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Original Article

Comparative Study between Stapled and Excision Haemorrhoidectomy for the Treatment of Haemorrhoids

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Abstract

Introduction: There are different techniques for the treatment of hemorrhoidal diseases. Stapled haemrrhoidectomy is one of the modern technique which has shown little postoperative pain, less hospital stay and early go back to work. This study has been done to compare stapled haemorrhoidectomy with conventional excision hemorrhoidectomy.

Methodology: The study was done in the Department of Surgery, Women's Medical College Hospital and different private clinics in Sylhet District, from July 2016 to December 2017.A total of 42 patients were selected fulfilling the inclusion criteria to the stapled (n=21) and openexcision (n=21) group .Those patients having any other associated anal pathology like fistula, fissure, abscess and neoplasm were excluded from the study. Lithotomy position and spinal anesthesia were chosen for all the patients. Both the procedures were evaluated on the basis of total operative time, pain scores, complications, hospital stay and go back to work.

Results: The mean age of patients was similar in both groups , that is 45.02 years (SD 12.30) in the stapled group and 47.54 years (SD13.50) in the open excision group.Male patients were more affected in both the groups (80.9%% in the stapled and 85.7% in the open group). Operative time was significantly less in the stapled group than in the open group (P .oo1). The blood loss, pain scores and requirement of analgesics was significantly less in the stapled group (P o.oo1). Average hospital stay was 2.20 days (SD 0.62)) in the stapled group and 3.25 days (SD 1.01) days in the open group(P 0.01). Patients of the stapled group returned to work earlier (8.18days [SD2.24] as compared with 18.87 days [SD5.34] in the open group [P 0.001]). Maximum follow-up period was 6 months.

Conclusions: Hemorrhoidectomy by stapled procedure is a safe and effective procedure for the treatment of grade II and grade III hemorrhoidaldieases. Early discharge and return to work are possible by this procedure. Furthermore, complications are as like as that of the open technique.

Key words: Hemorrhoids, Haemorrhoidectomy, Stapled Haemorrhoidectomy

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Introduction:

Hemorrhoidal disease is one of the commonest disorders of anorectal region, affecting more than15million people yearly in the United States[1].

This number probably underestimated the prevalence of the disease as one-third of patients with suffering from hemorrhoidal diseases never meet to a physician[2]. The prevalence of hemorrhoidal diseases is equal betweenmenand women, but menseek treatment more[3]Furthermore, the prevalence of hemorrhoidal diseases increases with age up to the seventh decade, after which point it seems to be a slight decline[2,3].

Surgical management for grade II and grade III hemorrhoidal diseases is best of any procedure done conservatively, like rubber-band ligation, sclero orcryotherapy[4]. Usually, open technique consists of excision of hemorrhoidal cushions with or without closure of the defect.

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Now a days, the use of surgical staplers for the excision of hemorrhoids are in great interest. Application of this new approach believes that it is superior to standard closed haemorrhoidectomy in terms of minimal postoperative pain and rapid wound healing[5]. Recently, Longo has proposed the use of a circular staplerinstrument for the treatment of haemorrhoids. The aims of the technique is to reduce the haemorrhoidal prolapsed and transect the superior hemorrhoidalarteries[6].

The prolapsed haemorrhoid mass is resolved byreducingthevenousengorgement with transecting the feeding vessels and redundant mucosa. This procedure results in a stapled mucosa anastomosis in the rectum, about 3 cm above the dentate line, where receptors for pain mucosa and anoderm is done[6].

This study was designed to evaluate the outcome of stapled hemorrhoidectomy and open excision haemorrhoidectomy in our setting.

Objectives of the Study:

To findout and compare the outcome of stapled haemorrhoidectomy and excision haemorrhoidectomy for the treatment of haemorrhoids.

Materials and Methods:

The study was done in the Department of Surgery, Women's Medical College Hospital and different private clinics in Sylhet District, from July 2016 to December 2017. The patients were duly informed of being included in the study. A detailed written consent was taken. All patients of grade II and III hemorrhoids were included in the study except those having any associated anal pathology like fistula ,fissure , abscess and neoplasm. In total, 42 patients who fulfiled the inclusion criteria were selected to 1 of the 2 treatment modalities. Thorough clinical examination and routine laboratory investigations were done preoperatively for all the patients. The patients were admitted directly before the day of surgery. The hospital stay for analysis was calculated starting from the day of admission. Phosphate enema was advised to each patient on the night before surgery.Injection ceftriaxone 1gm and metronidazole 500 mg intravenously were used as prophylactic antibiotic[7].

