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The Management Outcome of Glyceryl Trinitrate (GTN) Vs Thrombectomy in Thrombosed Haemorrhoids at Omdurman Teaching Hospital

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Abstract | **Original Research Article**

Background: Treatment of thrombosed haemorrhoids was mainly depending on surgery (thrombectomy) and reduction with evidence morbidity and recurrence rates. ***Patients and methods****:* This study is descriptive cross-sectional hospital-based study, conducted in Omdurman Teaching Hospital during period from November 2017 to December 2018. Data were collected by standardized questionnaire and analyzed by using SPSS version 20**.** ***Results****:* Sixty patients satisfied the requirement inclusion criteria were included in the study .The majority of the patients were males (53.3%) and most frequent age group were less than 30 (48.3%) years old, ranging from 16 to 56 years with mean age 32.2 ±9.3SD. Almost all patients presented with pain and swelling. Ninety percent had swelling less than 5cm. Most of patient develop complications from the surgery, majority develop post operative pain (36.7%), the bleeding was dominant post surgery compared to GTN (28.33%) in day 1 P value 0.015 and 18% on first week P value 0.001.Infection was only found post surgery as patients required antibiotics and dressing P value 0.038 .Few patients develop late recurrence (6.7%) post surgery mainly in second and third month follow up. In GTN usage less pain and bleeding but slightly higher numbers of patients develop dizziness (8.33%) in day 1 .Overall GTN user had higher rates without complications through all the 3 months follow up period P value 0.010.***Conclusion****:* The GTN usage is safe, simple, effective and less morbidity than surgery. The study comes out with recommendations like increase the use of GTN instead of surgery and aware the population about the morbidity of surgery**.**

Keywords: Glycryl trinitrates(GTN), thrombosed haemorrhoids, nitric oxide (NO) and thrombectomy.

INTRODUCTION

Haemorrhoids are a very common anorectal condition defined as the symptomatic enlargement and distal displacement of the normal anal cushions. They affect millions of people around the world, and represent a major medical and socioeconomic problem. Multiple factors have been claimed to the development of haemorrhoids, including constipation and prolonged straining. The abnormal dilatation and distortion of the vascular channel, together with destructive changes in the supporting connective tissue within the anal cushion, is a paramount finding of haemorrhoidal disease. An inflammatory reaction and vascular hyperplasia may be evident in haemorrhoids. Surgery is indicated for high-graded internal haemorrhoids, or when non-operative approaches have failed, or complications have occurred. Although excisional haemorrhoidectomy remains the mainstay operation for advanced haemorrhoids and complicated haemorrhoids, several minimally invasive operations (including Ligasure haemorrhoidectomy, doppler-guided haemorrhoidal artery ligation and stapled haemorrhoidopexy) have been introduced into surgical practices in order to avoid post-hemorrhiodectomy pain. Patients with external haemorrhoids presenting with severe pain attributable to a clot that present within 72 hours after the onset of pain may benefit from incision and evacuation of the clot or excision of the entire haemorrhoidal complex, performed while the patient is under local anesthesia. Excision is not recommended when patients present more than 72 hours after the onset of pain, because the discomfort associated with thrombosis usually resolves without intervention after 7 to 10 days [1].

PATIENTS AND METHODS

A descriptive cross-sectional hospital-based study. This study was conducted at Omdurman teaching hospital in the period between November 2017-November 2018.This study was conducted in the period from November 2017 to November 2018. All patients with thrombosed haemorrhoids patients presenting to Omdurman teaching hospital during the period of data collection that used GTN or underwent thrombectomy

