Stapled Haemorrhoidopexy in the Treatment of Haemorrhoidal Disease: A Prospective Study

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Summary:

Background: Haemorrhoids are usually managed by open haemorrhoidectomy which is associated with postoperative pain, prolong hospital stay, longer convalescence and late return to normal activities. Stapled haemorrhoidopexy is a newer alternative for the treatment of haemorrhoid. The present study was designed to evaluate this technique in terms of duration of surgery & hospital stay, complications, convalescence, time return to normal activities, cost effectiveness and patient's satisfaction.

Materials and methods: One hundred and sixty patients of either sex who fulfilled the criteria were included in this study. More than 90% of the patients were in grade 3 & 4. All data were prospectively collected and examined. The patients were evaluated in terms of demographic properties, complaints on admission and postoperative complication.

Results: 69.4% were male and 30.6% were female. Mean age was 40.93 years. Grade 3 haemorrhoid was present in 73.75% cases, Grade 4 was 18.12% cases, Grade 1 and Grade 2 were in 8.13% cases. The mean duration of surgery was 30 minutes. The mean duration of hospitalization was 36 hours. Intraoperative bleeding was observed in 9.38% patients. Reactionary haemorrhage was seen in 3.75% patients. Postoperative mild pain in 3.12% patients and residual prolapse in 1.25% cases.

Conclusion: Stapled haemorrhoidopexy is safer alternative to open haemorrhoidotectomy with many short and long term benefits.

Keywords: Haemorrhoids, Stapled haemorrhoidopexy, Open haemorrhoidectomy (Milligan- Morgan operation)

(J Bangladesh Coll Phys Surg 2020; 38: 126-134)
DOI: https://doi.org/10.3329/jbcps.v38i3.47060

Introduction:

Haemorrhoids are one of the commonly noticed anorectal problems worldwide. Atleast 50% of the population over age of 50 yrs have some degree of haemorrhoid in their life time.[1] Ferguson et al said 100% of population does suffer from haemorrhoids at least once in their life time.[2] The management of 3rd and 4th degree haemorrhoids are usually surgical. The most commonly performed operation is haemorrhoidectomy. Milligan- Morgan haemorrhoidectomy has been the most popular among the various surgical technique performed. Open haemorrhoidectomy has been reputed as being a painful procedure for this benign disease and cause postoperative pain which needs 2 to 3 days hospital stay and a convalescence of at least one month and sometimes two to three months also.[3]

Stapled haemorrhoidopexy is a newer modality that represents a paradigm change in the treatment of haemorrhoid. The involvement of stapled haemorrhoidopexy using a circular stapling instrument introduced by Dr. Antonio Longo in the year 1998. It is also known as procedure for prolapsed haemorrhoid (PPH). It has already been established as a gold standard treatment for haemorrhoidal disease in many countries. However it has been made with both skepticism and interest. In stapled haemorrhoidopexy rectal mucosa and submucosa is excised as a ring or doughnut above the haemorrhoidal cushions and immediately reanastomosis of the mucosa performed. In this prospective study stapled haemorrhoidopexy was used for the treatment of 3rd and 4th degree haemorrhoid and also some 1st and 2nd degree haemorrhoid refractory to medical management.

The present study was designed to evaluate this technique in terms of duration of surgery, duration of hospital stay, per & postoperative complication, needs

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Received: 10 December, 2019 **Accepted:** 10 March, 2020

of sitz bath, time taken to return to work, patient satisfaction, needs of postoperative oral medication & cost effectiveness.

Materials and Methods

The present study was conducted in different public and private hospitals of Cumilla over duration of four years from July 2015 to June 2019. It was a prospective study. A total 160 cases of either sex were included in the study who fulfilled the inclusion and exclusion criteria.

Inclusion criteria :

- Grade 3 haemorrhoid
- Grade 4 haemorrhoid
- Grade 1 & Grade 2 haemorrhoid not responding to medical management.
- Haemorrhoids with associated chronic fissure in ano, rectal mucosal prolapse, external piles.

