chief Complaints

	GROUP 1	GROUP 2	TOTAL	p- value
Pain during defecation	66	63	129	0.31
Bleeding per rectum	43	52	95	0.08
Skin tag	47	46	93	0.5

Table 1 shows chief complaints observed in 2 groups.

Painful defecation was commonest complaint, 129 patients presented to OPD with it as chief complaint

Bleeding per rectum noted in 95 patients. Skin tag was seen in 47 patients who underwent treatment with 0.2% glyceryl trinitrate and in 46 patients who underwent lateral internal sphincterotomy

TABLE 2: Fissure location

Fissure location	group		Total	p-value
	1	2		
Anterior	16	13	29	0.34
	55.20%	44.80%	100.00%	
Posterior	59	62	121	
	48.80%	51.20%	100.00%	
Total	75	75	150	
	50.00%	50.00%	100.00%	

Table 2 shows fissure location in 2 groups

Posterior midline was the most common location of fissure, seen in 121 patients.

Table 3: Post Treatment Symptoms

Pain	group		Total	p-value
	1	2		
No	6	15	21	0.029
	28.60%	71.40%	100.00%	
Yes	69	60	129	
	53.50%	46.50%	100.00%	
Total	75	75	150	
	50.00%	50.00%	100.00%	

Table 3 shows post treatment pain seen in 2 groups

Out of 75 patients, 69 patients had pain when treated with 0.2% glyceryl trinitrate & 60 patients from group 2 treated with lateral internal sphincterotomy has post operative pain.

Table 4: Outcome Of Treatment

Healing of fissure	Group		Total	p-value
	1	2		
Healed	70	52	122	0.0001
	57.40%	42.60%	100.00%	
Not healed	5	23	28	
	17.90%	82.10%	100.00%	
Total	75	75	150	
	50.00%	50.00%	100.00%	

Table 4 shows outcome of treatment (healing of fissure) in 2 groups

Out of 150 patients total, 122 patients healed. Out of 122 patients, 70 patients healed post treatment with 0.2% glyceryl trinitrate while 52 patients healed post lateral internal sphincterotomy.

Table 5: Symptomatic Relief Post Treatment

Symptomatic relief	Group		Total	p-value
	1	2		
No	0	15	15	0.0001
	0.00%	100.00%	100.00%	
Yes	75	60	135	
	55.60%	44.40%	100.00%	
Total	75	75	150	
	50.00%	50.00%	100.00%	

Table 5 shows symptomatic relief seen in patients post treatment in 2 groups

Among 75 patients who underwent treatment with application of topical 0.2% glyceryl trinitrate ointment, all patients had complete symptomatic relief

Out of 75 patients, who underwent lateral internal sphincterotomy, 60 showed complete symptomatic relief while 15 patients did not.

DISCUSSION AND CONCLUSION

In the present study, patients with Fissure in ano were taken from Surgical Outpatient and Inpatient Department, Male and Female Surgical Wards of Aarupadai Veedu Medical College and Hospital , Puducherry, from December 2020 to September 2022 to comparatively study the effect of topical 0.2% glyceryl trinitrate with lateral anal sphincterotomy in treating fissure in ano by dividing the patients into two groups with 75 each.

Mapel et al [3] , reported a finding where maximum number of cases were diagnosed between 25-45 years of age with no significant difference between genders. In the present study, 78 patients were females while 72 patients were males. The incidence of fissure was slightly higher in females than males.This observation was similar to a study conducted by Rithin et al [4] where he had 56% females and 44% males

In the present study it was observed that painful defecation was the most common presenting symptom of the patients. Out of 150 patients, 129 patients had history of painful defecation. In our study among 150 patients the most common position of fissure was posterior midline. It was seen in 121 patients. Anterior midline position was seen only in 29 patients. Study conducted by Saad Am et al [5] and Jensen et al [6] also had similar findings.

All 75 patients had showed complete symptomatic relief post treatment with 0.2% glyceryl trinitrate. Out of 75 patients who underwent lateral internal sphincterotomy, 60 showed complete symptomatic relief while 15 patients did not undergo any symptomatic relief. Fissure healed in 122 patients post treatment. This finding was comparable to study conducted by Bansal et al 4 which showed 72% healing rate of fissures. Study conducted by Muhammad I Aslam et al [2] showed only 50% of patients fissure healed post glyceryl trinitrate application whereas another study by Mishra et al [7] showed 90% healing rate of fissures.

Headache was the most common side effect found in patients during the course of treatment. 18 out of 75 patients had headache which was tolerable in nature and was managed with analgesics alone. Local irritation post application of glyceryl trinitrate was found in 6 patients. These findings were comparable to study conducted by Oettle GJ et al [8] and Ellabban GM et al [9] .

From this study it can be concluded that It was found there was a preponderance of fissure in ano more in females than males. It was observed fissure in ano was more common in 3rd decade of life. Painful defecation was the commonest complaint. It can be concluded that chemical sphincterotomy with the use of topical 0.2% glyceryl trinitrate may be considered as first line treatment for fissure in ano patients despite of some failures in symptomatic relief. Lateral anal sphincterotomy can be reserved for patients who have failed to respond to initial chemical sphincterotomy.

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