Original Research Article

New Indian Journal of Surgery
Volume 10 Number 2, March - April 2019
DOI: https://dx.doi.org/10.21088/nijs.0976.4747.10219.7

Efficacy of Stapler Hemorrhoidectomy Compared to Open Hemorrhoidectomy at a Tertiary Care Hospital

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How to cite this article:

Meghraj J. Chawada, Prashant R. Shinde, Sudhir B. Deshmukh. Efficacy of Stapler Hemorrhoidectomy Compared to Open Hemorrhoidectomy at a Tertiary Care Hospital. New Indian J Surg. 2019;10(2):167-173.

Abstract

Context: Open hemorrhoidectomy is known to cause longer duration of hospital stay, more pain post operatively compared to stapler hemorrhoidectomy.

Aims: To study efficacy of stapler hemorrhoidectomy compared to open hemorrhoidectomy at a tertiary care hospital.

Settings and design: Present study was hospital based prospective study carried out at Department of General Surgery, Government Medical College, Ambajogai.

Methods and material: 100 cases were selected and were divided randomly into two groups of open and stapler haemorrhoidectomies with 50 cases in each group.

Statistical analysis: Student t test, chi square test were used for statistical analysis.

Results: Open hemorrhoidectomy took significantly more time of surgery, significantly more time for defecation, their VAS pain score was significantly more, Urinary retention, bleeding was significantly more in open group compared to stapler group. In open group significantly more patients required multiple doses of postoperative analgesia compared to stapler group. 90% of the patients in open group required postoperative hospital stay for > 2 days compared to only 62% in stapler group. 96% of patients from open group took > 7 days to return to their work compared to only 50% of the patients from stapler group. Only 10% of the patients from open group expressed that they were extremely satisfied compared to 40% of the patients from stapler group and this difference was statistically significant.

Conclusion: Stapler hemorrhoidectomy is superior to open hemorrhoidectomy

Keywords: stapler hemorrhoidectomy; hospital stay; surgery; pain; symptoms.

Introduction

Hemorrhoids are one of the most common condition affecting most of the people globally as well as in India. There is a tendency among the people to neglect and ignore hemorrhoids due to the privacy associated with hemorrhoids. This leads to the prolapse and fissure in some cases. Due to late presentation, surgical management becomes necessary. But the actual treatment depends upon the type of the hemorrhoids and the hemorrhoids severity. It also depends upon what patient prefers as well as physician expertise. Currently based on the availability of the therapies some patients can be managed by conservative way while some can be managed by procedures which are office based and some can be operated [1].

In the conservative management type, patients can be managed by asking to take more fibre diet, and if needed along with medical treatment and

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Received on 04.01.2019, **Accepted on** 02.02.2019

certain changes in the lifestyle and these are mainly for hemorrhoids which are non thrombosed [2]. Conservative management goals are to treat the patients symptomatically and the cure may not be possible with this approach [3].

In surgical management, hemorrhoidectomy is the most commonly performed surgery [4]. "Milligan-Morgan hemorrhoidectomy" is the most commonly performed and popular among all the techniques of the hemorrhoidectomy. Hemorrhoids are a benign disease and compared to its benign nature, the surgical procedure is the more painful. It is associated with varying degrees of pain after the surgery. Hence, the patient has to stay in the hospital for 2-3 days post operatively. This hemorrhoidectomy requires on an average a convalescence period of minimum one month after the surgery for the patient to recover completely [5].

To overcome this side effect, stapler hemorrhoidectomy has been in use. In this technique, the traditional sutures used in hemorrhoidectomy are replaced by staplers. This technique has improved results from patient point of view. It is a simple technique, easy to perform and helps to restore anastomoses quickly. It was first introduced in the year 1993. Later it was improvised "and practiced by Antonio Longo" [6].

There has been a revolutionary change in the surgical management of the hemorrhoids after the stapler hemorrhoidectomy was introduced. Patient satisfaction is more in stapler hemorrhoidectomy compared to open hemorrhoidectomy as the patient can return to work earlier, has reduced pain after surgery and better outcome [7].