Exclusion criteria :

- Acute haemorrhoidal episodes with thrombosis
- Prior haemorrhoidectomy
- Intercurrent anal pathology like fistula, perianal abscess, anorectal carcinoma
- Anal stenosis

Patients were clinically examined. Digital rectal examination, proctoscopy and in some cases short colonoscopy done to confirm the diagnosis and to exclude any other colonic pathology. Routine laboratory investigations were done preoperatively. All patients were operated in an inpatient basis. Patients hospital stay was calculated from the day of surgery. Preoperatively patients were kept only liquid per oral overnight and enema simplex in the morning of the day of surgery and nothing per oral 6 hours before operation. One dose of Cefriaxone and Metronidazole were given at the time of anesthesia for surgery. All operations were performed in the lithotomy position under spinal anaesthesia. Patients were re-examined under

anesthesia to confirm the grade of haemorrhoids and to rule out the associated anal pathologies. Postoperative management consisted of standard nursing care and medication. Patients were started liquid diet within 6 hours postoperatively. Sitz bath only advised those having stapled haemorrhoidopexy with sphincterotmy or ligasure excision of external piles. In addition to analgesics, patients were advised antibiotic in tablet form Ciprofloxacin 500mg

twice daily, Metronidazole 400mg thrice daily and syp. Lactulose 15mg at bed time for only one week. Patients were reviewed 1 week, 4 week and 6 month postoperatively. On follow up, patients were asked about control of their symptoms, continence of faeces, duration to return to normal activities and any other problems they had. Digital rectal examination was also carried out at each follow up. Data collected include patient's age, sex, degree of haemorrhoid, associated anal conditions, duration of surgery, duration of hospital stay, peroperative & post operative complications, needs of sitz bath, time taken to return to normal activities, patient's satisfaction, needs of postoperative oral medication and cost effectiveness. Data was analysed by descriptive statistical analysis.

Surgical Procedure

The patient was placed in lithotomy position after giving spinal anaesthesia. Painting was done by antiseptic solution. After drapping, anal canal was re-examined to confirm the degree of haemorrhoid and to exclude other pathology. Circular stapler method using procedure for prolapse and haemorrhoid (PPH 03) kit was applied to all cases. In the technique, the prolapse of the anoderm and parts of the anal mucosa were reduced with the obturator and circular anal dilator. Then obturator removed and circular anal dilator was fixed with 1/0 vicryl at the anal verge to retain it in the position (figure 1 & 2).

Fig.-1: *Grade 4 haemorrhoid*

Fig.-2

A purse string suture using 2/0 polypropyelene was placed circumferentially 3 cm above the dentate line, around 2 cm cranial to the upper border of the haemorrhoid, through the window of the anoscope incorporating only mucosa and submucosa. Then purse string suture anoscope removed and PPH 03 inserted with the head of the stapler fully opened. After that purse string suture was tightened and tied around the anvil of the staple. The tail of the purse string suture brought out through side channel either side of the head of the stapler (figure 3).

Fig.-3

Once the tail of the suture were brought out through the side channel of the stapler head , gentle traction was applied to the suture and the stapler advanced into the anal canal such that the 4 cm mark on the head of the stapler was at the level of the anal verge (figure 4).

Fig.-4

When fully closed stapler was fired. After firing the stapler was held in position for 2 minute and then withdrawn after partial untwisting and doughnut examined for completeness (figure 5).

Fig.-5

Then anoscope was inserted back into the anus and staple line was inspected for bleeding (figure 6).

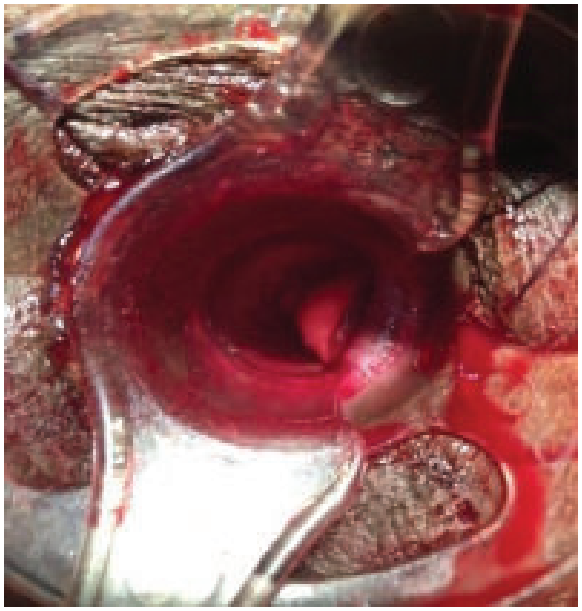

Fig.-6:

If bleeding was present it was addressed by over sewing that aspect of staple line with absorbable suture like catgut. Figure 7 shows looking of anal region after longo procedure.

Fig.-7:

Results

This prospective study conducted on 160 patients. Among 160 patients 111 were male and 49 were female.

