

Original Research Article

Evaluation of outcome in open and stapler haemorrhoidectomy in grade III/IV haemorrhoids

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ABSTRACT

Background: Haemorrhoids are one of most common benign anorectal malformation worldwide. There are various surgical treatment modalities for 3rd and 4th degree haemorrhoids. Open haemorrhoidectomy was the most widely practiced and is considered the current gold standard. In search of a newer surgical technique, stapler has been introduced for haemorrhoidectomy and has revolutionised operative procedures over the last decade world-wide due to its ease and simplicity and lesser post-operative complications. The following study was done to evaluate the outcome of open versus stapled haemorrhoidectomy in terms of post-operative pain, postoperative bleeding, duration of surgery, duration of hospital stays in a medical college hospital at Raipur, Chhattisgarh.

Methods: This was a prospective follow-up study, in patients undergoing surgery for grade III/IV haemorrhoids conducted in the Department of Surgery, Dr BRAM Hospital, Raipur, from August 2017 to July 2018. Fourteen patients underwent stapled haemorrhoidopexy and eighteen underwent open haemorrhoidectomy. All patients were reviewed immediately after surgery, at discharge and at 1, 3 and 10 weeks post-operatively. The two groups were compared for post-operative outcomes and complications.

Results: The majority of patients in the study were males and had grade 4 haemorrhoids. Stapled haemorrhoidopexy group had shorter duration of surgery, less postoperative pain, shorter duration of hospital stays as compared with open haemorrhoidectomy group. There were no major post-operative complications in the follow up period of 10 weeks in the stapled group.

Conclusions: Stapled haemorrhoidopexy is a safer alternative to open haemorrhoidectomy with many short-term benefits.

Keywords: Haemorrhoids, Open haemorrhoidectomy, Stapled haemorrhoidopexy

INTRODUCTION

Haemorrhoids are one of most common benign anorectal malformation worldwide. Haemorrhoids are cushions of submucosal tissue containing venules, arterioles and smooth muscle fibres that are located in anal canal. Third degree Haemorrhoid prolapses through the anal canal and require manual reduction. Fourth degree prolapses but cannot be reduced and is at risk for strangulation. There are various surgical treatment modalities for 3rd and 4th degree haemorrhoids.¹⁻³

Haemorrhoid disease is said to be the fourth leading outpatient gastrointestinal diagnosis, accounting for 3.3 million ambulatory care visits in the United States. Although so common, only around 4% seek medical help.⁴ Exact data on prevalence of haemorrhoids in India is rare. Around 5% of general population suffer from symptoms of haemorrhoids and one third seeks medical treatment.

Conventional haemorrhoidectomy is a commonly performed operation². It has good results but is a very

painful procedure resulting in a hospital stay of four to ten days and time off work for two to six weeks^{3,4}. The patient also faces the complications of haemorrhage, urinary retention and late complications like stenosis or incontinence.

In search of a newer surgical technique to treat the haemorrhoids, stapler has been introduced for haemorrhoidectomy⁵. Stapled haemorrhoidopexy has come up as a new and promising procedure with shorter operating time, minimal postoperative pain, early discharge and quick return to work.³⁻⁷

Rationale for Study: The open haemorrhoidectomy was the most widely practiced surgical technique for the management of 3rd and 4th grade haemorrhoids and is considered the current gold standard. But as per the recent literature, stapler as a mechanical adjunct to surgery has revolutionised operative procedures over the last decade world-wide due to its ease and simplicity and lesser post-operative complications. So, this study was conducted with the objective of evaluating the outcome of the two procedures in patients of grade III/IV haemorrhoids in terms of postoperative pain, bleeding duration of surgery and hospital stay at Dr. BRAM Hospital, Raipur, Chhattisgarh.

METHODS

This was a prospective observational study, in patients undergoing surgery for grade III/IV haemorrhoids in the Department of Surgery, Dr. BRAM. Raipur, from August 2017 to July 2018.

Inclusion criteria

All patients with grade III and grade IV haemorrhoids who have given consent for the study and age of patients - more than 18 years were included.

Exclusion criteria

Prior haemorrhoidectomy, anal fissure, anal stenosis, first and second-degree haemorrhoids, anal canal malignancy and severely ill patients were excluded.

