

Stapler Hemorrhoidectomy vs. Open Haemorrhoidectomy (Milligan Morgan): Outcome and Postoperative Complications Assessment

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Abstract:

Aim: The goal of this study was to look into and evaluate the outcomes and post-operative problems in patients with grade III and IV haemorrhoids who underwent Stapler or Milligan Morgan hemorrhoidectomy.

Methods: A total of 120 individuals with grade III and IV haemorrhoids, ranging in age from 38 to 50 years, were randomly assigned to one of two groups. There are 60 patients in Group 1 who are getting Stapler hemorrhoidectomy and 60 patients in Group 2 who are undergoing Open hemorrhoidectomy/Milligan Morgan. Patients in both groups were evaluated post-operatively for bleeding, discomfort, recurrence, and long-term consequences in comparison to their pre-operative symptom profiles.

Results: Stapler hemorrhoidectomy technique was quicker to perform in comparison with Open hemorrhoidectomy (p value < 0.001). Hospitalization and duration of resumption to daily activity was less in Stapler hemorrhoidectomy group as compared to Open hemorrhoidectomy/Milligan Morgan group (p value < 0.001).

Conclusion: Both procedures were efficient for hemorrhoidectomy therapy, however Stapler hemorrhoidectomy had advantages in terms of shorter operative times, less intra- and post-surgical bleeding, and a decreased incidence of various post-operative sequelae.

Keywords: Stapler hemorrhoidectomy; Milligan Morgan hemorrhoidectomy; surgical procedures; Hemorrhoids; Piles

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Introduction:

Anal cushions that expand, bleed, thrombose, and prolapse and generate clinical symptoms are referred to as haemorrhoids [1]. Internal haemorrhoids originate from the sub-epithelial plexus of the anal canal above the dentate line, whereas external haemorrhoids are aggregations of congested exterior perianal vascular plexus covered by perianal skin. Internal haemorrhoids are divided into four degrees based on the degree of prolapse, albeit this may not always reflect the intensity of a patient's symptoms. Discomfort, itching, mucous discharge, bleeding, pain, and prolapse are among the symptoms, which are linked to a sense of fullness and inadequate evacuation [2].

For prolapsing haemorrhoidal disease (third and fourth-grade), most frequent traditional surgical procedures performed are Milligan-Morgan open haemorrhoidectomy,¹ and Ferguson closed haemorrhoidectomy² techniques, both of which are associated with severe pain postoperatively due to wide external wounds and removal of innervated anoderma below dentate line and perianal skin.[3-6]The results of stapled haemorrhoidectomy have been assessed in some randomized controlled trials.[7, 8]

Surgery is the preferred treatment for grade III and IV haemorrhoids, especially in individuals who have failed to react to previous treatments [9-11]. However, the condition is not limited to elderly people, despite the male predominance [12].Surgery is not a realistic option for 1st and 2nd degree haemorrhoids and should be avoided. The Milligan Morgan hemorrhoidectomy is the most widely used surgical technique for the treatment of 3rd and 4th degree haemorrhoids, and it is considered the current Gold standard and has stood the test of time due to its low postoperative

complications, cost effectiveness, and better long-term effects [13, 14].

Although the Stapled hemorrhoidectomy treatment is recognized as a well-established procedure with relatively low complication rates and shorter hospital stays, it is an expensive procedure. The traditional care of haemorrhoids by open hemorrhoidectomy, while cost-effective, causes patients post-operative discomfort and other problems. As a result, the goal of this study was to compare stapler hemorrhoidectomy to Milligan Morgan open hemorrhoidectomy in terms of outcome and post-operative complications in the treatment of 3rd/4th degree haemorrhoids [15].

Materials and Methods:

A prospective comparative hospital-based study was done in the Department of General Surgery at Nalanda Medical College and Hospital, Patna, Bihar, India for 1 year.

A total of 120 patients diagnosed with grade III and grade IV haemorrhoids, aged 38 to 50 years (median age – 45.1 (Group-1), 45.3 (Group-2) were recruited in the study sequentially by convenient sampling until the sample size was met. All individuals signed an informed permission form, and the study participants' identities were kept private. The research protocol was approved by the hospital's ethics committee.

Patients in Group 1 had Stapler hemorrhoidectomy (60 patients), while patients in Group 2 had Open hemorrhoidectomy/ Milligan Morgan (60 patients). A comprehensive clinical history, clinical examination, and proctoscopy were used to assess the patients. The surgical procedure was chosen based on the hospital

protocol and the preferences of the participants.

