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Original Research Article

A comparative study of open and closed hemorrhoidectomy

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ABSTRACT

Background: Hemorrhoidectomy is the treatment of choice for patients with third-degree or fourth-degree haemorrhoids. This prospective randomized clinical study compared the outcome of surgical haemorrhoidectomy by open and closed techniques in terms of postoperative pain, wound healing, and morbidity.
Methods: All consecutive patients with Grade III internal haemorrhoids or Grade IV haemorrhoids were randomly allocated to one of two groups. The entire wound was left open in the open group and completely closed using 2-0 chromic sutures in the closed group. Postoperative pain was assessed by a linear analog scale. Additional consumption of analgesics on the day of surgery and at defecation during the first week was recorded. Patients were followed up 1, 2, and 3 weeks after the procedure.
Results: There were 30 patients in each group. No statistically significant differences were found between the two methods regarding complications, pain, or postoperative stay. There were four reoperations for bleeding, all after Milligan-Morgan operations. At follow-up after three weeks 78 percent of the Ferguson patients had completely healed wounds, and none had signs of infection. Of the Milligan-Morgan patients, only 26 percent had completely healed wounds, and symptoms of delayed wound healing were significantly more frequent.
Conclusions: Both methods are fairly efficient treatment for third and fourth degree hemorrhoids, without serious drawbacks. The closed method has no advantage in postoperative pain reduction but is more advantageous with respect to faster wound healing.

Keywords: Closed hemorrhoidectomy, Haemorrhoids, Open hemorrhoidectomy

INTRODUCTION

Haemorrhoids are one of the most common afflictions of human beings from time immemorial.[1] Haemorrhoids are common disease affecting people of all ages and both sexes.[2] It is said that 40 percent of the population have symptoms due to haemorrhoids at some time of their lives, a price possibly man has had to pay following the evolution of his erect posture. It has been estimated that 50% of the population has haemorrhoids by the age of 50 years and these are supposed to be the commonest cause of rectal bleeding.[3,4] Historically, the most practiced surgical procedures for hemorrhoids were hemorrhoidectomies according to Milligan Morgan and Fergusson techniques.[5,6] Over the last few years, there has been increasing attention on surgical procedures to treat hemorrhoids. Several comparative studies have been performed to evaluate the procedures already available to treat second, third, and fourth-degree haemorrhoids, and new surgical techniques. However, still the Milligan-Morgan open hemorrhoidectomy is the most widely practiced surgical technique used for the management of hemorrhoids and is considered the current "gold standard". In this technique haemorrhoidal tissue is excised and wound is left open to heal by secondary intention. The main drawback of hemorrhoidectomy is

the uncomfortable pain in the first postoperative week. In Fergusson closed haemorrhoidectomy excision of the haemorrhoids is followed by primary suturing of the mucosal and skin edges with absorbable suture material like catgut. This method is stated to be better regarding healing time and other postoperativelv complications like bleeding and post-operative wound infections.[7-9] The purpose of this study was to compare the postoperative pain, wound healing and morbidity in correlation of two techniques.

METHODS

This prospective randomized clinical study was conducted during the period March 2017 to February 2018 in NRI Institute of Medical Sciences, Visakhapatnam. All consecutive patients with Grade III internal haemorrhoids or Grade IV haemorrhoids were randomly allocated to one of two groups.

A detailed informed consent was taken from all the patients. A routine soap water enema was administered at the night before operation and single dose prophylactic injections of third generation cephalosporin 1gm intravenously and metronidazole 500 mg intravenously was administered at the time of induction. The entire wound was left open in the open group and completely closed using 2-0 chromic sutures in the closed group. All the operations were performed by two senior consultant surgeons and the follow-up was also conducted by the same team. Postoperative pain was assessed by a linear analog scale. Additional consumption of analgesics on the day of surgery and at defecation during the first week was recorded. Patients were followed up 1, 2, and 3 weeks after the procedure.

RESULTS

Sixty patients were selected and randomly allocated to the procedure, 30 in each group. The age ranged from 25 years to 60 years. Among the total number of patients 40 were male and 20 were female. The pain perception 12 hours after surgery indicated no difference between open and closed hemorrhoidectomy group.

Table 1: Distribution of sex in study population.

	Open Hemorrhoidectomy (n-30)	Closed Hemorrhoidectomy (n-30)
Male (%)	20 (66.6)	20 (66.6)
Female (%)	10 (33.3)	10 (33.3)

After the first bowel movement 2 patients (3.3%) in the open hemorrhoidectomy group did not experience any pain, whereas in the closed hemorrhoidectomy group all patients experienced mild or moderate pain. Many patients experienced excruciating pain in the closed group than in the open hemorrhoidectomy group.