We conducted a prospective hospital based study at tertiary care centre in rural Maharashtra to compare the stapled hemorrhoidectomy and the open hemorrhoidectomy on a set of predetermined parameter.

Materials and Methods

Study design: A prospective hospital based study.

Study Place: Department of General Surgery, Government Medical College, Ambajogai.

Study Period: 1st January 2017 to 30th November 2018.

Study Population: Urban and Rural population between Ages 35 to 70 years.

Sample Size: 100 cases were selected by convenient sampling. They were divided randomly into two groups as per the treatment they were about to be receive. Treatment modality was open and stapler haemorrhoidectomies so we formed two groups namely open and stapler with 50 cases in each group.

Inclusion Criteria

1. Patients between 35 to 70 years
2. Grade 3 & 4 Hemorrhoids
3. Those who gave consent for the study

Exclusion Criteria

1. Patients below 35 and above 70 years
2. Patient with grade 1 & 2
3. Those who did not give consent for the study
4. Unfit for Anesthesia

Ethical considerations: Institutional Ethics Committee clearance was obtained. Informed consent was taken from every patient for inclusion in the present study.

Methodology: Detailed history as to duration of symptoms, presenting complaints etc was asked and recorded. All patients underwent thorough clinical examination. All routine investigations were done which were necessary for the surgical profile of the patients. Proctoscopy examination was carried out. Spinal anesthesia was used for all patients. As mentioned above, 50 patients underwent open hemorrhoidectomy and 50 patients underwent stapler hemorrhoidectomy. Postoperatively, patients were managed by antibiotics, antipyretics and analgesics. Patient satisfaction score was recorded and was coded as 1-5; 1 being not at all satisfied and 5 being extremely satisfied.

All patients were followed postoperatively as per the protocol.

Statistical analysis: Student 't' test, chi square test were used for statistical analysis

Results

Table 1 shows comparison of time required for surgery in two groups. Open hemorrhoidectomy took on an average 49.33 minutes compared to only 28.77 minutes required on an average for stapler hemorrhoidectomy. This difference was found to be statistically significant.

Table 2 shows comparison of variables in two groups. Patients undergoing open hemorrhoidectomy took 24.2 hours on an average for defecation compared to only 18.6 hours for patients who underwent stapler hemorrhoidectomy. This difference was found to be statistically significant. The degree of pain postoperatively as measured by VAS pain scoring was more in open group compared to the stapler group and it was statistically significant.

Table 3 shows comparison of post operative complications in two groups. Postoperative pain was felt by 35.5% of cases in open group compared to 50% of cases in stapler group but the difference was not significant. Urinary retention, bleeding was significantly more in open group compared to stapler group.

Table 4 shows comparison of postoperative analgesia required in two groups. In open group 60% required multiple doses of postoperative analgesia compared to only 16% in the stapler group and this difference was statistically significant.

Table 5 shows comparison of hospital stay in two groups. 90% of the patients in open group required postoperative hospital stay for > 2 days compared to only 62% in stapler group and this difference was statistically significant.

Table 6 shows comparison of time taken to return to work after surgery in two groups. 96% of patients from open group took > 7 days to return to their work compared to only 50% of the patients from stapler group and this difference was statistically significant.

Table 1: Comparison of time required for surgery in two groups

Surgery type	Mean time required (minutes)	T value	p value
Open	49.33 + 5.87	18.4605	0.0001
Stapler	28.77 + 5.25		

Table 2: Comparison of variables in two groups

Variables	Surgery type		T value	p value
	open hemorrhoidectomy	stapler hemorrhoidectomy		
Time taken for defecation (hours)	24.2 + 3.2	18.6 + 2.1	10.3456	0.0001
VAS pain scoring	6.4 + 0.9	3.2 + 0.6	20.9191	0.0001

Table 3: Comparison of post operative complications in two groups

Post operative complications	Open hemorrhoidectomy	Stapler hemorrhoidectomy	Yates corrected chi square	p value	OR	95% CI on OR
Pain	11 (35.5%)	5 (50%)	1.86	0.08640	2.538	0.8113-7.943
Urinary retention	12 (38.7%)	3 (30%)	5.02	0.01253	4.947	1.301-18.81
Bleeding	8 (25.8%)	2 (20%)	2.778	0.04780	4.571	0.9195-22.73
Total	31 (62%)	10 (20%)	16.54	0.0001	6.526	2.659-16.02

