

Post hemorrhoidectomy pain

A randomized controlled trial

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ABSTRACT

Objective: To compare the effect of metronidazole on post conventional hemorrhoidectomy pain in patients with third and fourth degree hemorrhoids.

Methods: Two hundred consecutive patients admitted in King Fahad Hospital, Hofuf, Saudi Arabia between June 2002 and May 2004 for surgical treatment of 3rd and 4th degree hemorrhoids were randomly assigned into 2 groups. In Group 1 (100 patients) pre and postoperative metronidazole was used and in Group 2 (100 patients) no medications were given. All patients received castor oil from 2 days before surgery and lactulose after surgery for 2 weeks. Patients were discharged home when free of pain.

Results: Patients in group 1 had significantly less pain than those in the second group. Hospital stay and time to first bowel motion were not significantly different between both groups and, early and late complications appear similar. Return to normal activity was significantly shorter in the metronidazole group.

Conclusion: Prophylactic metronidazole in Milligan-Morgan hemorrhoidectomy is associated with less pain and earlier return to normal activity.

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Hemorrhoids and their symptoms are one of the most common disorders and almost every one suffers from hemorrhoids at some time in their lives.^{1,2} Hemorrhoidectomy by conventional techniques causes considerable postoperative pain because of wide external wound in the somatically innervated perianal skin³ and this pain cause anxiety to patients and doctors and this operation has remained largely an inpatient procedure. Clinical trials to decrease postoperative pain were many but the operation was still uncomfortable. Preoperative laxative⁴ and postoperative metronidazole,⁵ postoperative nitroglycerin ointment,⁶ perianal infiltration with local anesthetic,⁷ all used for reduction of the early post hemorrhoidectomy pain. Whatever treatment is used, postoperative management is the same. The goal is to

keep patients' stool soft and control any discomfort.² The beneficial effect of metronidazole on pain after day-case hemorrhoidectomy was ascertained.⁵ We assessed in a randomized controlled trial the effect of metronidazole on conventional hemorrhoidectomy carried out as an inpatient procedure.

Methods. Two hundred consecutive patients with symptomatic third or fourth degree hemorrhoids were eligible for the trial between June 2002 and May 2004; only 166 patients continued the study. A written informed consent was obtained after its approval from the Local Ethics Committee. One hundred patients were randomly assigned to the metronidazole group (Group 1) and 100 were randomly assigned as non-metronidazole group

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(Group 2). Symptoms and laboratory examinations of patients were documented and assessed in the outpatient clinic. They were admitted one day before the surgery. Patients with other coexisting perianal disease, previous perianal surgery, or complicated hemorrhoids were excluded. In the operating theatre, once the patient was anesthetized in the lithotomy position, the patient underwent conventional diathermy dissection hemorrhoidectomy. The operative technique consisted of retraction of the pile mass with an artery forceps, diathermy dissection and excision. Suture ligation of the pedicle was avoided and only carried out if diathermy failed to secure the hemostasis. All patients received castor oil (20 ml once daily) 2 days before surgery, lactulose (20 ml twice daily) for 2 weeks, regular diclofenac (50 mg 3 times daily) orally and xylocaine 2% ointment (3 times daily). The first group (n=84 patients) received metronidazole (500 mg intravenously) at the induction of anesthesia and 2 other doses given 2 hours and 10 hours after the procedure, and 500 mg metronidazole was given orally 3 times a day for 3 days. Group 2 (n=82 patients) did not receive metronidazole. The same team of surgeons did all operations and the 2 surgeons were not involved in the collection of

postoperative data. An outpatient appointment was arranged one week and 3 weeks post-discharge and at 6 weeks postoperatively. Patients were assessed for postoperative pain on the day of surgery and every day for the first 7 days. We used 2 linear analogue scales (10 cm) to record the worst pain experienced and the expected degree of pain. The primary outcome measure was postoperative pain. The secondary outcome measure was pain expected, hospital stay, time of first bowel motion, and the time until return to normal activity.

For the statistical analysis, the data were collected using EPI info software program version 6.01(1988). Chi square (χ^2) test was used for comparison of frequencies and student's t test was used for comparison of data presented as mean \pm SD of both groups. We took a value of ≤ 0.05 to be significant.

Results. Demographic data of the patients were similar for the 2 groups of patients (Table 1). No significant difference was noted. Table 2 showed that pain experienced score and pain expected score was much less among the metronidazole group at the 4th day postoperatively. Table 3 and Figures 1 and 2 showed that average pain experienced was statically

Table 1 - Demographic data of the studied patients.