Sample size

It was a time bound study of 12 months from August 2017 to July 2018. All patients who fulfilled the inclusion criteria were included in the study. The data was collected using a preformed semi-structured questionnaire.

Methodology

All patient of grade III/IV undergoing surgery by either method during the period of August 2017 to July 2018 at our institution who fulfilled the criteria were included in the study. After taking informed written consent, the

patient was enrolled for the study. The type of surgery to be done was decided by the operating surgeon and the patient.

All patients were admitted prior to the surgery and preliminary investigations for fitness of anaesthesia were done. Rigid sigmoidoscopy examination was performed to exclude any associated rectal or sigmoid pathology.

Both the procedures were conducted under Spinal Anaesthesia. The open haemorrhoidectomy was done by open haemorrhoidectomy method and stapler haemorrhoidectomy was performed according to the technique described by Longo with the slight modification using PPH set.

The study subjects were observed during intra operative period and examined till discharge in the post-operative period. All the patients received standard post-operative management. Patients were discharged when pain was under control and they felt comfortable. After discharge, patients were called for follow -up in OPD after 1 week, 3 weeks and 10 weeks postoperatively.

The primary endpoint of the study was post-operative pain measurement. Pain was assessed using a visual analogue scale (VAS), where 0 corresponds to no pain, 1 to 3 to mild character, 4 to 6 to moderate amount and 7 to 10 to maximum amount of pain. Pain scores were evaluated at day 0, at discharge, at 1 week, 3 weeks and 10 weeks postoperatively.

Other primary outcome measures were post-operative bleeding, operative time, duration of hospital stay, time until return to normal activity.

Post-operative bleeding was measured by the number of gauze piece or number of pads required.

Operative time duration was measured after positioning and start of surgery up to final wound packing. Duration of hospital stay was recorded and patients were discharged on conservative treatment

After discharge patient were called for follow up in OPD after 1 week, 3 weeks and 10 weeks. At each follow up, patients were asked about control of symptoms, any new complain, degree of continence to flatus and faeces. Physical examination was also carried out at each follow up.

Statistical analysis

Descriptive statistical analysis was carried out in the present study. Student t- test two tailed was used for continuous parametric variable. Mann -Whitney U test two tailed was used for continuous non- parametric variable. Chi square / fisher exact test was used to study parameters in categorical scale. P<0.05 was considered statistically significant.

RESULTS

A total number of 32 patients of grade III/IV fulfilling the inclusion criteria were enrolled. The mean age of the patients was found to be 44.09 years. The youngest patient who underwent haemorrhoidectomy was 22 years while the oldest being 67 years.

Most of the patients who underwent haemorrhoidectomy were males (90.6%). Pain during defecation (90.6%) and mass per rectum (87.5%) were the main presenting complaints (Table 1).

Table 1: Complaints of patients studied in open haemorrhoidectomy vs Stapled haemorrhoidectomy group.

| Symptoms | Open Frequency (%) | Stapled Frequency (%) | Total Frequency (%) |
|------------------------|--------------------------|-----------------------------|---------------------------|
| Bleeding | 16 (88.9) | 10(71.4) | 26(81.2) |
| Mass | 15 (83.3) | 13(92.85) | 28(87.5) |
| Pain during defecation | 17(94.4) | 12(85.7) | 29(90.6) |
| Constipation | 13(72.2) | 08(57.1) | 21(65.6) |

Out of the total 32 patients, 21 patients (65.6%) were grade III haemorrhoids patients and 11patients (34.4%) were grade IV haemorrhoids patients. 18 patients (56.25%) underwent open haemorrhoidectomy and 14 patients (43.75%) underwent stapled haemorrhoidectomy.

In this study, the mean duration of hospital stays (in days) was 4.56 ± 1.03 days in stapled haemorrhoidectomy as compared to 5.07 ± 0.85 days in Open Haemorrhoidectomy. The difference was not statistically significant (p value < 0.05). The duration of surgery in open haemorrhoidectomy group (31.43 mins) was significantly lower when compared to the stapled haemorrhoidectomy group (35.83 mins), $p < 0.05$.