Table 4: Comparison of postoperative analgesia required in two groups

Analgesic doses in first 24 hours	Open hemorrhoidectomy	Stapler hemorrhoidectomy	Yates corrected chi square	p value	OR	95% CI on OR
Single dose	20 (40%)	42 (84%)	18.72	0.0001	0.127	0.049-0.3265
Multiple doses	30 (60%)	8 (16%)				
Total	50 (50%)	50 (50%)				

Table 5: Comparison of hospital stay in two groups

Hospital stay in days	Open hemorrhoidectomy	Stapler hemorrhoidectomy	Yates corrected chi square	P value	OR	95% CI on OR
< 2 days	5 (10%)	19 (38%)	9.265	0.001	0.1813	0.06119-0.5371
> 2 days	45 (90%)	31 (62%)				
Total	50 (50%)	50 (50%)				

Table 7 shows comparison of satisfaction score in two groups. Only 10% of the patients from open group expressed that they were extremely satisfied compared to 40% of the patients from stapler group and this difference was statistically significant.

Discussion

Mean time required for open surgery was significantly more compared to stapler group. Nisar PJ et al. [8] showed operative time mean difference, –12.82 minutes, which was almost

Table 6: Comparison of time taken to return to work after surgery in two groups

time taken to return to work after surgery	Open hemorrhoidectomy	Stapler hemorrhoidectomy	Yates corrected chi square	p value	OR	95% CI on OR
< 7 days	2 (4%)	25 (50%)	24.56	0.0001	0.04167	0.009121-0.1903
> 7 days	48 (96%)	25 (50%)				
Total	50 (50%)	50 (50%)				

Table 7: Comparison of satisfaction score in two groups

Satisfaction score	Open hemorrhoidectomy	Stapler hemorrhoidectomy	Total	Chi square	p value
1	14 (28%)	5 (10%)	19 (19%)	20.4957	0.0003
2	16 (32%)	5 (10%)	21 (21%)		
3	9 (18%)	9 (18%)	18 (18%)		
4	6 (12%)	11 (22%)	17 (17%)		
5	5 (10%)	20 (40%)	25 (25%)		
Total	50 (50%)	50 (50%)	100 (100%)		

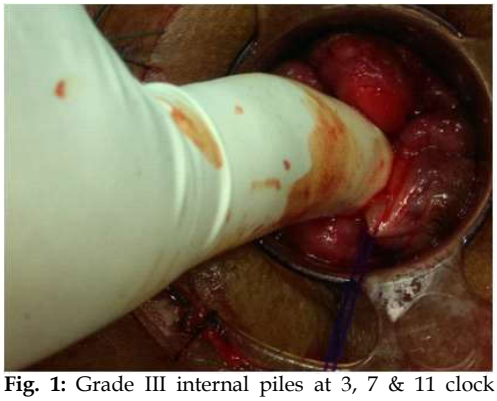

Fig. 1: Grade III internal piles at 3, 7 & 11 clock visualized after application of anal dialator

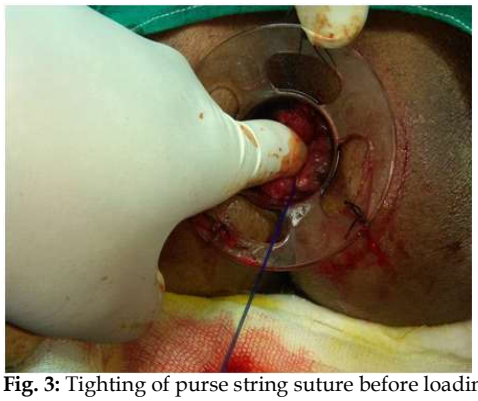

Fig. 3: Tighting of purse string suture before loading the stapler gun to fire

Fig. 2: Purse string suture application with the help of anoscope

Fig. 4: Firing of stapler gun after application & bringing the suture with the help of suture threader through the device

Fig. 5: Circular tissue donut containing rectal mucosa and hemorrhoidal tissue in stapler gun

Fig. 6: Circular donut of rectal mucosa & hemorrhoidal tissue after fire of stapler gun

Fig. 7: Dressing donut impregnated with metronidazole ointment & lignocaine belly per anum after firing stapler gun

similar with our study.