Age

Out of 160 patients 0.63% were in age group <20 years, 27.5% in the age group 21-30 years, 21.88% in the age group 31-40 years, 21.25% in the age group 41-50 years, 12.5% in the age group 51-60 years, 10.62% in the age group 61-70 years and 5.63% in the age group 71-80 years. As per age distribution majority of the patient were between 20-50 years (70.62%). However, the youngest patient operated was 17 years and the oldest was 76 years. Mean age of the patients was 40.93 years.Table 1: Age distribution of the patient(n=160)

Table-I

Age distribution of the patient(n=160)

Age in years	No of Cases	Percentage
<20	1	0.63%
21-30	44	27.5%
31-40	35	21.88%
41-50	34	21.25%
51-60	20	12.5%
61-70	17	10.62%
71-80	9	5.63%
Total	160	100%

Gender

Among 160 patients 111(69.4%) were male and 49(30.6%) were female. Chart -1: Gender distribution of patients studied:

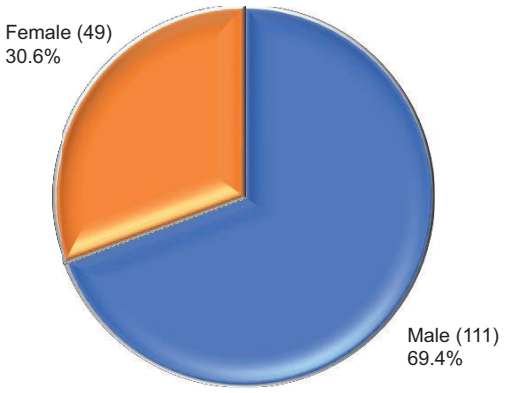

Chart -1: *Gender distribution of patients studied:*

Grade of disease

118(73.75%) patients had grade 3 haemorrhoid, 29(18.12%) patients had grade 4 haemorrhoid, 10(6.25%) patients had grade 2 haemorrhoid and 3(1.88%) patients grade 1 haemorrhoid.

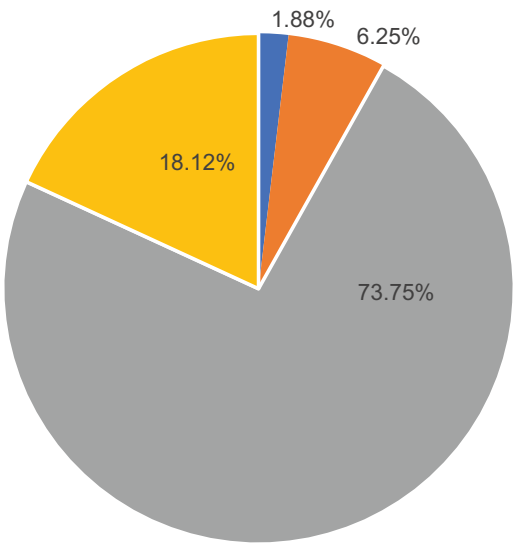

Chart-2: *Grades of the haemorrhoids*

Associated anorectal pathology

Associated pathology such as fissure in ano was in 6.25% patients, rectal mucosal prolapse was in 3.13% patients and external piles was in 1.88% patients. Rectal mucosal prolapse was present along with grade 3 and grade 4 haemorrhoid. Hence additional procedure such as sphincterotomy, diathermy & ligasure excision of external piles were performed along with stapled haemorrhoidopexy.

Table-II

Associated anorectal pathology

Associated pathology	No. of patients	Percentage
Fissure in ano	10	6.25%
Rectal mucosal prolapse	5	3.13%
External piles	3	1.88%

Duration of surgery

In this study mean duration of surgery was 30 minutes, ranging from 20-45 minute.

Peroperative Complication

Intraoperatively 15 (9.38%) patients had bleeding. Bleeding was controlled by pressure in 7 cases and suturing by 1/0 catgut in 8 cases.

Duration of hospital stay

Mean duration of hospital stay in the present study was 36 hours, ranging 24-48 hours.

Postoperative complications

No major postoperative complications were reported in our study. Reactionary haemorrhage found in 6 cases (3.75%). Mild pain upto 1 week postoperatively observed in 5 cases (3.12%). Both haemorrhage and pain managed conservatively. Persistent haemorrhoidal prolapse (residual prolapse) observed in 2 cases (1.25%) of grade 4 haemorrhoid and managed by ligasure excision. We did not face any recurrence.

