

TO COMPARE THE EFFICACY OF INTERNAL SPHINCTEROTOMY WITH TOPICAL 0.2% GLYCERYL TRINITRATE OINTMENT AFTER HEMORRHOIDECTOMY FOR PAIN RELIEF

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ABSTRACT

Objective: To compare the efficacy of internal sphincterotomy with topical 0.2% glyceryl trinitrate ointment after hemorrhoidectomy for pain relief.

Study Design: Randomized controlled trial.

Place and Duration of Study: Department of surgery, Combined Military Hospital Rawalpindi.

Material and Methods: Individual patients undergoing hemorrhoidectomy were randomized to either undergo internal sphincterotomy (Group A) or apply 0.2% glyceryl trinitrate (Group B). internal sphincter was divided up to dentate line through one of hemorrhoidectomy incisions. For 2nd group the first dose of 0.2% GTN ointment was applied at the end of hemorrhoidectomy. They were advised sitz bath 4 times daily and stool softener. Post operative pain was measured using visual analogue scale (VAS) on 1st, 2nd post op day and after a week and the average score was noted. VAS of pain far last visit was compared between the groups.

Results: Post operative pain was comparatively less in group A as compared to group B ($p = 0.014$).

Conclusion: In patients undergoing hemorrhoidectomy, addition of surgical internal sphincterotomy results in lesser pain in the postoperative period as compared to those receiving topical application of 0.2% glyceryltrinitrate ointment.

Keywords: Efficacy, Hemorrhoidectomy, Internal sphincterotomy.

INTRODUCTION

Hemorrhoid is one of major health concerns in world and its prevalence when patients are assessed proctoscopically far outweighs the prevalence of symptoms. This is because patients are shy to disclose the disease and reluctant for examination. It is 3rd most common cause of admission in general surgical unit with 10% frequency in tertiary care hospital in Pakistan¹. They can be internal or external being above or below Dentate line respectively, in the anal canal. They are more common when intra-abdominal pressure is raised, e.g. obesity, constipation and pregnancy. Classically, they occur at 3, 7 and 11 o'clock position with patient in lithotomy position. Symptoms of haemorrhoids are: bright red painless bleeding, mucous discharge, mucosal

prolapse, pruritis and sometimes only pain. Haemorrhoids are 1O (only bleed), 2O (prolapse but return automatically), 3O (prolapse and stay reduced on reduction) or 4O (permanently prolapsed)^{12,13}. They produce symptoms only when complicated.

When conservative haemorrhoid therapy is ineffective, many physicians may choose from various other outpatient treatment options for treatment of haemorrhoids like; Injection Sclerotherapy, Rubber Band Ligation, Cryosurgery, Infra-red Photocoagulation, Bipolar Coagulation and LASAR Technique⁴. If a non-surgical approach fails, the patient is referred to a surgeon⁵. Surgical hemorrhoidectomy is currently the most popular treatment for patients with third and the fourth degree hemorrhoids. One of the most important complications of hemorrhoidectomy is post operative pain which is incapacitating and increases hospital stay of patient and return to work. Hypertonia of internal sphincter is widely believed to be the cause of postoperative pain after hemorrhoidectomy.

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Eisehammer⁶ was the first to propagate the idea that post-hemorrhoidectomy pain is due to spasm of the internal sphincter and described that its division through one of the hemorrhoid wounds is certainly an effective way to lessen postoperative pain. Several investigators have concluded that sphincterotomy significantly improves the postoperative course after hemorrhoidectomy (mean visual analogue score on day 1 was 6.69 with standard deviation 0.80) and that the procedure is safe⁷. Internal Sphincterotomy in some cases leads to incontinence of flatus, mucus, or occasionally stool. However studies suggest that the fear of incontinence after sphincterotomy is over rated⁸.