Thirumalagiri VR et al. [9] found that operating time for stapler haemorrhoidectomy was 28.76 ± 3.5 min and for open haemorrhoidectomy 36.2 ± 6.5 min.

Hetzer FH et al. [10] in their study said stapled hemorrhoidectomy was associated with a significantly reduced operating time. In this study blood loss was significantly lower in stapler group with 90% cases showing no blood loss during operation, while in open group 36% cases had blood loss during operation.

Maurya V et al. [11] study showed that 90% in stapler group had no blood loss while in open method 63% had blood loss in first 24 hours. This finding was exactly similar with our results.

Sachin ID et al. [12] noted this in 14% of patients in stapled hemorrhoidectomy group and 22% of patients in open hemorrhoidectomy group. In this study the time taken for defecation post operative was significantly lower 18.6 ± 2.1 hours in stapler group than open group 24.2 ± 3.2 hours.

P Thejeswi et al. [13] found that the time for passage of first stools post surgery was slightly reduced in the stapler group in comparison to the other two groups. The average time for the passage of first stools in the stapled and open group was 20 hrs and 24.9 hrs. These findings are inconsistence with our study

Mean VAS score was significantly lower in stapler group 3.2 ± 0.6 than open group 6.4 ± 0.9 in this study in 1st 24 hours of surgery. George R et al. [14] also concluded similar significance. Sachin ID et al. [12] said the pain scores were significantly higher in the open group.

Hetzer FH et al. [10] in their study found reduced postoperative pain scores (visual analog score) on the first 4 postoperative days day 1: 2.7 vs. 6.3.

Nisar PJ et al. [8] concluded that stapled hemorrhoidectomy is less painful compared with hemorrhoidectomy. In this study out of total 100 cases, 41 cases showed some sort of complications postoperatively, open group (75%) cases found to show significantly higher complications when compared with stapler group (25%) cases. With pain as the most common 39% post operative complication, next common was urinary retention in 36% cases and bleeding in 24%.

Hetzer FH et al. [10] in their study showed complications in 15% and 25% cases in stapler and open method respectively. This finding was in consistence with our study but in our study we have higher complications in open group, this may be due to higher grades of hemorrhoids and higher associated anorectal morbidities. However, the placement of the purse string suture too close to the dentate line can result in severe and persistent postoperative pain [15]. Only 29% cases in stapler group needed multiple doses while 71% cases in open group required multiple doses. Cases in open group found to be requiring significantly higher analgesic doses in first 24 hour of surgery.

Gravie JF et al. [16] found a clear difference in morphine requirement became evident after 24 hours ($p = 0.010$).

Sachin ID et al. [12] observed less postoperative

analgesia in stapler group. The duration of stay in the hospital was calculated from the date of admission to the date of discharge. Open group cases required significantly higher hospital stay than stapler group, with total of 90% cases needing more than 2 days hospital stay. While in stapler group 79% cases were discharged in 1st two days, and just 21% discharged in open group. 59% cases in open group stayed in hospital for more than 2 days. The average stay for stapler method was 2.5 days and for open method was 4.3 days.

Sachin ID et al. [12] found that average stay was 2 days in the stapled group as compared to 4 days in the open group, 80% were discharged within 2 days in the stapled group. These findings were in accordance with our study. Gravie JF et al. found hospital stay as significantly shorter in the stapler group 2.2 ± 1.2 ($p = 0.001$) this was almost similar with our study.

Stapler surgery cases joined their duties significantly early than open surgery group cases, with total of 92% cases returning to their work in first 7 days in stapler group, while in open group only 8% resumed their job in first 7 days. The mean in stapler group was 8 days and in open method it was 17 days.

Sachin ID et al. [12] study found the mean of 8 days in stapled group and 15 days in open group, which was in accordance with our study. About 50% of stapled group had returned to work at the end of one week in Sachin ID et al. [12] study, while in this study 92% cases returned to their work in first 7 days. Nisar PJ et al. [8] concluded return to normal activity was significantly lower in stapler group.