Technique:

The surgery was performed while the patient was in the lithotomy position, under spinal anesthetic. After prepping the anal canal (operating surface) and a Proctoscopy inspection, SH was performed. A transparent anal dilator was gently introduced and sutured to the perianal skin, followed by the suture anoscope, which was placed through a mucosal purse-string suture about 3-4 cm above the dentate line. The purse-string suture was then secured to the fully opened stapling device by threading its two ends through the stapler's lateral apertures. With sustained traction to the sutures, the stapler was closed until the maximum was attained.

The stapler was placed and held in position for 2 minutes before being opened and gently removed with one and a half turns. The authenticity of the donut was confirmed. The staple line was checked for its position above the dentate line, and bleeding areas were cauterized or suture ligatured to stop the bleeding. A Kelly clamp was placed over one haemorrhoidal pedicle during the open hemorrhoidectomy,

Results:

and an absorbable suture ligature was formed at the apex of the haemorrhoidal pedicle. A V-shaped incision was made on the external skin, which was then expanded to a thin eye-shaped incision towards the ligated vascular pedicle, which was dissected with sharp scissors and electrocautery. The wound was left open to heal after the hemorrhoid was removed. For the other hemorrhoid pedicles, the process was repeated. Intraoperative time and intraoperative bleeding were measured and recorded during the procedure. During this time, all problems were documented, as well as their response to therapy. In both groups, the cost was calculated based on the length of hospital stay and time to resume normal activities, and all patients were followed for 6 months following surgery to assess the development of recurrence and long-term problems such as anal stenosis and incontinence.

Statistical analysis

SPSS software version 22.0 was used to collect and analyses data. For each variable, descriptive statistics were reported. Student's t test was used to compare the two groups, with a p-value of less than 0.05 considered significant.

Table 1: Demographic Profile

	Group		P-value
	Stapler Haemorrhoidopexy (N=60)	Open hemorrhoidectomy (N=60)	
Gender			
Males	77.2%	73.8%	0.781
Females	29.2%	33.9%	
Age in years Median (IQR)	48.9	51.7	0.891
Height Cm, Median (IQR)	182	188	0.177
Weight kg Median (IQR)	73	79	0.902
BMI Mean \pm Std	27.81 \pm 2.89	29.01 \pm 1.72	0.651

There were a total of 120 patients in the study. There were two groups of patients: group-1 and group-2. Stapler haemorrhoidectomy was performed on group 1 patients, while open hemorrhoidectomy

was performed on group 2. Patients with stapler Haemorrhoidopexy had a median age of 45.1 years, while those with open hemorrhoidectomy had a median age of 45.3 years. In both groups, males outnumbered females.

Table 2: Comparing the signs and symptoms in both the groups

	Group		P value
	Stapler Haemorrhoidopexy	Open hemorrhoidectomy	
Bleeding per rectum	92%	98%	<0.05
Duration of BPR (in days) Median (IQR)	9	9	<0.05
Pain during defecation	92%	99%	<0.05
Mass per anum	91.7%	99%	<0.05
3rd degree	63.8%	72%	<0.05
4th degree	36.7%	36%	

The majority of the patients were suffering from third-degree haemorrhoids (72 percent). 63.8 percent of participants in the stapler Haemorrhoidopexy group were in the third degree, while the remaining 36.7 percent were in the fourth degree. 70% of the individuals in the open hemorrhoidectomy group had 3rd degree haemorrhoids, while 36% had 4th degree haemorrhoids. The proportion of degrees of haemorrhoids between the groups was not statistically significant. (Table 2). The patients' main complaint was anal hemorrhage. Both groups of participants complained of rectum bulk, pain during defecation, and constipation.

In the stapler hemorrhoidectomy group, 92 percent of participants had rectum bleeding, while in the open hemorrhoidectomy group, 98 percent of patients had rectum bleeding. The median duration of BPR was nine days in both groups. There was no significant difference in the number of days spent on BPR across the groups. (Table 2). 92 percent of the stapler Haemorrhoidopexy group reported pain during feces, with 91.7 percent reporting a mass per annum. However, 99 percent of participants experienced pain during defecation, with 99 percent of open hemorrhoidectomy patients presenting with a mass per annum (Table 2).

Table 3: Comparing the intra-operative parameters in both the groups

	Group		P value
	Stapler Haemorrhoidopexy	Open hemorrhoidectomy	
Median time of procedure (min)	48 (48 to 50)	58 (58 to 60)	<0.001*
Intraoperative bleeding (ml) Median (IQR)	8 (9 to 7)	41 (37 to 43)	<0.001*

The mean operating time for stapler hemorrhoidectomy was 48 minutes (IQR 48 to 50), while it was 58 minutes for open hemorrhoidectomy (IQR 58 to 60). There was a significant difference in the time procedure between groups (P value 0.001).