as a management was recruited. All patients, presenting with thrombosed haemorrhoids during the period of data collection will be included in the study. In addition to refusal to participate in the study, Patients with anal fistula and Immune compromised patients will be excluded. Total coverage of patients with thrombosed piles during the study period, presenting to Omdurman teaching hospital. The patients were randomized to receiving GTN or thromectomy as a management, even number for GTN and odd number for thromectomy. An interview questionnaire that is structured and pretested will be used as a tool of data collection from every patient with thrombosed piles presented to outpatient department. Based on history taking by telephone in periods of (1 week, 2 weeks, 1 month, 2 months and 3 months). Presentations, recurrence and Complications (pain, bleeding, infection, constipation, incontinence and dizziness). After the completion of data collection, the data will be entered into the Statistical Package of Social Sciences (SPSS, IBM. Chicago. Version 20.0) and then analyzed into frequencies and chi squire test and the p values was considered significant if <0.05, expressed using tabulations and diagrams. At the end of data analysis, it is expected that the rate of recurrence and the various factors contributing to it, other complications related to the management and the healing rate of thrombosed piles is determined. Ethical clearance was obtained from ethics committee of Sudan Medical Specialization Board. Approval to conduct the study was obtained from hospital administration. Written consent was taken from all participants and confidentiality of data was kept properly by taking information in complete privacy and not sharing data between patients and doctors.

RESULTS

Sixty patient satisfy the inclusion criteria were included in the study (50%) had been treated by GTN and (50%) had thrombectomy for thrombosed haemorrhoids. No gender difference was found in the study, were 32 (53.7%) patients were males and 28(46.7%) patients were females with 1.1 –1 M: F ratio. 48.3% of patients were less than 30 years and 10% were more than 50 years. The age range was from 16 to 57 years. There mean age was 32.2±9.3 SD. The complications encountered in first day was pain, bleeding and dizziness in 65%, 33% and 10% respectively and that is the highest percentages among the rest of the follow up period .More patients in surgery had pain than GTN (36%) vs (28%) with P value 0.436 and was scientifically insignificant. Also in bleeding surgery had the higher morbidity than GTN (21.7%) vs (11.7%), P value 0.015 which was scientifically significant. GTN users had higher incidence of dizziness by (8.33%) compared to (1.7%) post thrombectomy P value 0. 228. Three (5%) were free of complications post-surgery and 10 (16.7 %) patients were free of complications post GTN (Table 1).

Table-1: Day one complications in patients with thrombosed haemorrhoids

Complications	Surgery	GTN		P value
	Frequency	Frequency	Total	
Pain	22(36.7%)	17(28.3%)	39(65%)	0.436
Bleeding	13(21.7%)	07(11.7%)	20(33.3%)	0.015
Dizziness	01(1.7%)	05(8.33%)	06(10%)	0.228
No complications	03(5.0%)	10(16.7%)	14(23.3%)	0.067

Pain is the major complication one week after treatment in 25 (41.7%) patients which exactly was seen in 12 patients in both groups with no significance difference 20% for surgery and 21.7% for GTN. No complications were reported in 25(41.7%) of the patients 26.7% in GTN vs. 15% post-surgery with P value 0.067. Eleven (18.3%) Patients of thrombectomy had bleeding compared to only one (1.7%) patient of GTN users with P value 0.001 which was scientifically significant. Four (6.7%) patients had infection post surgery compare to none of GTN users P value 0.038 also was scientifically significant. other complications as constipation, incontinence and dizziness were not frequent in almost 3% each with no difference between the two treatment groups(Table 2).

Table-2: First week complications in patients with thrombosed haemorrhoids

Complications	Surgery	GTN		P value
	Frequency	Frequency	Total	
Pain	12(20.0%)	13(21.7%)	25(41.6%)	0.793
Bleeding	11(18.3%)	01(1.7%)	12(20%)	0.001
Infection	04(6.7%)	0(00.0%)	04(6.6%)	0.038
Constipation	01(1.7%)	01(1.7%)	02(3.3%)	1.000
Incontinence	02(3.3%)	0(00.0%)	02(3.3%)	0.150
Dizziness	01(1.7%)	01(1.7%)	02(3.3%)	1.000
No complications	09(15.0%)	16(26.7%)	25(41.6%)	0.067

In the first month post management no big differences and P value was scientifically insignificant. No complications were reported in 46 (76.6%) patients GTN (40%) vs. (36.7%) in surgery with insignificant P value 0.542. Three (5%) patients and two (3.3%) patients of post-surgery patients suffer from pain and bleeding respectively, two (3.3%) patients and one (1.7%) patient of post GTN patients suffer from pain and bleeding respectively. Four (6.6%) patients had recurrence two post surgeries and two posts GTN. No cases of infection and incontinence were reported (Table 3).