Demographic data	Metronidazol group n=100 (%)	Non metronidazol group n=100 (%)	Significance test
Age of patients			
Range (years)	32 - 61	29 - 61	T=1.1022
Mean \pm SD	46.6 \pm 10.6	48.3 \pm 11.2	p>0.05 Not significant
Gender			
Males	39 (39)	43 (43)	$\chi^2= 0.331$
Females	61 (61)	57 (57)	p>0.05 Not significant
Patients in the study			
Refuse surgery	2 (2)	3 (3)	$\chi^2= 1.174$
Patients refuse continuing treatment	14 (14)	15 (15)	p>0.05
Patients continued to the end of the study	84 (84)	82 (82)	Not significant
Duration			
<2 years	37 (37)	38 (38)	$\chi^2= 1.257$
2-4 years	49 (49)	53 (53)	p>0.05
>4 years	14 (14)	9 (9)	Not significant
Degree of hemorrhoid			
Third degree	46 (46)	52 (52)	$\chi^2= 0.396$
Fourth degree	54 (54)	48 (48)	p>0.05 Not significant

Table 2 - Pain experienced and expected pain among the patients continued the study (at the fourth day postoperatively).

Pain (scores)	Metronidazol group n=84 (%)	Non metronidazol group n=82 (%)	Significance test
Experienced pain			
No pain (0)	11 (13.1)	3 (3.7)	
Mild pain (1- 3)	36 (31.7)	26 (31.7)	$\chi^2= 9.501$
Moderate pain (4-7)	29 (34.5)	38 (46.3)	$p=0.0233$
Sever pain (8-10)	8 (9.5)	15 (18.3)	Significant
Expected pain			
Less expected	45 (53.6)	25 (30.5)	$\chi^2= 10.899$
As expected	22 (26.2)	24 (29.3)	$p=0.004299$
Far worse	17 (20.2)	33 (40.2)	Significant

Table 3 - Average pain experienced and pain expected among the patients continued the study (throughout the first week postoperatively).

Pain	Mean ± SD		Significance test
	Metronidazole group n=84	Non-metronidazole group n=82	
Days pain was experienced			
0	8.5 ± 1.16	8.9 ± 1.37	T=2.03, $p \leq 0.05$
1	7.1 ± 1.09	8.0 ± 1.24	T=4.17, $p \leq 0.001$
2	6.2 ± 1.03	7.2 ± 1.13	T=5.92, $p \leq 0.001$
3	4.8 ± 0.98	6.3 ± 1.11	T=9.2, $p \leq 0.001$
4	3.3 ± 0.81	4.9 ± 1.02	T=11.88, $p \leq 0.001$
5	1.2 ± 0.37	3.5 ± 0.87	T=22.11, $p \leq 0.001$
6	0.9 ± 0.24	2.9 ± 0.79	T=22.2, $p \leq 0.001$
7	0.8 ± 0.21	2.6 ± 0.65	T=24.1, $p \leq 0.001$
Days pain was expected			
0	-0.1 ± 0.06	4.9 ± 1.32	T=34.2, $p \leq 0.001$
1	-0.3 ± 0.09	4.1 ± 1.24	T=32.1, $p \leq 0.001$
2	-0.6 ± 0.18	4.3 ± 1.26	T=35.0, $p \leq 0.001$
3	-0.4 ± 0.13	3.5 ± 1.13	T=31.5, $p \leq 0.001$
4	-1.1 ± 0.22	3.2 ± 1.09	T=35.0, $p \leq 0.001$
5	-1.3 ± 0.28	2.2 ± 0.63	T=46.1, $p \leq 0.001$
6	-1.4 ± 0.36	1.1 ± 0.45	T=39.7, $p \leq 0.001$
7	-1.3 ± 0.31	0.8 ± 0.23	T=49.6, $p \leq 0.001$

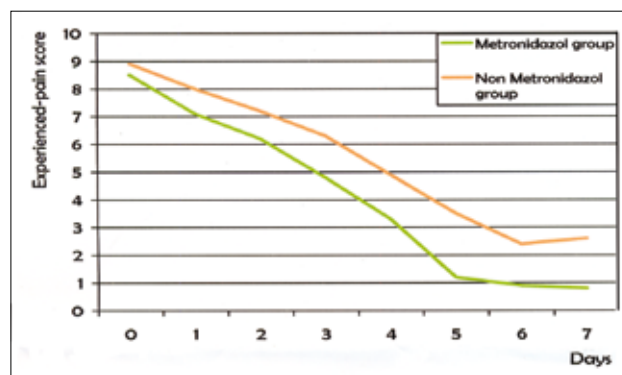


Figure 1 - Average of experienced-pain score throughout the first week postoperatively

