

# Improve Healing in Open Haemorrhoidectomy With 0.2% GTN

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## ABSTRACT

**Aim:** To compare the efficacy of topical 0.2% glyceryl trinitrate vs. placebo on wound healing after open hemorrhoidectomy.

**Methods:** This randomized control trial was conducted in surgical unit I, Nishtar Hospital Multan from May 2011 to October 2011. A total of 56 patients were included in this study.

**Results:** Fifty six patients were included in the study which were divided into two groups (i.e., GTN-28 and placebo=28). Among them 40(71.4%) were male and 16(28.6%) were female. Out of 56 patients, 12 (21.4%) patients were in the age from 20-30 years, 13(23.2%) within 31-30 years, 16(28.6%) between the age 41-50 years and 15(26.8%) patients were in the age group from 51-60 years. As regards the grades of haemorrhoids, 22(78.6%) patients from GTN group and 18(64.3%) patients from placebo group were in the grade-III. While 6(21.4%) patients from GTN and 10(35.7%) patients from placebo group were in the grade-IV. Incidence of headache was found in 8 (28.6%) patients in GTN group and in (27.1%) patients in placebo group.

**Conclusion:** It is concluded from the study that GTN ointment enhances the healing of post hemorrhoidectomy wounds without significant side effects. Also, GTN ointment had an effect to decreasing postoperative pain. However, as an analgesic, GTN ointment has no merit.

**Keywords:** Glyceryl trinitrate, haemorrhoids, post hemorrhoidectomy.

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## INTRODUCTION

Hemorrhoids are common benign anorectal condition that form a significant part of a surgeon's workload. Hemorrhoids are swollen venous cushions in the lower part of the rectum and anal canal, They are usually present at right anterior, right posterior and left lateral and consist of direct arteriovenous communications and surrounding connective tissue. Surgical open hemorrhoidectomy is a very effective treatment with high cure and low recurrence rates<sup>1</sup>. These procedures are now performed in a day-surgery setting in many centers. In open haemorrhoidectomy the skin bridges between the excised hemorrhoids are preserved to avoid stricture formation in future and the wounds are left open for healing by secondary intention, This practice is usually associated with much discomfort and pain after surgery. Internal anal sphincterotomy should not be performed as it exacerbates continence impairment<sup>2</sup>. Glyceryl trinitrate paste dilates the internal anal sphincter<sup>3</sup> and is being used as a treatment option in the treatment of chronic anal fissure and replaces lateral sphincterotomy in many cases. The option of using Glyceryl trinitrate paste post-operatively after haemorrhoidectomy is appealing as it is not associated with permanent decrease in resting anal pressure and incontinence<sup>4</sup>. Nitrates relax internal anal sphincter thus increasing blood supply to anoderm and hence promoting

wound healing and significant pain reduction. A study comparing effect of 0.2% Glyceryl trinitrate vs. a placebo showed that 0.2% glyceryl trinitrate significantly improved wound healing than those with placebo after three weeks<sup>5</sup> (74.5%vs 42%), p= 0.002.

Another study assessing the role of topical GTN as an adjunct following open haemorrhoidectomy also showed that Topical GTN is an effective agent in hastening wound healing after Milligan Morgan's haemorrhoidectomy (p=0.004). Its role in better management of pain was, however not observed<sup>6</sup>.

## MATERIAL AND METHODS

This randomized control trial was conducted in surgical unit I, Nishtar Hospital Multan from May 2011 to October 2011. A total of 56 patients were included

## RESULTS

Fifty six patients were included in the study divided into two groups equally (i.e., GTN-28 and placebo=28). Among them 40(71.4%) were male and 16(28.6%) were female (Table 1). Out of 56 patients, 12(21.4%) patients were in the age from 20-30 years, 13(23.2%) within 31-30 years, 16(28.6%) between the age 41-50 years and 15 (26.8%) patients were in the age group from 51-60 years (Table 2). As regards the grades of haemorrhoids, 22(78.6%) patients from GTN group and 18(64.3%) patients from placebo group were in the grade-III. While 6(21.4%) patients from GTN and 10(35.7%) patients from placebo

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group were in the grade-IV as shown in table-3. Incidence of headache was found in 8 (28.6%) patients in GTN group and in 2 (7.1%) patients in placebo group (Table-4). Table-5 shows the comparison of wound healing in the two groups at 3 weeks postoperatively.