Table-III

Post operative complications

Complications	No of patients	Percentage
Reactionary haemorrhage	6	3.75%
Pain	5	3.12%
Residual prolapse	2	1.25%

Sitz bath

Sitz bath is a troublesome procedure for the patient. It is a major issue after open haemorrhoidectomy. It is not needed after stapled haemorrhoidopexy as because there is no wound in the anal verge. We only advised sitz bath for stapled haemorrhoidopexy with Sphincterotomy patients and stapled haemorrhoidopexy with ligasure excision of external pile patients only for 5-7 days.

Table-IV

Sitz Bath

Operation	Sitz bath	No. of patient	Percentage
Only Stapled Haemorrhoidopexy	No	147	91.86%
Stapled Haemorrhoidopexy with sphicterotomy or ligasure excision of external piles	Yes	13	8.14%
Total		160	100%

Time taken to return to work

56.25% of stapled haemorrhoidopexy patient of our study had returned to work within 7 days, 37.5% within 7-10 days and 6.25% within 10-14 days.

Table-V

Return to work

Return to work indays	No. ofcases	Percentage
Within 7 days	90	56.25%
7-10 days	60	37.5%
10-14 days	10	6.25%
Total	160	100%

Postoperative oral medication

Postoperative oral medication like pain killer and antibiotic were required only for 5-7 days in our study.

Cost effectiveness

Stapled haemorrhoidopexy takes higher cost than open procedure as because PPH staples device is costly & disposable.

Discussion:

160 patients undergoing surgery for haemorrhoid who fulfilled the criteria were included in our study. Out of 160 cases 69.4% were male and 30.6% were female (Chart-1). This signifies the male predominance. Male predominance also reported in the study done by Ali et al and Khan et al.[4.5] The proportion of male outnumbered the proportion of female also reported in several other studies.[6.7] The reason for this could be that women hesitate more than men to discuss anorectal problems and also tend to avoid anal examination. The majority of the patients in this study were in the age group of 20-50 years (Table-I). This is similar to the study done by Ali et al where common age group was 20-39 years.[4] A slightly higher age prevalence was reported by Pigot et al. [8] Average age in our study was 40.93 years. Alatise OI et al reported the mean age of 44 in their series.[9] In our series grade 3 haemorrhoids was found in 73.75% cases and grade 4 haemorrhoids in 18.12% cases (Chart-2). This shows grade 3 predominance. Shukla A et al reported grade 3 haemorrhoid in 53% cases and grade 4 haemorrhoid in 47% cases.[10] Athar et al and Nitin J et al also reported grade 3 predominance in their study.[11,12] Associated anorectal condtions like fissure in ano 06.25%, mucosal prolapse 03.13% and external piles 01.88% reported in our study (Table-II). Porwal AD reported associated fissure in ano 12.72%, mucosal prolapse 75.46% and external piles 6.03% in his study.[13] Mean duration of surgery in this study was 30 min which is comparable to other studies like Shukla et al reported mean duration of surgery 21.43±3.57 min, Younes HEA et al 23.5±7.1 min, Pergel et al 24.27±4.27 min .[10,14,15]

Mean duration of surgery in open haemorrhoidectomy much longer than stapled haemorrhoidopexy. Dr. Vivek Maurya et al reported mean duration of surgery 26.77±5.25 min in stapled haemorrhoidopexy as against 47.33±5.87 min in open haemorrhoidectomy.[16] Baliga K et al found mean duration of surgery in stapled haemorrhoidopexy 24.27±4.27 min against 35.5±5.54 min in open haemorrhoidectomy.[17] Shorter duration of surgery has many advantages in terms that it reduces anaesthesia related complication and also suitable for patient having anaesthesia related risk. The average length of hospital stay was 36 (24-48) hours in the present study which is comparable to the study Yagmur Y et al.[18] Sachin ID et al reported the mean duration of hospital stay 48 hours in stapled haemorrhoidopexy and 96 hours in open haemorrhoidectomy.[19] Shorter hospital stay in stapled haemorrhoidopexy also reported by Tjandra JJ et al, Laughlan et al and Khan NF et al. [20.21.22] According to the studies mentioned duration of hospital stay was significantly lower in stapled haemorrhoidopexy. One of the frequently seen complication during stapled haemorrhoidopexy is bleeding. 9.38% (15) patients of our study had minimum bleeding during operation. In 7 cases bleeding was controlled by pressure with gauze piece & 8 cases controlled by suturing with 1/0 catgut. Chalkoo M et al also observed intraoperative bleeding in 5 patients from staple line which was controlled with oversewing stitches.[23] Bleeding arises from submucosal area in the majority of the cases. Additional deep suture may cause haematoma which causes prolongation of the procedure and serions complications like sepsis.[24] Reactionary haemorrhage is by far the earliest and most worrisome postoperative complication. For some authors it is a problem especially during the early part of the learning curve.[25] In our series reactionary haemorrhage reported in 3.75% cases (Table-III). Oughriss M et al reported 2% reactionary haemorrhage in their series.[24] Incidence in the literature has been very variable from 0.6% -

