ORIGINAL ARTICLE

Comparative Study of Management of Hemorrhoids: Stapler vs Open Hemorrhoidectomy

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Abstract

Aims and objective: To study postoperative pain, time taken for procedure, postoperative complications, return to normal activity, and recurrence between stapler and open hemorrhoidectomy.

Materials and methods: For this study, 40 patients of second- and third-degree hemorrhoids were operated for stapler or open method of hemorrhoidectomy. Follow-up of all patients was taken at first week, third week, and 1 year postoperatively.

Results: On the postoperative days one to four in stapler hemorrhoidectomy, there was decreased postoperative pain according to visual analog score, significantly reduced operating time and early gain of work (3 vs 20.5 days; $p = 0.001$). No difference in complications of both the method of surgeries was found. No recurrence was found in either of surgeries, while impaired wound healing was found more in open hemorrhoidectomy. After 1 year, there were no any complications such as recurrence, rectal stenosis, or perianal fistulas in stapler group.

Conclusions: Stapler hemorrhoidectomy was found to have decreased postoperative pain, earlier return to work, earlier recovery time, and zero recurrence in comparison with the open technique up to 1 year.

Clinical significance: Stapler hemorrhoidectomy can be a good option as compared to open hemorrhoidectomy in the form of less postoperative pain, hospital stay, and early return to work in second- and third-degree hemorrhoids without significant postoperative complications.

Keywords: Open hemorrhoidectomy, Recurrence of hemorrhoids, Stapler hemorrhoidectomy.

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Introduction

Pathological changes in cushion of vascular tissue in the anus leads to internal hemorrhoid development. Anal continence is maintained by these cushions as they help internal sphincter in complete closure of the anal canal. Hemorrhoids are presented with bleeding, mucus discharge, itching, pain, and something coming out per rectum which might be symptomatic or asymptomatic. Hemorrhoid is present in 4–34% of population.

Theories behind the development of hemorrhoids are rise in abdominal pressure, portal hypertension, straining during defecation, connective tissue abnormalities, and tissue metaplasia.[1] There is different grading of hemorrhoids according to their prolapse. First- and second-degree hemorrhoids are treated by band ligation and sclerotherapy or by conservative method. Surgical intervention is required for the third- and fourth-degree hemorrhoids. Anal mucosa is sensitive, so in the patient of open hemorrhoidectomy, removal of the hemorrhoid with anal mucosa and perianal skin causes pain. Also, patients have to get done cleaning and dressing of the wound and have to take care of hygiene especially from fecal contamination. Infection may occur which can prolong wound healing. Stapler hemorrhoidectomy also known as stapler rectal mucosectomy,[2] has emerged as a painless alternative. In this method, interruption of the blood supply of hemorrhoid reduces the size of the hemorrhoid and reduces the available rectal mucosa by which it decreases the rectal mucosal prolapse.[3]

This study compares stapler and open hemorrhoidectomy in terms of postoperative pain, hospital stay, and early return to work with or without complications for second- and third-grade hemorrhoids.

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Materials and Methods

Patients for this clinical study were selected who have internal hemorrhoids with the following inclusion and exclusion criteria. The study was comparing open hemorrhoidectomy and stapler hemorrhoidectomy for the management of grade-II bleeding hemorrhoids and grade-III hemorrhoids. Twenty cases of open hemorrhoidectomy and 20 cases of stapler hemorrhoidectomy were studied.

Inclusion Criteria

Patients coming to tertiary care center with grade-II bleeding hemorrhoids and grade-III hemorrhoids, who were willing for surgical management in hospital, were included in the study.

Exclusion Criteria

Patients who were not fit for the surgery, patients not willing to be a part of this study, patients having comorbid conditions and

associated gastrointestinal diseases, patients with gangrenous thrombosed piles, and patients with internal + external hemorrhoids were excluded.

In our study, we used 33-mm-diameter two-row staple line stapler.

Result

Nineteen patients of second-degree hemorrhoids and 21 of third-degree hemorrhoids were selected (according to the Milles classification).[4] Age, sex, and degree of hemorrhoid in all the patients were comparable. The findings of the patients in each groups are as follows (Table 1).