In this study, no major post-operative complications were reported. Pain scores were significantly higher in Open Haemorrhoidectomy group at day 0 and at discharge but pain score at 7 days, 3rd week and 10th week didn't show any significant difference. (Table 2)

Post-operative bleeding was present in 83.3% patients in open haemorrhoidectomy patients and 85.7% patients in stapled haemorrhoidectomy group at 24 hours, while at discharge, the bleeding was present in 55.56% patients of Open haemorrhoidectomy group and 50% patients of Stapled haemorrhoidectomy group. The difference was found to be significant while the bleeding at 3rd week and 10th week didn't show any significant difference in both the groups (Table 3).

In this study, no major post-operative complications were reported. Post-surgery, 14 patients in stapled group had

bleeding as compared to 18 in the open group. No report of incontinence in open and stapled group. 13 patients in open haemorrhoidectomy group and 11 patients in stapler haemorrhoidopexy group had pain during passing stools (Table 4).

Table 2: Comparison of pain scores in stapled haemorrhoidectomy vs open haemorrhoidectomy group of patients.

| Pain (assessed by VAS) | Open | Stapled | P value |
|------------------------|-----------------|------------------|---------|
| Day 0 | 3.83 ± 0.8 | 3.00 ± 0.75 | 0.03 |
| Up to Discharge | 2.06 ± 0.71 | 2.00 ± 0.84 | 0.01 |
| Day 7 | 1.89 ± 0.72 | 1.71 ± 0.56 | 0.15 |
| 3 rd week | 0.56 ± 0.60 | 0.286 ± 0.45 | 0.54 |
| 10 th week | 0 | 0 | NA |

Table 3: Comparison of bleeding in stapled haemorrhoidectomy vs open haemorrhoidectomy group of patients.

| Bleeding | Open | Stapled | P value |
|-----------------------|----------|-----------|---------|
| Day 0 | 15(83.3) | 12(85.7) | 0.045 |
| Up to Discharge | 07(50.0) | 10(55.6) | 0.03 |
| Day 7 | 01(7.1) | 02 (11.1) | 0.21 |
| 3 rd week | 00(0) | 01(5.6) | 0.3 |
| 10 th week | 00(0) | 00(0) | NA |

Table 4: Comparison of post-operative complications in two groups of patients.

| Post-operative Complications | Open | Stapled |
|---|----------------|---------------|
| Stenosis | None | None |
| Recurrence | None | None |
| Pain during passing stool | 13 (out of 18) | 11(out of 14) |
| 1 st defecation post-surgery | 2 days | 2 days |

DISCUSSION

Thirty-two patients undergoing surgery for haemorrhoids at Dr. BRAM Hospital, Raipur, who fulfilled the criteria and were included in our study. Fourteen patients (43.75%) underwent Stapled haemorrhoidopexy and eighteen (56.25%) underwent open haemorrhoidectomy. 85.7% patients had Grade 3 in stapled and 50% in open, and 14.3% had grade 4 in stapled and 50% in open.

The mean (S.D) age was 44.09 ± 7.22 years. The mean age of group who underwent Open haemorrhoidectomy was 47.17 years ranging from 32 to 67, for group who underwent stapler haemorrhoidectomy, mean age was

40.14 years ranging from 22 to 59. In a study by Khan et al the mean age was 40.7 ± 11.6 years.⁸

In open haemorrhoidectomy group, 83.34% were males and 16.66% were females. And in stapled haemorrhoidopexy, all 100% were males. In a study by Sachin et al 66% were males and 34% were females (open haemorrhoidectomy group) and 54% were males and 46% were females (stapled haemorrhoidopexy group).⁹ Majority of the patients in the study done by Khan et al were male.⁸ The reason for higher proportion for male is that men are more likely to seek treatment while women don't come hoping the haemorrhoids to disappear on their own.

In our study out of total 32 patients, 65.63% were grade III and 34.37% were grade IV. Among 21 patients with grade III, 42.85% were operated by open method and 57.15% were operated by closed method. Among 11 patients with grade IV, 81.82% were operated by open method and 18.18% were operated by closed method. In study done by Khan et al, the majority (53.3%) of patients in both groups had third degree haemorrhoids.⁸ Sachin et al reported 47% (combined in both groups) patients had grade 3 haemorrhoids, and 53% had grade 4 haemorrhoids in their study.⁹

The duration of surgery (minutes) was compared in the two groups. In the stapled group, the mean duration of surgery was 31.43 min, ranging from 30 to 40 minutes. In the open group mean of 35.83 minutes, ranging from 30 to 60 minutes. Duration of surgery is significantly low in stapled group with $t=5.018$; $p<0.05$.

