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A Comparative Study of Topical Glyceryl Trinitrate (0.2%) and Lateral Anal Sphincterotomy in Treatment of Fissure in Ano

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Abstract

Introduction: *Anal fissure is a common condition affecting all age groups, but it is seen particularly in young and otherwise healthy adults, with equal incidence across the genders. Glyceryl Tri Nitrate(GTN) is an NO donor which causes relaxation of internal anal sphincter and increases blood flow to allow the fissure to heal. Lateral internal anal sphincterotomy is the most common treatment for chronic anal fissure and can be effective.*

Aims and Objectives

- *To study the aetiology and predisposing factors, age and sex incidence, clinical presentation, position of fissure and associated features.*
- *To study complications associated with medical and surgical management of anal fissure and to compare Glyceryl TriNitrate (0.2%) over Lateral Internal anal sphincterotomy.*

Materials and Methods: *Study Population was made of 60 patients who presented with chronic anal fissure, divided into two groups. Group A included 30 patients with chronic anal fissure treated with local glyceryl trinitrate ointment 0.2% whereas Group B included 30 patients managed by lateral internal sphincterotomy.*

Results: *Out of 60 study participants, 39 were male and 21 were female. Most of these patients had constipation as the major predisposing factor. 18 out of 30 patients had relief of symptoms with medical management. 27 out of 30 patients had relief of pain and healing of fissure with surgical management.*

Conclusion: *Lateral sphincterotomy remains effective but should be reserved for the patients who fail to respond to initial chemical sphincterotomy or GTN therapy.*

Keywords: *Anal Fissure, Glyceryl Tri Nitrare (GTN), Lateral Internal Anal Sphincterectomy (LIAS), Medical, Surgical.*

Introduction

Anal fissure (fissure-in-ano) is a common anorectal condition and is one of the most common lesions to be considered in the differential diagnosis of anal pain. It typically causes episodic pain that occurs during defecation and persists for hours afterward.[1] It can be a very troubling condition because, if acute, the severity of patient discomfort and extent of disability far exceed that which would be expected from a seemingly trivial lesion.[2] Chronic anal fissures are associated with hypertonia of the anal canal and reduction in mucosal blood flow, with microcirculatory disturbance and a poor healing tendency. [3] Medical management of anal fissure involves using an agent that produces relaxation of internal sphincter. Nitric oxide (NO) is one of the most important non adrenergic non cholinergic neurotransmitter mediating relaxations of the internal anal sphincter.[4] Surgical techniques, such as manual anal dilatation or lateral internal sphincterotomy, effectively heal most fissures within a few weeks but may result in permanently impaired anal continence.[5] Lateral internal anal sphincterotomy is the most common treatment for chronic anal fissure and can be effective in most cases. The chief complication after this surgery is incontinence to feces or flatus.[6]

Objectives

The purpose of this study is to

- To study the aetiology and predisposing factors, age and sex incidence, clinical presentation, position of fissure and associated features.
- To study complications associated with medical and surgical management of anal fissure and to compare Glyceryl Tri Nitrate (0.2%) over Lateral internal anal sphincterotomy.

Materials and Methods

This study is based on analysis of 60 patients with fissure in ano who underwent treatment in a tertiary care hospital from October 2016 to March 2019. These patients were broadly divided into two groups of 30 patients each who were managed by medical and surgical methods. For all these patients clinical examination and routine investigations were done, which also include blood for sugar, urea and serum for creatinine and ECG. Chest X ray was taken for all cases. Patients on medical management were put on 0.2% Glyceryl Tri Nitrate ointment topically over the perianal region twice daily. They were also adviced high fibre diet, adequate hydration and antibiotics (T.ciprofloxacin 500 mg bd and T.metronidazole 500mg tds for 5 days). All patients were adviced sitz bath twice daily. Patients on surgical management were treated by open lateral anal sphincterotomy. Post operatively they were adviced sitz bath twice daily along with high fibre diet and adequate hydration. T.ciprofloxacin 500mg bd and T.metronidazole 500mg tds were given for 5 days. Patients were observed for expected complications and discharged on 5th post-operative day. They were asked to follow up in outpatient department every weekly for one month.