The mean operating time was 34 minutes with minimum of 20 and maximum of 50 minutes in the stapler group and mean of 40 minutes with minimum of 20 minutes and maximum of 60 minutes in the open group which was comparable to the Khalil study.[5]

Mean pain scores were 2.4 by using the visual analog scale (Fig. 1) on the first postoperative day and 0.3 on the fourth postoperative day in the stapler hemorrhoidectomy, while in the open hemorrhoidectomy, the values were 5.9 and 2.6, respectively. The average amount of pain in the stapler group was significantly lower than in the open group ($p = 0.001$). In Mehigan study,[6] mean pain scores were 2.7 and 0.5 on day 1 and day 4 in the stapler group, while in the open group, the respective values were 6.3 and 4.8 which is comparable to our study. More pain in the open hemorrhoidectomy is due to formation of raw area as compared to stapler hemorrhoidectomy which was performed without formation of raw area.

Table 1: Comparison of study groups

Characteristics	*Stapler group*	*Open group*
Total no. of patients	20	20
Degree of hemorrhoids:		
Second-degree	10	9
Third-degree	10	11
Mean age (range)	48.4 (28–73)	45.8 (30–71)
Male/female ratio	16:4	15:5

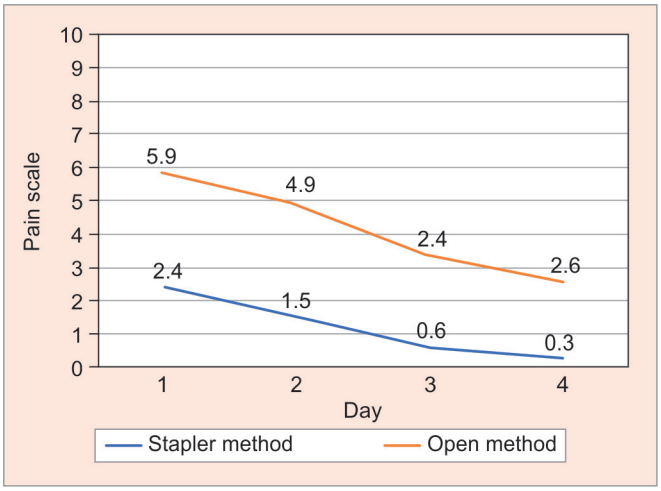


Fig. 1: Postoperative pain evaluated by the visual analog scale

The mean length of the hospital stay after stapler hemorrhoidectomy was 1.5 days, whereas it was 2.4 days in the open hemorrhoidectomy. Return to work by patients was an average of 3 days (range: 2–8 days) in the stapler hemorrhoidectomy and 20.5 days (range: 6–46 days) in the open hemorrhoidectomy ($p = 0.001$).

Postoperative complications observed included bleeding in one patient of stapler hemorrhoidectomy which was minor from the stapler line while urinary retention in one patient in the open group (Table 2). Bleeding complications occurred intraoperatively and managed by suturing with Vicryl (4'0) interrupted suture technique. Retention in open hemorrhoidectomy required K-90 catheterization.

Patients were followed up at 3 and 12 weeks, and impaired wound healing was found in 3 of the 40 patients, all in the open group, while none were found in stapler hemorrhoidectomy group. None of the patients had complaint of incontinence.

There were no recurrence, rectal stenosis, or perianal fistula in 1-year follow-up in any of the group.

Discussion

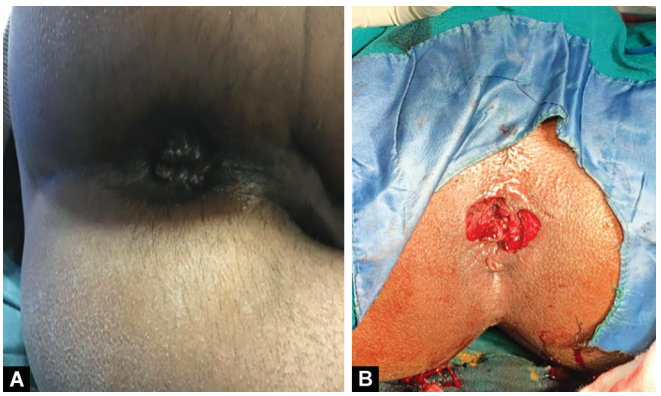
There are promising results of comparison of stapler hemorrhoidectomy with open hemorrhoidectomy. Stapler hemorrhoidectomy group had significantly reduced postoperative pain compared to open hemorrhoidectomy group. In the stapler Group IV, patients had no pain on the first operative day. Results of this study are similar with five randomized trials[4–8] on stapler versus open hemorrhoidectomy. In our open hemorrhoidectomy group, after postoperative day 4, pain was less as compared to above studies because we used to apply mixture of metronidazole with povidone-iodine ointment and lignocaine jelly. More and longer duration of pain in open hemorrhoidectomy was because of larger raw area, and we have to operate in the sensitive part of anal canal (Fig. 2).