Table-3: First month complications in patients with thrombosed haemorrhoids

Complications	Surgery	GTN		P value
	Frequency	Frequency	Total	
Pain	03(5.0%)	02(3.3%)	05(8.3%)	0.64
Bleeding	02(3.3%)	01(1.7%)	03(5%)	0.554
Constipation	02(3.3%)	03(5.0%)	05(8.3%)	0.64
Recurrence	02(3.3%)	02(3.3%)	04(6.6%)	1.000
No complications	22(36.7%)	24(40%)	46(76.6%)	0.542

After the third month no complications were reported in 53 (88.3%) patients mostly in GTN (48.33%) compared to (40%) in surgery with scientifically significant P value 0.010. Seven (11.6%) suffered from pain six (10%) of the patient had surgery and one (1.7%) only post GTN usage with scientifically significant P value 0.010. Four (6.6%) patients had bleeding mainly (5%) post surgery vs. (1.7%) post GTN with insignificant P value 0.076. Also four (6.6%) patients developed recurrence the majority three (1.7%) patients were post surgery. Only one patient had infection and incontinence each post surgery and none post GTN (Table 4).

Table-4: Third month complications in patients with thrombosed haemorrhoids

Complications	Surgery	GTN		P value
	Frequency	Frequency	Total	
Pain	06(10.0%)	01(1.7%)	07(11.6%)	0.010
Bleeding	03(5.0%)	01(1.7%)	04(6.6%)	0.076
Infection	01(1.7%)	00(0.0%)	01(1.7%)	0.313
Incontinence	01(1.7%)	00(0.0%)	01(1.7%)	0.313
Recurrence	03(5.0%)	01(1.7%)	04(6.6%)	0.076
No complications	24(40.0%)	29(48.33%)	53(88.3%)	0.010

DISCUSSION

Treating thrombosed haemorrhoids in casualty has variety of methods, depending on doctor experience, facilities and patient choices. Conservative management becomes wildly popular due to less morbidity and less invasive. In our study most of the patients 48.3% were less than 30 years old. The mean age was 32.2 ±9.3 in the range from 29.8 to 51.9 years [1-5]. In our study the male's patients were the majority 53% in the range from 48.8% to 63.6 [6-5]. The presentations triad in our study were pain, swelling and bleeding (96.7%, 88.3% and 15%) respectively which was different from other study that showed bleeding, pain and protrusion (63%,48% and 39%) [9]. Bleeding was reported as the most frequent presentation in Ray O *et al*. study and by 51% in Ram E. study [5, 9]. The duration of symptoms was less than seven days in the majority of patients by 95%. On digital rectal examination swelling found in all, 98.3% had tenderness, high anal tone found in 18.3% and only 13.3% had internal piles that only two patients of them developed recurrence. This study conducted in sixty patients had thrombosed haemorrhoids came to the casualty treated by two methods 50% by thrombectomy and 50% by GTN local application, the follow up was done from the first day up to three months in form of six periods (day one, first week, second week, first month, second month, and third month) to compare the developed complications (pain, bleeding, infection, incontinence, dizziness and recurrence), to assess the outcome and morbidity. post management recorded highest rates of complications among the other periods of follow up. In Patti J. *et al*. study he used an intrasphincteric injection of botulinum toxin to treat thrombosed haemorrhoids between case and control group, after 24 hours pain reduced markedly in the botulinum group with p value < 0.001, compared to our study the pain after 24 hours was statistically insignificant p value 0.436 between the surgery and GTN group and that can be attributed to higher efficacy of botulnium toxins injuction[10]. In our study the surgery group recorded the highest complications percentages bleeding was dominant post thrombectomy compared to GTN group p value 0.015. In the surgical group 1.7% developed flatus incontinence that resolved spontaneously without treatment after two days. While in GTN group the only drawback was higher patients 8.33% developed dizziness. In Cavcic J. *et al*. study he treated thrombosed haemorrhoids by three methods excision, incision and GTN application he found that