All operations were performedunder spinal anesthesia in lithotomy position. The stapled procedure was carried out according to the procedure described by Longo[8]. The purse string anoscope was used in the Ethicon Endosurgery stapler set, a circumferential purse string suture with 2-0 polypropylene suture material was taken starting at 3 o'clock, at least 2 cm proximal to the dentate line. Another single simple stitch was placed at 9 o'clock at the same level. This helped to excise a symmetrical ring of mucosa and submucosa when the staple gun had been fired.

The circular stapler was opened to its maximum level and positioned proximal to the purse string. Then the purse string was tightened, the stapler was fired and held in the same position for 20 seconds to confirm proper hemostasis.

The circular stapler was then withdrawn and checked for any defect. Like open excision techniques, the external hemorrhoidal components are not excised. It usually regress in the postoperative period[9]. In the open excision method, the pile masses were retracted using artery forceps and desection started from the mucocutaneousjunction. The pedicle was dissected, transfixed with 2-0 vicryl, excised the haemorrhidal mass and ensured proper haemostasis.

Time required for each operation was recorded. Total loss of blood in each case was estimated by counting the number of soaked gauze piece (1 soaked gauze piece=10 ml of blood). During postoperative period, an injection of diclofenac(1.5 mg/kg body weight) was givenintramuscularly . If there is no response within an hour, an injection of tramadol (2 mg/kg body weight) was given intravenously. Type and frequency of analgesics were recorded .Pain during postoperative period was evaluated by visual analog score (VAS) starting at 12 hours after surgery .Score of 10 indicates very severe pain and 0 indicates no pain [5]. Discharge of the patients were given when there was no need of injectable analgesics for the last 12 hours.

Pain scores also measured and noted at first motion after surgery. Patients were requested to come for follow-up after 15 days of discharge and then after 6 months. Those patients who

were unable to come for follow-up were inquired telephonically.

Statistical analysis:
Data was colleted and tabulated for analysis. All Quantitative variables were expressed as mean and standard deviation and qualitativevariables were expressed as percentage and proportion. Mann-Whitney U test and t test was used for the differences in the mean values between the 2 groups. A probability level of less than 0.05 was considered significant.A chi-square test was used for the differences in the proportions such as sex, grading, and so on between the 2 treatment groups.

Results:
A total of 42 patients consented to be a part of the study (21 in each group). The majority of the patients presented with bleeding as their main complaint. Table 1 summarizes the patients' profile.
Age differences of the patients between the 2 groups was not statistically significant (P = 0.35). Men were more commonly affected by grade II and III hemorrhoids. Bleeding was found 73.8% patient in the stapled group and 80.9 % in the open group.Prolapse was found 26.2% patient in the stapled group and 19.1% patients in open group. Constipation was found in 57.5% patients in the stapled group versus 66.7% patients in the open group.

Table 1: Patient profile

	Stapled (%)	Open (%)	*P* value
Mean age in years (SD)	45.02 (12.3)	47.54 (13.5)	0.35
Sex			
Males	17 (80.9)	18 (85.7)	0.57
Females	4(19.1)	3 (14.3)	
Grading			
Grade II	18 (85.7)	17 (83.3)	0.76
Grade III	3 (14.3)	4 (16.7)	
Chief complaint			
Bleeding	15 (73.8)	17 (80.9)	0.75
Prolapse	6 (26.2)	4 (19.1)	
Other complaints			
Itching	3 (13.5)	2 (8.8)	0.83
Constipation	12 (57.5)	15 (66.7)	0.82

The intra operative and postoperative parameters evaluated in the 2 groups are presented in Table 2. The mean blood loss was significantly less in the stapled group (60.09 ml) as compared with the open group (130.95ml). Operative time was significantly less in the stapled group (23.28mins) as compared with the open group (44.21 mins).

The scores of pain were significantly lower in the stapled group even after 2 weeks of surgery. The patients of stapled group received significantly less amount of analgesics than that of the open group ($p < 0.01$).
The mean hospital stay was also less in the stapled group than that of the open group.

Table 2: Intra operative and postoperative parameters

	Stapled(SD)	Open(SD)	*P* value
Blood loss (ml)	60.09 (11.16)	130.95 (28.39)	<.001
Operative time (min)	23.28 (4.27)	44.21 (5.37)	<.001
Visual analog scale			
12 h	3.44 (1.89)	4.88 (5.37)	<.001
24 h	3.24 (1.36)	6.35(1.45)	<.001
2 d	1.46 (1.25)	4.34 (2.27)	<.001
15 d	0.24 (0.51)	1.03(1.31)	<.001
At first motion	5.56(1.69)	7.76 (0.25)	<.001
Analgesics required			
Diclofenac (mean doses)	0.70 (0.51)	2.13 (1.08)	<.001
Tramadol (mean doses)	0.12 (0.35)	0.43 (0.24)	.032
Hospital stay (days)	2.20 (0.62)	3.25(1.23)	<.01
Return to work (days)	8.18 (2.24)	18.87 (5.34)	<.001

The early post operative complications of the two procedures was given in Table 3.
The most common complication seen was urinary retention which is 11.8% in the stapled group and 19.4% in the open group.One patient in open group developed fever which was subsided later on.