10%.[25,26] Bleeding can also begin later and persist for several days.[27] Most of the reactionary haemorrhage in our series managed by conservative treatment. One patient managed by tight anal packing. Postoperative bleeding was significantly less in the stapled haemorrhoidopexy (10%) as compared to open haemorrhoidectomy (36.6%) in a study done by Dr. Vivek Maurya et al.[16]

Another study done by Ganio E et al where they reported secondary haemorrhage more in open haemorrhoidectomy than stapled haemorrhoidopexy.[28] Anal pain was the second most common early complication in our series (3.12%). The pain was milder and that is why need for analgesia was minimum. Oughriss M et al reported anal pain 3.6% in their study.[24] The pain can persist for several days or weeks or exceptionally months and often requires major analgesia.[29,30] Because there is less pain after stapled haemorrhoidopexy in proportion to the open method , this technique received attention by many sergeons.[27,31-35] Because anal region that is sensitive, is not touched in stapler technique and wound healing is faster than the open method , pain is less and last for a short time.[27,34] In order to achieve this , longo suggested suture 3-4 cm above dentate line and it was defended by many authors.[27,32,35] It is considered that postoperative pain mostly depends on working close to the dentate line , stenosis in the anal canal, mucosal injury, excessive sphincter tonus and external haemorrhoidal thrombosis.[29,36] .We did not face any recurrence in our series. But we faced persistent haemorrhoidal (residual) prolapse in 1.25% cases and that was in grade 4 haemorrhoiod, managed by diathermy & ligasure excision. Porwal AD et al reported 0.23% recurrence in their series.[13] On the other hand Laughlan K et al and Jayaraman et al reported increase rate of recurrence in stapled haemorrhoidopexy than open haemorrhoidectomy.[21,37] Rao KLN et al documented 28.3% residual haemorrhoidal prolapse in open haemorrhoidectomy as compared to 7.4% in stapled haemorrhoidopexy.[38] In our study we did not encounter any other complications like urinary retention, wound infection, abscess, incontinence, anal stenosis, pelvic sepsis etc. Sitz bath causes discomfort to the patient. We did not advise Sitz bath to our patients having only stapled haemorrhoidopexy (91.86%) because no wound was there in the anal verge or perianal region (Table-IV). But we advised sitz bath for 5-7 days in those patients having stapled haemorrhoidopexy with sphincterotomy or excision of external piles (8.14%).

Rao KLN et al advised sitz bath for their open haemorrhoidectomy patients and none of the stapled haemorrhoidopexy patients. Sitz bath was the major concern for open haemorrhoidectomy patient.[38] 56.25% patients of our study return to their regular activities within 7 days of operation, 37.5% within 7-10 days and only 6.25% within 10-14 days of operation (Table-V). Rao KLN et al reported in their study, stapled group return to their daily activities much faster than classical haemorrhoidectomy patients.[38] Ganio E at al reported similar findings in their publications.[28] Patient's satisfaction level were high in all the patient of our study. The postoperative patient's satisfaction was also high in the stapled group as compared to classical Milligan-Morgan procedure in some other studies.[19,39] Postoperative oral medication was required for 5-7 days in our study. The need for oral medication was double in the open group as compared to stapled group and the need for i/v injection was nearly thrice in the study done by Tjandra JJ et al and Shalaby R et al.[20,34] Stapled haemorrhoidopexy takes higher cost than open procedure. Rao et al reported procedural cost is higher in stapled group as compared to classical group. For common rural people it is difficult to convince to undergo stapled procedure even if the outcomes are satisfactory.[38]

Conclusion:

The study assumes that stapled haemorrhoidopexy is associated with shorter duration of surgery, shorter hospital stay, quicker recovery, earlier return to regular activities, high patient satisfaction. The procedure in not associated with major per or postoperative complications. There is no recurrence, incontinence and pelvic sepsis in the follow up period of 6 months. Though it is established that stapled haemorrhoidopexy takes higher cost but on the basis of early recovery, quick return to regular activities, less postoperative need of oral medication, no need of Sitz bath it can be an accepted procedure. Hence it is concluded that stapled haemorrhoidopexy is safe with many short & longterm benefit. It is a novel technique and has emerged a good alternative to open haemorrhoidectomy.

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