(Table 3). The median intra-operative bleeding was 8 ml (IQR 9 to 7) in stapler hemorrhoidectomy patients, compared to 41 ml (37 to 43) in open hemorrhoidectomy patients, with a statistically significant difference in intra-operative bleeding between groups (P value 0.001). (Table 3).

Table 4: Comparing the post-operative parameters in both the groups

	Group		P value
	Stapler Haemorrhoidopexy	Open hemorrhoidectomy	
Post-operative bleeding(ml) Median (IQR)	5	11	<001*
Post-operative pain-VAS score Median (IQR)	5	9	<0001*
Post-operative Hospital stay in days Median (IQR)	3	6	<0001*
Resumption of daily activity (in days) Median (IQR)	4	7	<0001*
Recurrence	6%	3.0%	0.681
Incontinence	1%	8.3%	**
Anal stenosis	1%	6%	**

The median post-operative bleeding in the SH group was 3ml, while it was 14ml in the CH group. There was a statistically significant difference between the groups (P value 0.001). (Table 4). Patients who had stapled haemorrhoidectomy had a median VAS score of 5, while those who had open hemorrhoidectomy had a median VAS score of 11. There was a statistically significant difference in VAS scores between the groups (P value 0.001). (Table 4). The median hospital stay in days for persons who had a stapler haemorrhoidectomy was 3, whereas the median hospital stay in days for people who had an open hemorrhoidectomy was 6. There was a statistically significant difference between the groups (P value 0.001). (Table 4). The median return to normal activity (in days) for persons who had stapler Haemorrhoidopexy was 4, while it was 7 for people who had open

hemorrhoidectomy. The difference between groups in the time it took to return to regular activity (in days) was statistically significant (P value 0.001). (Table 4). The stapler Haemorrhoidopexy group had a recurrence rate of 6%, while the open hemorrhoidectomy group had a recurrence rate of 3 percent. There was no statistically significant change. (Table 4).

Discussion:

Stapled hemorrhoidopexy (SH) procedure invented by Dr Antonio Longo is a novel technique and a considerable modification in the treatment of hemorrhoids, in comparison with the Open hemorrhoidectomy (MM) procedure which is slightly more invasive and painful in the immediate postoperative period than Stapled hemorrhoidopexy (SH) procedure. In the present study we observed that the time taken to perform surgery was

significantly shorter in SH 40 min (IQR 38 to 40) than in MM 50 min (IQR 48 to 51) (P value <0.001). The possible reason could be attributed to the surgeon's experience, expertise with the technique, similar observations were reported by Daniel R et al. [16] However, Simone Manfredelli et al. [17] has reported that there is no statistically significant difference in the operating time and recovery time between the two procedures. A statistically significant difference (P value <0.001) was observed when the median intra operative bleeding was compared between the groups (5ml (IQR 4.25 to 6) in SH and 38ml (IQR 36 to 40) in MM groups). With better intra operative hemostasis only 2ml (IQR 1 to 2) of median post-operative bleeding was observed in the stapler haemorrhoidectomy procedure, with a statistically significant difference between groups was (P value <0.001). Similar observations were made by Dr.Mohan S V et al. [18] However, Kim JS et al. [19] (2013) has reported that the postoperative bleeding rate was 4.9 % in both groups.

Mehigan et al., and Rowsell et al., reported significant benefits of SH on short-term follow-up, including reduced post-operative pain and hospital stay, as well as faster return to normal activities. [20,21]Schalaby and Desoky reported in their cohort of 200 patients that SH was safe and was associated with fewer complications than OH after 6 months and 1 year follow-up. [22]

In comparison to open haemorrhoidectomy, Bhandari RS et al [23]hypothesised that SH had a better short-term outcome in terms of postoperative pain and analgesic demand. Kim JS et al [19] (2013) and Daniel R et al [16] similarly found comparable results. The results of the current study, not unexpectedly, confirmed this, with a statistically significant difference between the groups (P value 0.001). The lack of

nerve endings above the dentate line, as the surgery was performed above the dentate line, may account for the pain reduction. The stapler haemorrhoidectomy group spends less time in the hospital after surgery than the open hemorrhoidectomy group, with a statistically significant difference (P value 0.001). A study by Daniel R et al [16] indicated that the stapler haemorrhoidectomy group had a significantly shorter hospital stay.

The disadvantage of stapled hemorrhoidectomy, according to Giordano P et al [24], is that it has a considerably higher rate of recurrence and further operations than open hemorrhoidectomy.

Conclusion:

Stapler Hemorrhoidectomy has better short-term outcome compared with Open Haemorrhoidectomy in terms of postoperative pain, analgesic requirement, shorter hospital stay and earlier return to activity. However complications are similar in both groups. SH is a viable addition to the therapy options available for haemorrhoids.

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