Results

This study is based on the analysis of 60 patients who were treated for fissure in ano in a tertiary care hospital from October 2016 to March 2019. The age and sex distribution of these 60 patients are shown in the Table 1. Out of these, 39 were male and 21 were female. The male: female ratio was 1: 0.54, which is in accordance with study conducted by Divino et al.[7] Lowest age and Highest age of patients in this study was 8 years and 65 years respectively. The maximum number of patients was in the age group of 21- 40 years, which is in accordance with study conducted by Christie et al. [8] The symptomatology of these patients is shown in the Table 2. Majority of these patients had history of pain during defecation. Most of these patients had constipation as the major predisposing factor. Other predisposing factors were laxative abuse, post-pregnancy, tuberculosis, inflammatory bowel disease and immune-compromised state (Table 3). On digital rectal examination, majority of the patients had posterior fissure in ano and minority of patients had anterior fissure. Lateral fissure was

seen in few patients (Table 4). Majority of patients who had fissure for longer duration had sentinel skin tag along the lower part of fissure and hypertrophied papilla in the upper part (Table 5). 30 patients out of 60 were managed by medical and conservative method of treatment. All patients were advised high fibre diet, adequate hydration and oral antibiotics. All patients were put on 0.2% Glyceryl TriNitrate ointment twice daily topically after sitz bath. All patients were followed weekly in outpatient department for one month. Results were inferred by relief of pain and healing of fissure. 18 out of 30 patients had relief of symptoms, which accounts to 60% of patients who were treated medically. This is in accordance with study conducted by Richard et al.[9] Other patients had persistent pain and complications like headache. (Table 6). 12 of the patients who were managed medically required conversion to surgical treatment due to failure of medical management. 30 patients out of 60 were treated by surgical line of management. All patients were treated by open lateral anal sphincterotomy under spinal anaesthesia. Duration of surgery was approximately twenty minutes. 27 out of 30 patients had relief of pain and healing of fissure, which corresponds to 90%. Some of the patients had complication as follows (Table 8). Most of the surgical complications subsided within two weeks and patient had complete relief of symptoms, which is in accordance with study conducted by Lund et al. [10] 2 out of 30 patients treated surgically did not turn up for follow up.

Table 1 - Age and Sex Distribution

Sex	No of patients	Percentage
Male	39	65%
Female	21	35%

Table 2 - Symptomatology

Symptom	No of cases	Percentage
Pain during defecation	48	80%
Bleeding per rectum	5	8.40%
Both	6	10%
Swelling	1	1.60%

Table 3 - Location of Fissure

Location	No of cases	Percentage
Posterior	49	82%
Anterior	9	15%
Lateral	2	3.30%

Table 4 - Medical Management

	No of patients	Percentage
Relief of symptoms	18	60%
No relief	12	40%

Table 5 - Complications of Medical Management

Symptoms	No of patients	Percentage
Persistent pain	7	23%
Headache	5	16.60%

Table 6 - Surgical management

	No of Patients	Percentage
Relief of symptoms	27	90%
No relief	3	10%

Table 7 - Complications of surgery

Symptoms	No of Cases	Percentage
Pain	3	10%
Seroma	2	6.66%
Haematoma	1	3.33%
Infection	1	3.33%
Perianal abscess	1	3.33%
Fistula	0	0.00%
Incontinence	0	0.00%

Discussion

During the period of study (October 2016 to March 2019), 60 patients were studied. These patients were broadly divided into two groups of 30 each who were treated by medical and surgical methods respectively by non-randomised control study. In this study, males were commonly affected than females. The most common age group were 21-40 years. These findings were in accordance with study conducted by Schouten et al.[11] Fissure in ano is rare in children and old age. Majority of the patients

presented with pain during defecation. Constipation was the major predisposing factor among all cases. These findings were in accordance with study conducted by Palazzo et al.[12] Most of the fissures were located in the posterior midline. These results are comparable with study conducted by Mishra et al.[13] Most of the patients with fissures of long duration had sentinel skin tag. Two patients were HIV positive and one patient with history of tuberculosis had atypical lateral fissures. No patients studied had inflammatory bowel disease. Patients who were treated surgically by open partial lateral anal sphincterotomy had better relief of symptom. Most patients managed medically by 0.2% GTN did not have relief of symptoms after one month of treatment, who either discontinued treatment or required conversion to surgery. Complication of Glyceryl Tri Nitrate is headache which occurred in majority of patients. This is in accordance with study conducted by Oettle et al.[14] Patients treated surgically had few complications that subsided after two weeks.

Conclusion

Glyceryl Trinitrate ointment showed significant pain relief, no bleeding and healing as duration progresses. GTN group showed 60% of healing of chronic anal fissure. Lateral internal anal sphincterotomy is the treatment of choice while treating chronic anal fissures because of its simplicity, better healing rates, better patient satisfaction, minimal morbidity and low complication rates. [15] LIAS group showed 90% healing of chronic anal fissure and in GTN group 16,6% of patients showed minor degree of headache as side effect. Complications like flatus incontinence and anal seepage, though not significant, were seen rarely. Lateral sphincterotomy remains effective but should be reserved for the patients who fail to respond to initial chemical sphincterotomy or GTN therapy.[16] GTN therapy is good alternative mode of therapy for patients who refuse surgery and prefer medical line of treatment.

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