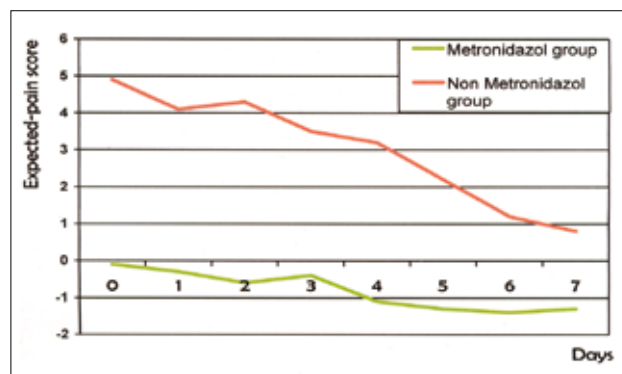


Figure 2 - Average of pain-expected score throughout the first week postoperatively.

lower among the metronidazole group patients even at the day of surgery. This difference becomes more obvious and statically significant at the end of the 1st week post-operatively. Also showed that the expected score of the pain was much worse among the patients in group 2 (non-metronidazole group). There was no difference between the 2 groups for the first postoperative bowel motion, which was on the day of operation (30% in first group and 26% in second group) or one day later (70% for the first group and 74% for the second group). The mean hospital stay (numbers of nights) postoperative was not significant between the 2 groups ([3.2 versus 4.1] [$p > 0.05$]). Time to return to normal activity was significantly earlier return in metronidazole group (21 [7-24] versus 30 [14-45] $p \leq 0.05$). Thirteen patients (13%) in group 1 and 21 (21%) in group 2 required additional dose of parenteral analgesia (Pethidine 1 mg/kg) on the first postoperative night. Two patients in group 1 and 7 patients in group 2 required additional dose on the second postoperative night. Earlier complication consisted of acute urinary retention in 4 patients (4%) in group 2 but one patient in metronidazole group.

Two patients in group 1 and 16 patients in group 2 showed unhealed perineal wound in 6 weeks OPD visit but all wounds were healed within the next 3 months. Two patients in group 1 and 11 patients in group 2 were treated for constipation within the follow up period. The follow-up was carried out in 80% in group 1 and 85% in group 2 for at least one year.

Discussion. As external hemorrhoids and their symptoms are common disorders and are usually associated with severe postoperative pain, many studies suggest that surgery should be preserved for complicated external hemorrhoids.⁵ Conventional hemorrhoidectomy with excisional techniques or diathermy dissection techniques are accepted as the most effective techniques for third and fourth degree hemorrhoids¹ and recurrent symptom and complication are rare when performed carefully.⁸ In an attempt to reduce the pain after hemorrhoidectomy, non-steroidal anti-inflammatory drugs and narcotic analgesics have frequently been used for pain relief.⁹ However, because their side effects are not uncommon,¹⁰ many new treatment modalities to reduce postoperative pain after hemorrhoidectomy have been tried.¹⁰ Different methods, such as stapling procedure,¹¹ rubber band ligation,¹² injection sclerotherapy,¹³ cryotherapy,¹⁴ internal sphincterotomy, anal dilation and local nitroglycerin and premedication with Dextromethorphan¹⁵ have been used with some success to reduce postoperative pain. Some studies indicated that spasm of the internal sphincter plays a role in anal pain after hemorrhoids surgery,¹⁰ while in another study it was postulated that the increase in postoperative pain might be due to secondary infection⁵ as bacterial colonization is common after open hemorrhoidectomy.¹⁶ This study shows that metronidazole used pre- and post-operatively effectively reduced the postoperative pain. The pain perception was measured directly by the visual analogue scale as subjective data and measured indirectly by recording the number of Voltaren tablet and Pethidine doses postoperatively as objective data. The length of hospital stay did not differ between the 2 groups, and this could be explained that discharge from the hospital was a secondary outcome measure. Also, the first bowel motion did not differ between the 2 study groups. Return to normal activity was earlier in the first group as well as the complication was less in the same group. These results could be explained by the metronidazole effect on the infection of hemorrhoidectomy wounds.

In conclusion, we agree with Carapeti et al⁵ study that metronidazole is recommended to be given routinely to hemorrhoidectomy patients.

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