Table 3: Complications

	Stapled (%)	Open(%)
Urinary retntion	3 (11.8)	4 (19.4)
Fever	Nil	1 (4.7)

Follow-up was given at 2 weeks and at six months after discharge (Table 4).Unhealed perianal wound was found in 19.04% cases open technique at 2 week of discharge. Anal tag was found 14.21% in stapled technique even after six months of discharge.

Table 4: Follow-up

	Stapled(%)	Open(%)
Persistent pain	Nil	2 (9.52)
Unhealed perianal wound at 2 weeks	Nil	4(19.04)
Anal tag	3(14.21)	Nil
Recurrence of symptoms	3(14.21)	2(9.52)
Incontinence	Nil	1(4.7)
Anal stenosis	Nil	Nil

Discussion:

The criticism for open hemorrhoidectomy is due to the pain in the postoperative period, prolonged hospital stay and delay in return to work at least for two to three weeks. After introduction of stapler procedure, the most of the mentioned challenges are eliminated. Stapled hemorrhoidectomy has become a novel technique in the field surgical treatment of hemorrhoidal diseases [10]. This tecnique reduces the prolapse mass of haemorrhoid by excising a circumferential column of mucosa and sub mucosa from the lower rectum immediately above the dentate and then staples the defect. This type of replacement of hemorrhoids gives better postoperative sensory function which is very important to avoid faecal incontinence and a lower chance of anal stenosis.

The new procedure is technically easy and has a short learning curve. There is a study in which results have been found to be independent of the experience of the surgeon[11]. The technique does not associated any surgery on the sensative mucosa which lies below the dentate line, so it is almost painless. Visual analog scale used for scoring painat 12 hours, 24 hours, day 3 and 15 day were significantly favorable in the new technique. Conclusiverefort about pain scores in various other studies showed that the postoperative pain is less after staple procedure[6,11,12 ,13.]

The mean duration of hospital stay is less in the stapled group in the present study. This has been well documented in previous studies[6]. In some clinical work done by Mehigan et al[11],Hetzer et al[12,] and Ho et al[13], showed that there was no significant difference in the hospital stay between the 2 groups. Return to work of patients operated by staple procedure was earlier as supported by Hetzer et al[12].The complication of postoperative hemorrhage after stapled hemorrhoidectomy was similar to that after open procedure in the study. This result has shown in 2 other studies[14,15.]

Four patients of stapled group had large external components preoperatively. Three of these 4 patients had residual anal tags even after 6 months of surgery. It is the popular belief that the external components hardly shriveled during the postoperative period. But Seow-Choen has proved that Modified Longo's hemorrhoidectomy is adequately successful in treatment of hemorrhoidal diseases having an external component [16]. The result of this kind of patients in our study was not satisfactory. For this reason we do not support stapled hemorrhoidectomy in patients having large external components.

Some life threating complications have been found in the literature. Molloy and Kings more has reported a case of retroperitoneal sepsis following stapled hemorrhoidectomy[7]. Another case of rectovaginal fistula following stapled hemorrhoidectomy has been reported by Pescatori[17].

Wong et al has reported two cases of rectal perforation a life threatening complication following staple technique for hemorrhoids [18]. Acute intestinal obstruction because of closure of the rectum by the purse tring suture is also known [19]. In our study, there were no such complications, supporting the view that complications probably occur as a result of lack of adequate experience and can be overcome once the learning curve is passed[10].

There is no doubt that the high cost of circular stapler is the main cause of limited use of staplers for the treatment hemorrhoidal diseases. However, Ortiz et al has studied the cost of stapled procedure versus the open excision technique and has concluded that the first

method is more cost-effective on the bases of early discharge and quick return to work[13].

Conclusion:

Finally, we can state that stapled hemorrhoidectomy is a safe, simple and effective method for the treatment of hemorrhoidal diseases. It is a less invasive, relatively faster technique, associated with minimal postoperative pain, needs small amount of analgesics and ensures early return to work. Moreover, complications are similar as that of the open excision method. However, as the method is relatively new, it needs more clinical research with large sample for its long-term outcome.

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