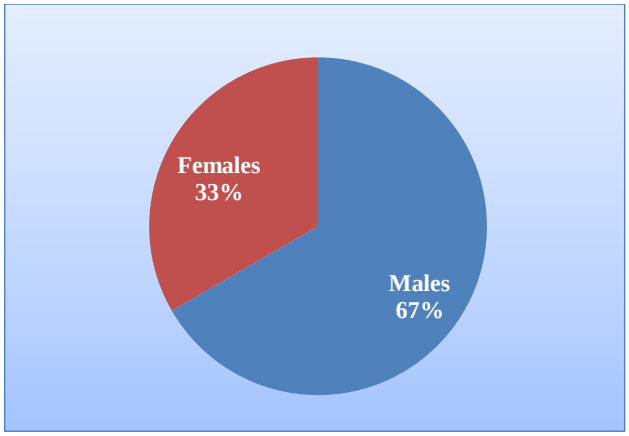

Figure 1: Percentage of sex ratio of patients.

Table 2: Pain perception 12 hours after surgery.

Pain	Open Hemorrhoidectomy (n-30)	Closed Hemorrhoidectomy (n-30)
None	17 (56.6%)	13 (43.3%)
Mild (1-4)	12 (40%)	15(50%)
Moderate (5-7)	1 (3.3%)	2 (6.6%)
Excruciating (8-10)	0(0)	0 (0)

One week after surgery all patients experienced mild to moderate pain in closed group, whereas in the open group 1 patient (3.3%) did not experience any pain. There was no much difference that patient experienced excruciating pain in open group than in the closed group (8 vs.10).

Table 3: Pain one week after surgery.

Pain	Open Hemrrhoidectomy (n-30)	Closed Hemorrhoidectomy (n-30)
None	1 (3.3%)	0 (0)
Mild (1-4)	5 (16.6%)	2 (6.6%)
Moderate (5-7)	16 (53.3%)	18 (60%)
Excruciating (8-10)	8 (26.6%)	10 (33.3%)

The mean time until the patients were pain free after surgery was 21 days in the open group and 22 days in closed group, signifies no difference. No patient suffered excessive postoperative bleeding. There were four reoperations for bleeding, all after Milligan-Morgan operations.

A small proportion of patients required catheterization and there was no significant difference incontinence between the two groups. At follow-up after three weeks 78 percent of the Ferguson patients had completely healed wounds, and none had signs of infection. Of the Milligan-Morgan patients, only 26 percent had

completely healed wounds, and symptoms of delayed wound healing were significantly more frequent

DISCUSSION

Hemorrhoids is a common disease and common in female, but the male:female ratio in our study was found to be higher than in study by Arbman G et al.[10] In the present study, we found that more number of patients presented with hemorrhoids in the age group of 31 to 50 years. Hemorrhodectomy was done by two methods open (Milligan-Morgan) and closed (Ferguson) hemorrhoidectomy. Most of the patients experienced pain following hemorrhoidectomy but it was more in closed group than those who underwent open hemorrhoidectomy. More emphasis has been applied to the management of pain after haemorrhoidectomy, not only because of the pain but also because of its role in urinary symptom.[11] The cases of urinary retention observed in our study (9.23%) are less than those indicated by Toyonaga et al, Pescatori (21.9%), and they are near the data provided by Chik et al, (7.77%) in a study on stapled hemorrhoidopexy.[12-14]

Pain perception after first bowel movement, there were more patients that experienced excruciating pain in the closed group than in the open group (20 versus 12). One week after surgery 1 patient (3.3%) in the open hemorrhoidectomy group did not experience any pain, whereas in the closed group all patients experienced mild or moderate pain. The Ferguson closed haemorrhoidectomy has reportedly been associated with less post-operative discomfort, faster healing, intact postoperative continence, and no need for subsequent anal dilation. Similarly, McConnell and Khubchandani reported a small incidence of postoperative pain, infection, and faster healing.[15] In another randomized trial, Carapeti showed that there was no significant difference in the mean pain scores between the open and closed haemorrhoidectomy techniques.[16] No patient suffered excessive postoperative bleeding, postoperative bleeding is a particularly important complication in treating haemorroids due to its frequency, which vary between 0.6% and 10% (Pescatori, Chik et al) in the study.

Wound healing was considerably faster in patients operated on by the Ferguson technique. In the present study more patients (78%) had completely healed wounds following closed hemorrhoidectomy as compared to (26%) open group after three weeks. In study conducted by Arbman G et al, You SY et al, wound healing following closed hemorrhoidectomy was 75% and 86% respectively and healing rates following open hemorrhoidectomy were 18% in both studies.[10,17] In yet another prospective, randomized trial, Gencosmanoglu et al reported that the open technique is more advantageous, in that patients experience less discomfort during the early post-operative period, although the healing time was shorter with the closed technique.[18] A higher rate of wound healing was noted following closed hemorrhoidectomy as compared to open in all the studies.

Hospital stay was less in closed hemorrhoidectomy but regular follow up revealed common complaint as pain in closed haemorrhoidectomy. In the present study, the average hospital stay for patients in open group was 5.4 days and closed group was 4.2 days. The shorter duration of stay in hospital, cost effectiveness and reliable outcome improves the patient compliance.

CONCLUSION

The post-operative pain was significantly low in the open compared to closed haemorrhoidectomy group. Closed hemorrhoidectomy leads to faster wound healing. Both methods are fairly efficient treatment for hemorrhoids, without serious drawbacks.

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