Table 1: Gender distribution (n=56)

Gender	n	%age
Male	40	71.4
Female	16	28.6

Table 2: Age distribution (n=56)

Age (years)	n	%age
20-30	12	21.4
31-40	13	23.2
41-50	16	28.6
51-60	15	26.8

Table 3: Grades of haemorrhoids (n=56)

Grade	GTN (n=28)	Placebo (n=28)
Grade-III	22(78.6%)	18(64.3%)
Grade-IV	06(21.4%)	10(35.7%)

Table 4: Incidence of headache (n=56)

Headache	GTN (n=28)	Placebo (n=28)
Yes	08(28.6%)	02(07.1%)
No	20(71.4%)	26(92.9%)

Table 5: Comparison of Wound Healing in the Two Groups at Three Weeks Postoperatively (n=56)

Wound healing	GTN(n=28)	Placebo(n=28)
Yes	20	10
No	08	18

## DISCUSSION

Wound healing after open haemorrhoidectomy is the most fearful part of haemorrhoidectomy for both surgeon and patient. It usually hinders with patient recovery and return to work. Our study showed that topical GTN could reduce postoperative pain and improve wound healing after haemorrhoidectomy. Pain after haemorrhoidectomy is multi-factorial and it depends upon personal tolerance, anaesthesia type, analgesia given after surgery and surgical technique used also it is believed that spasm on internal sphincter contribute to postoperative pain<sup>7,8</sup>. In another study, topical application of 0.2% GTN ointment in patients underwent haemorrhoidectomy, reduced maximum resting pressure after 5 days and postoperative pain both at rest and during defecation<sup>9</sup>. All of these studies support the findings of our study in correlation to analgesic effect of GTN ointment in patients underwent haemorrhoidectomy.

Topical GTN is being used in management of chronic anal fissure since long period of time, but the

results of its use in open haemorrhoidectomy postoperatively are somewhat controversial. Hwang et al have reported most promising results in terms of pain reduction and improved wound healing<sup>10</sup>. In this study we observed considerable difference of wound healing in both groups although the pain perception was same in both groups. Results are close as described by Tan et al<sup>11</sup>. Headache is the major irritating side effect that has been observed in management of patients having chronic anal fissure and some studies have reported its occurrence up to 65%<sup>12</sup>. In our study the incidence of this annoying side effect is similar to that reported by Patti et al<sup>13</sup>. The application of GTN leads to nitricoxide-mediated dilatation of the internal anal sphincter<sup>14</sup> and to a decrease in the anal resting pressure of 20–40% without any symptoms of incontinence<sup>15,16</sup>. The GTN ointment mainly acts on the upper two-thirds of the anal canal and, to a lesser extent, on the lower one-third of the anal canal<sup>17</sup>. We tried to observe the effects of GTN ointment on wound healing after open hemorrhoidectomy. This study focused on would GTN ointment usage increase the rate of wound healing after a hemorrhoidectomy and that wound drainage would be improved because of dilatation of the internal anal sphincter and the increased blood flow to the anal canal<sup>18</sup>. In this study, we confirmed the healing effect of GTN ointment on hemorrhoidectomy wounds. There was no notable difference of postoperative complications in both groups. The one case of stenosis, which was due to over excision of the hemorrhoids, and was managed with postoperative dilatation. In the case of delayed bleeding, suture ligation of the bleeder was done under anaesthesia. Headaches are very common side effect of GTN ointment, but only one patient in the GTN group presented with headaches. The causes of the lower incidence of headaches were probably the use of a smaller amount (mean amount of 1 gm/day) of GTN ointment and the effect of the consumed painkillers. Jonas et al reported that GTN ointment effects locally on the internal anal sphincter and that there was no correlation between the plasma concentration and headaches<sup>19</sup>. Headaches were more commonly associated with the use of highly concentrated GTN ointment<sup>16,20</sup>.

## CONCLUSION

It is concluded from the study that GTN ointment enhances the healing of post hemorrhoidectomy wounds without significant side effects. Also, GTN ointment had an effect to decreasing postoperative pain. However, as an analgesic, GTN ointment has no merit.

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