pain reduction was statistically significant p value <0.05 in the excision group, the other groups reveled no significance between them and that goes with our study as 20% patients developed pain post treatment [11].Wong JC. *et al*. treated thrombosed haemorrhoids by two methods stapled haemorrhoidectomy group and conventional haemorrhoidectomy group, he found that Pain developed in 4.1%, 5.7% patients respectively with p value <0.02 compared to 20% patients developed pain in our study, and that's revealed that stapled haemorrhoidectomy is better in pain reduction than conventional haemorrhoidectomy, thrombectomy and GTN application [4]. Khan KI. *et al*. study found that the use of combination of 0.2% Glyceryl Trinitrate and 2% lignocaine ointment to relieve pain post haemorrhoidectomy is better and statistically significant than used GTN or lignocaine separately, and higher free of complications rates after one week in the combination group [12]. In our study 18% of patients developed post surgery bleeding compared to 1.7% in GTN group p value 0.001 due to an invasive method of treatment in surgery. Gorfine SR. *et al*. study used 0.5% nitroglycerin ointment topically for thrombosed haemorrhoids, after one week 35% developed dizziness compared to 3.3% in our study, although we used 0.2% glyceryl trinitrate [13]. Perrotti P. *et al*. treated thrombosed piles with topical 0.3% nifedipine and 1.5% lidocaine, after one week complete resolution of complaints was in 86% of patients in nifedipine group and 50% in lidocaine group compared to 9% in surgery and 26.7% in GTN group in our study and that can be attributed to high efficacy of nifedipine and lidocaine in treating thrombosed haemorrhoids [14]. Allan A. *et al*. study compared hospital stay post treatment of thrombosed haemorrhoids between urgent heamorrhoidectomy and conservative management he found that the average hospital stay was two nights for conservative group and four nights for the haemorrhoidectomy group p value <0.01 compared to no hospital stay in our study [15]. In our study after the third month of follow up, pain was found in 10% of patients in the surgery group compared to 1.7% in GTN group which was statistically significant p value 0.010. As surgery morbidity rates exceed the conservative management. Chan KK. *et al*. study the management of thrombosed haemorrhoids by surgery and local GTN, they found that the resolution period was four days for surgery group and 3weeks in GTN group compared to our study that resolution was variable either for surgery or GTN application from the first day to the third month [16].Ole G. *et al*. studied the management of external thrombosed piles by gentle dry cleaning with smooth toilet paper after defecation, resolution of complications was 61% of patients compared to our study 96% of patient were free of complications in GTN group and 80% in surgery group, and that can be justified by the superiority of GTN and surgery over cleaning with toilet paper, Ole G. study also revealed 13.9% recurrence rate in comparison to our study 10% and 3% recurrence rate in surgery and GTT groups respectively [17]. Jongen J. *et al*. study the treatment of thrombosed piles by excision by local anesthesia in the outpatient clinic the data showed recurrence developed in 6.5% of patients after seven months follow up compared to 10% in surgery group and 3.3% in GTN group after the third month, free of complication in Jongen J. study was 66% compared to 88% in our study, this can be attributed to the long follow up period [18]. Allan A. study used emergency haemorrhoidectomy vs. conservative method to treat thrombosed haemorrhoids, after excision 66% of patients develop anal sphincter damage compared to none in our study either in surgery or GTN group, this is justified that thrombectomy is more safe than excision haemorroidectomy [15]. Cavcic J. *et al.* study compared pain relieve in thrombosed haemorrhoids treated by excision, incision and conservative treatment with glyceryl trinitrate after one month of treatment, the pain reduced markedly after the excision group p <0.001 and no significant between the other groups and that goes with our study as no statistically significance p value 0.64 between the GTN and thrombectomy group in pain reduction after one month post management [16]. In Greenspon J. study he compared surgery vs. local GTN in treatment of thrombosed haemorrhoids, he found that after a month of follow up. The rate of recurrence in the conservative group was 25.4% whereas only 6.3% of the surgical patients had recurrence (P < 0.0001) compared to 3.3% in both groups in our study [19].

CONCLUSION

The application of GTN is more safe and less complications as it has less bleeding, infection and recurrence rates also higher rates in patients without complications all over the period of follow up, GTN shows higher frequency in dizziness, longer time in relieving of pain in some patient mainly in large size prolapsed haemorrhoids. In thrombectomy. Higher morbidity with increased recurrence rates after 2 months. Some patients required dressing which was painful and costly.

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