This is similar to the observation of other studies. Tjandra and Chan, published systematic review on stapled haemorrhoidopexy of all randomized, controlled trials until August 2006.¹⁰ Stapled haemorrhoidopexy was associated with less operating time (weighted mean difference, -11.35 minutes; $P = 0.006$). Stolfi et al (2008) in a study involving one hundred seventy-one patients comparing stapled haemorrhoidopexy and Milligan Morgan technique, mean surgical time was 28 min.¹¹ Hetzer, et al (2002) also observed a mean duration of 30 minutes.¹² The largest trial describing experience with 3,711 stapled haemorrhoidopexies was published recently by Ng KH, et al (2006).¹³ The median duration of operation was 15 minutes (range 5 to 45 minutes), much lower than most studies. The variation in the duration of surgery could be attributed to the individual skill of the operating surgeon to a procedure.

In our study, pain was assessed using a visual analog scale (VAS). Comparison of Pain scores in two groups of patients was carried out. The pain scores were significantly higher in the open group at day 0, at discharge, but there was no significant difference between pain scores at day 7, at 3 weeks and 10 weeks. Tjandra JJ, et al (2007) report less pain after stapled

haemorrhoidopexy, as evidenced by lower pain scores at rest and on defecation and 37.6 percent reduction in analgesic requirement.¹⁰ Stolfi, et al (2008) reported postoperative pain on first two postoperative days was similar.¹¹

Post-operative bleeding was present in 15 (83.3%) patients in open haemorrhoidectomy group and 12 (85.7%) patients in stapler haemorrhoidectomy group at 24 hrs. At discharge, bleeding was present in 55.56% patients of open group and 50% patients of stapled haemorrhoidectomy group. Post-operative bleeding was mild and was managed by stool softeners, sitz bath. No intervention was required in the two groups. In a study by Ho and Cheong et al (2000) on 85.5% conventional technique wounds remained unhealed, with more bleeding (33 (53.2 percent) vs. 19 (33.3 percent); $p<0.05$).^{6,8,14} In a study by Palimento in 2003, at long-term follow-up, episodes of bleeding were reported by 8/37 (21.6%) patients in the stapled group and 5/37 (13.5%) patients in the Milligan-Morgan group ($p=0.542$).¹⁵ In a study by Ascanelli S, Gregorio C et al (2006), one hundred consecutive patients were randomized to stapled (50 patients) or manual haemorrhoidectomy (50 patients).¹⁶ Two cases of early postoperative bleeding occurred after the stapled technique. In a study by NF Khan et al (2009) outcome of stapled haemorrhoidectomy versus Milligan Morgan's haemorrhoidectomy, the proportion of postoperative bleeding was higher in open than stapled haemorrhoidectomy group, but statistically insignificant ($p<0.05$).⁸

In this study the mean duration of hospital stays (in days) was 4.56 days in the stapled group as compared to 5.07 days in the open group. Duration of hospital stay is not significant, with $t=11.462$; $p=0.32$. this study supports the earlier findings of Manfredelli et al (2012), where there were no differences between Conventional haemorrhoidectomy and stapled haemorrhoidectomy about both pre and post-surgery hospitalization and intraoperative length.¹⁷ Shorter hospital stay in patients undergoing stapled haemorrhoidopexy was reported by Tjandra JJ, et al (2007) (weighted mean difference, -1.07 days; $p=0.0004$) and Khan et al (2009).^{10,8} In study done by Khan et al (2009), the mean length of postoperative hospital stay was significantly less in the stapled than open haemorrhoidectomy group (3.37 ± 2.2 vs. 2.03 ± 0.81 days, $p=0.003$).⁸ In study done by Sachin et al (2017), the mean duration of hospital stays (in days) was 2 days in the stapled group as compared to 4 days in the open group.⁹

No major post-operative complications were reported in our study. There was no incontinence in any group at follow up. There was no recurrence in any group during follow up. However, Tjandra JJ, Chan MK (2007) systematic review stated that although there was increase in the recurrence of haemorrhoids at one year or more after stapled procedure the overall need of surgical and

nonsurgical reintervention after the two procedures was similar.¹⁰ The reason for no post-operative complications in our study could be due to the vast experience of the operating surgeon in both procedures. The conclusion was stapled haemorrhoidopexy is safe with many short-term benefits and the long-term results are similar to conventional procedure.