Chemical sphincterotomy⁹ is another method of reducing spasm of internal sphincter which is done with topical glyceryl trinitrate, calcium channel blocker and botulinum toxin. Studies have shown that the pain score in the nitroglycerin group showed a significant difference with the repeated measures analysis (mean visual analogue score was 5 with interquartile range 3-8 and standard deviation 1.2)¹⁰.

In this study internal sphincterotomy and local 0.2% glyceryl trinitrate were compared for reducing pain after hemorrhoidectomy as in previous studies comparison was made between nitrates and calcium channel blocker or calcium channel blocker with internal sphincterotomy. This will help surgeons to decide in future which procedure is better in reducing post hemorrhoidectomy pain and reduce the duration of hospital stay

MATERIAL AND METHODS

This randomized controlled trial was conducted at CMH Rawalpindi from January to June 2010 over a period of six months. Permission from hospital ethical committee was obtained. A written informed consent was taken from every patient in the study.

A total of 60 patients with third and fourth degree hemorrhoid were included in study but excluding patients with previous anal surgery, anal fistula, fissure, perianal abscess, painful thrombosed hemorrhoid and pregnant women.

They were randomly divided into two equal groups each based on table of random numbers. The patients in Group A underwent hemorrhoidectomy plus sphincterotomy plus placebo cream and the, Group B, hemorrhoidectomy plus topical Glyceryl trinitrate. All patients underwent the standard Milligan Morgan technique of open hemorrhoidectomy under spinal anesthesia. The patients randomized to group A underwent an additional procedure of internal sphincterotomy. The internal sphincter was divided up to the dentate line through one of the hemorrhoidectomy wounds. For the patients randomized to the group B, the first dose of 1 g of 0.2% Glyceryl trinitrate ointment was applied by the end of procedure. All patients were nursed in wards thereafter. The patients were instructed to apply the ointment himself/herself to the perianal region three times a day for the next seven days. Postoperative analgesia was in the form of Tablet dicloron 50 mg. Analgesic tablets were dispensed strictly on demand by patient. The patient was allowed full oral feed six hours after surgery. They were advised Sitz bath four times daily and stool softener (Syrup lactulose 2 tsp thrice daily). Postoperative pain perception was measured using visual analog score (VAS) on 1st and 2nd post op day and after a week by house officer who was blind regarding the intervention. Assessment for pain on 1st and 2nd post operative day and after a week was done by using a VAS card. Both the groups were compared on last visit. Data was analyzed using SPSS v16.0. Mean and standard deviation was calculated for age. For qualitative variables frequency percentages were presented.

Chi square test was used for comparison of qualitative variable i-e pain in both groups. Independent samples t-test was used for comparison of age. A p value of <0.05 will be considered as significant.

RESULTS

Group A underwent internal sphincterotomy and Group B 0.2% glyceryl trinitrate ointment after hemorrhoidectomy. Group A had 70% males while group B had 66.7% males.

The age distribution ranged from 26-85 years in the study. Mean age in group A was 49.7 years (SD = 15.02) and in group B it was 48.83 years (SD =11.59).

glyceryl trinitrate decreases contraction of internal anal sphincter. It has been demonstrated to have significant healing rates for chronic anal fissures by reducing the anal

Table-1: Showing comparison of age and gender distribution in both groups.

	Internal Sphincterotomy	0.2% GTN ointment	p-value
Male /female ratio	2.3:1	2.4:1	0.501
Mean Age	49.76±15.02	48.83±11.59	0.789

Table-2: Showing comparison of visual analogue scale between the groups.

	Group A (n = 30)	Group B (n = 30)
No pain(VAS 1-3)	4 (13.3%)	0(0%)
Mild pain(VAS 1-3)	20(66.7%)	14(46.7%)
Moderate pain (VAS 4-7)	6(20%)	13(43.3%)
Severe pain (VAS 8-10)	0(0%)	3(10%)

$p = 0.014$

In group A majority, 20(66.7%) patients suffered mild pain (VAS 1-3), followed by moderate pain (VAS 4-7) in 6(20%) patients. Similarly in group B majority 14(46.7%) patients had mild pain (VAS 1-3), moderate pain (VAS 4-7) in 13(43.3%) patients. There was significant difference in pain score between the groups ($p = 0.014$).