Stapler hemorrhoidectomy had significantly less operative duration compared to open technique (mean 34 vs 40 minutes).

Other than one intraoperative minor bleeding episode, no local or systemic complications were seen in the stapler

Table 2: Postoperative complications

Complications	*Bleeding*	*Urinary retention*
Stapler group	1	—
Open group	—	1



Figs 2A and B: Postoperative images of stapler (left) and open (right) hemorrhoidectomy

hemorrhoidectomy.[8] The bleeding was due to a minute vessel in stapler line which is preventable complication by examining the staple line for bleeding after removing circular stapler.

Stapler hemorrhoidectomy has a probable risk of strictures after rectal wall resection.[9] There was no complain and clinical sign on examination for rectal strictures or stenosis after 12 months in our study.

In our study, after fifth postoperative day, no patient presented with complain of pain in stapler hemorrhoidectomy. This is because the stapler line remains 3–5 cm above the dentate line comparable to Longo study[10] and others,[3,11] and it is insensitive part of rectum and anal canal. Both groups had equal access to minor analgesics and considering that stapler hemorrhoidectomy had considerably less amount of pain than open hemorrhoidectomy as per our VAS score for pain on postoperative days 1–4.

Another finding was over 1-year follow-up; there was no recurrence in either group but a longer follow-up should be observed for study of recurrence.[8] Furthermore, recurrence also depends on diet and bowel habits of patients which is very important postoperative advice to be given to patient. We have advised all of our postoperative patients to avoid constipating diet and straining during defecation. We have advised our patient to avoid maida and its products, coffee, pomegranate, and such constipation-causing dietary habits and were encouraged to eat high-fiber diet such as green leafy vegetables and adequate amount of water with regular exercise. According to our study, all of the above advice given to patient also helps in reducing the constipation and recurrence.

Stapler hemorrhoidectomy is better option as compared to open hemorrhoidectomy in the form of pain, early discharge from the hospital, early regaining of work and equivocal complication rate. However, specialized training is required for stapler hemorrhoidectomy and also stapler is of single use disposable one so it increases the cost of surgery. Also, in patients with both internal with external hemorrhoids, we do not recommend stapler hemorrhoidectomy procedure because external hemorrhoids are needed to be separately removed which eliminate the advantages of stapler hemorrhoidectomy in the form of pain, hospital stay, and early return to work.

According to our study, stapler hemorrhoidectomy is better from the patient point of view, but a surgeon requires longer learning curve with specialized training.

Conclusion

We conclude that resection line should be kept at least three cm above the dentate line and proper hemostasis during surgery is a must requirement in stapler hemorrhoidectomy. Proper training and expertise are also required in stapler hemorrhoidectomy. In this manner, stapler hemorrhoidectomy is a procedure of choice in treatment of second and third grade hemorrhoids as it is safe and reliable. Clinical outcomes of stapler hemorrhoidectomy are very good in the form as it offers a similar clinical outcome as open hemorrhoidectomy, and it takes considerably less operating time, considerably less postoperative pain, and an earlier gaining of work. Further clinical trials are required to prove results of our study; stapler hemorrhoidectomy might become a gold standard for the second- to third-degree hemorrhoid treatment.

Clinical Significance

Stapler hemorrhoidectomy can be a good option as compared to open hemorrhoidectomy in the form of less postoperative pain, hospital stay, and early return to work in second- and third-degree hemorrhoids without added noticeable complications.

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