This study has some limitations. Firstly, the sample size was less and secondly the patients were not randomly selected for the two procedures.

CONCLUSION

The present study confirms that stapled haemorrhoidopexy is associated with shorter duration of surgery, less postoperative pain, shorter duration of hospital stays and a quicker recovery, as compared with open haemorrhoidectomy. But post-operative bleeding was found to be more in stapled haemorrhoidopexy but it was statistically not significant. The procedure is not associated with major post-operative complications. There is no major complication in the follow up period of 10 weeks. Hence it was concluded that stapled haemorrhoidopexy is safe with many short-term benefits. It is a novel technique and has emerged as an alternative to open haemorrhoidectomy.

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REFERENCES

1. Welling DR, Wolff BG, Dozois RR. Piles of defeat. Napoleon at Waterloo. Dis Colon Rectum. 1988;31(4):303-5.
2. Hulme-Moir M, Bartolo DC: Haemorrhoids. Gastro enterol Clin North Am. 2001;30(1):183-197.
3. Gan SG. Haemorrhoids. In: Diseases of the rectum, anus, and colon. 1st ed. Philadelphia and London: WB Saunders Company. 1923:419-531.
4. Everhart JE, Ruhl CE. Burden of digestive diseases in the United States part I: overall and upper gastrointestinal diseases. Gastroenterol. 2009;136(2):376-86.
5. Thomson WH. The nature of haemorrhoids. Br J Surg. 1975;62(7):542-52.
6. Lunniss PJ, Phillips RK. Anatomy and function of the anal longitudinal muscle. Br J Surg. 1992;79(9):882-4.
7. Haas PA, Fox TA, Jr., Haas GP. The pathogenesis of haemorrhoids. Dis Colon Rectum. 1984;27(7):442-50.
8. Khan NF, Hussain Shah SS, Bokhari I. Outcome of stapled haemorrhoidectomy versus Milligan Morgan's haemorrhoidectomy. J Coll Physicians Surg Pak. 2009;19(9):561-5.
9. Sachin ID, Muruganathan OP. Stapled haaemorrhoidopexy versus open hemorrhoidectomy: a comparative study of short term results. Int Surg J. 2017;4(2):472-8.
10. Tjandra JJ, Chan MK. Systematic review on the procedure for prolapse and hemorrhoids (stapled haemorrhoidopexy. Dis Colon Rectum. 2007;50(6):878-92.
11. Stolfi VM, Sileri P, Micossi C, Carbonaro I, Venza M, Gentileschi P, et al. Treatment of hemorrhoids in day surgery: stapled haemorrhoidopexy vs MilliganMorgan haemorrhoidectomy. J Gastrointest Surg. 2008;12(5):795-801.
12. Hetzer FH, Demartines N, Handschin AE. Stapled vs. excisional hemorrhoidectomy: long-term results of a prospective randomized trial. Arch Surg. 2002;137(3):337-4.
13. Ng KH, Ho KS, Ooi BS. Experience of 3711 stapled haemorrhoidectomy operations. Br J Surg. 2006;93(2):226-30.
14. Ho YH, Cheong WK, Tsang C, Ho J, Eu KW, Tang CL et al. Stapled hemorrhoidectomy- cost and effectiveness. Randomized, controlled trial including incontinence scoring, ano-rectal manometry and endo-anal ultrasound assessments at up to three months. Dis Colon rectum. 2000;43(12):1666-75.
15. Picchio M, Palimento D, Attanasio U, Renda A. Stapled vs open hemorrhoidectomy: long-term outcome of a randomized controlled trial. International journal of colorectal disease. 2006;21(7):668-9.
16. Ascanelli S, Gregorio C, Tonini G, Baccarini M, Azzena G. Long stapled haemorrhoidectomy versus Milligan-Morgan procedure: short-and long-term results of a randomised, controlled, prospective trial. Chirurgia italiana. 2005;57(4):439-47.
17. Manfredelli S, Montalto G, Leonetti G, Covotta M, Amatucci C, Covotta A et al. Conventional (CH) vs. stapled hemorrhoidectomy (SH) in surgical treatment of hemorrhoids. Ten years' experience. Ann Ital Chir. 2012;83(2):129-34.

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