DISCUSSION

Surgical hemorrhoidectomy either by open or closed method is currently the most popular treatment for patients with third and the fourth degree hemorrhoids. The exact cause of postoperative pain after hemorrhoidectomy has not been defined yet, but increased tonicity of internal sphincter is widely believed to be the cause¹¹. Recent manometric studies show that spasm of internal sphincter is present even before surgery in patients with hemorrhoids. This information regarding pain control came from knowledge about treatment of anal fissures. Eisenhammer¹² was the first to discover that spasm of internal sphincter is responsible for post hemorrhoidectomy pain. Several investigators²⁰ have concluded that sphincterotomy significantly improves the postoperative course after hemorrhoidectomy and that the procedure is safe. Internal sphincterotomy may cause minor impairment of continence leading to incontinence of flatus, mucus, or occasionally stool, and it has been compared to chemical sphincterotomy with topical nitrates and diltiazim²⁷. A Topical 0.2%

sphincter pressure. study demonstrated that pain relief was better in patients subjected to IS than topical 0.2% glyceryl trinitrate. We must also appreciate the fact that while lateral IS would be a uniform technique amongst the patients; this is not true about topical 0.2% glyceryl trinitrate. Local absorption of 0.2% GTN is not only proportional to the amount applied, but also other factors such as skin thickness and quantum of tissue inflammation. This the reason that the presence of perianal wounds after hemorrhoidectomy may significantly affect the kinetics of 0.2% GTN absorption and its activity may be reduced by tachyphylaxis. This may be one of the important factors explaining inferior pain relief obtained in this group.

The study can be criticized as it depends upon Visual analogue scale reported by patient. VAS is basically a subjective feedback by the patient which is converted into objective data. Different people have different perceptions of pain so VAS is not an ideal scale to measure pain perception. Second shortcoming may be that the pain relief should ideally be coupled with objective manometric findings before and after surgery. In patients with hemorrhoids resting anal pressure is increased hemorrhoidectomy reduces it^{13,14}. Hence it would be expected that there would be correlation between this and pain relief. As the primary effort is towards pain relief after hemorrhoidectomy, using pain assessment tools

as measure of primary endpoint is valid enough.

On other hand, glyceryl trinitrate taken orally causes systemic and coronary vasodilatation resulting in most of its reported side-effects including flushing, dizziness and headache. However, it appears to be safe when applied topically. Indeed Mathias et al¹⁵, conducted a randomized study on 33 patients wherein hemorrhoidectomy, with lateral internal sphincterotomy was compared with hemorrhoidectomy alone. In his study there was no difference in pain scores and analgesic requirements between the two groups. They suggested that either internal sphincter spasm is not the dominating cause of pain in the postoperative scenario or else routine analgesia is sufficient to control the pain. Similar results were shown by Khubchandani¹⁶. In his series of 42 patients, he compared hemorrhoidectomy alone with hemorrhoidectomy plus internal sphincterotomy. He did not find difference in pain perception.

Do Yeon Hwang, M.D et al in 2003 compared hemorrhoidectomy alone with hemorrhoidectomy plus application of 0.2% GTN ointment and found that GTN applied topically reduced post operative pain¹⁷. However lateral internal sphincterotomy and 0.2% GTN have never been compared to reduce post hemorrhoidectomy pain. This study showed lateral internal sphincterotomy to be superior to 0.2% GTN in this respect mean visual analogue scale in lateral sphincterotomy group were 2 and in 0.2% Glyceryl trinitrate group it is 3.73. A *p* value is 0.01.

CONCLUSION

After hemorrhoidectomy post operative pain can be reduced by either Internal sphincterotomy or application of 0.2% glyceryl trinitrate ointment but internal sphincterotomy performed as an additional procedure reduces the spasm of internal sphincter and results in better pain relief.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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