In this study total of 62% cases in stapler groups showed higher satisfaction score while in open group only 22% cases showed higher satisfaction, which mean patient satisfaction was statistically significant with stapler group (<0.05). They also noted significantly higher satisfaction score among patients in stapled group in Sachin ID et al. [12] and concluded similar findings as seen with our study.

Conclusion

Patients point of view; we conclude that stapler hemorrhoidectomy is more effective, safe, convenient procedure compared to open hemorrhoidectomy. The time to return to work, the duration of hospital stay, time to defecation after surgery, overall post operative pain, bleeding etc are significantly lesser with stapler hemorrhoidectomy compared to open hemorrhoidectomy.

Key messages

Patients with hemorrhoids should be offered the choice of stapler hemorrhoidectomy

References

1. Lohsiriwat V. Hemorrhoids: From basic pathophysiology to clinical management. World J Gastroenterol. 2012;18:2009–17.
2. ASGE Technology Committee Siddiqui UD. Barth BA, Banerjee S, Bhat YM, Chauhan SS, et al. Devices for the endoscopic treatment of hemorrhoids. Gastrointest Endosc. 2014;79:8–14.
3. Argov S, Levandovsky O, Yarhi D. Milligan-Morgan hemorrhoidectomy under local anesthesia - An old operation that stood the test of time. A single-team experience with 2,280 operations. Int J Colorectal Dis. 2012;27:981–5.
4. Jayaram S, Colguhoun PH, Malthaner RA. Stapled Versus Conventional Surgery for Hemorrhoids. Cochrane Database Syst Rev. 2006;18(4):CD005393.
5. Shalaby R, Desoky A. Randomized clinical trial of stapled versus Milligan – Morgan haemorrhoidectomy. Br J Surg. 2001;88(8):1049-53.
6. The Standard Task Force, American Society of Colon and Rectal Surgeons. Practice parameters for the treatment of haemorrhoids. Dis Colon rectum. 1993;36:1118-20.
7. Ellesmore, Windsor. Surgical History of Haemorrhoids. In Charles MV. Surgical Treatment of Haemorrhoids. London: Springer. 2002.
8. Nisar PJ, Acheson AG, Neal KR, Scholefield JH. Stapler hemorrhoidopexy compared with conventional hemorrhoidectomy: systemic review of randomized, controlled trials. Dis Colon Rectum 2004;47(11):1837-45.
9. Thirumalagiri VR, Rao R. A Comparative Study of Open Haemorrhoidectomy with Minimally Invasive Procedure for Haemorrhoids (MIPH). IOSR J Health Sci. 2017;16(1):51-6.
10. Hetzer FH, Demartines N, Handschin AE, Clavien P. Stapled vs. Excision Hemorrhoidectomy Long-term Results of a Prospective Randomized Trial. Arch Surg. 2002;137(3):337–40.
11. Maurya V, Jain V, Jolly S et al. comparative study of stapler hemorrhoidectomy and open hemorrhoidectomy. J Med Sci Clin Res. 2017;5(4):19892-19904.
12. Sachin ID, Muruganathan OP. Stapled hemorrhoidopexy versus open hemorrhoidectomy: a comparative study of short term results. Int Surg J. 2017;4:472-8.
13. Thejeswi P, Kumar LY, Ram S. Comparison Of Surgical Treatment of Hemorrhoids - Stapled

Versus Open And Closed Hemorrhoidectomy. The Internet Journal of Surgery. 2012;28(2):1-8.

14. George R, Vivek S, Suprej K. How long to stay in hospital: Stapled versus open hemorrhoidectomy? Saudi Surg J. 2016;4:108-12.
15. Seow-Choen F. Stapled hemorrhoidectomy; pain or gain. Br J Surg. 2001;88:1-3.
16. Gravié JF, Lehur PA, Huten N et al. Comparative study between stapler haemorrhoidectomy and open haemorrhoidectomy, Randomized Control Trials conducted in France; Annals of Surgery. 2005; 242(1):29-35.