ORIGINAL RESEARCH PAPER
Volume-8 | Issue-11 | November - 2019 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

# A COMPARATIVE STUDY OF OPEN HAEMORRHOIDECTOMY VS STAPLED HAEMORRHOIDOPEXY

General Surgery

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## ABSTRACT

**Introduction:** Haemorrhoids or 'Piles' is a frequently observed disease in surgical practice. Various non-surgical and surgical treatments are available. Open haemorrhoidectomy (Milligan-Morgan) is a widely used procedure. A recent novel technique called 'Stapled haemorrhoidectomy', first described and performed by Italian surgeon Antonio Longo is gaining worldwide recognition for its benefits.

**Aim:** To compare Stapled haemorrhoidectomy with open (Miligan Morgan) haemorrhoidectomy in terms of post-operative pain, resumption of daily activity, hospital stay, post-operative bleeding, urinary retention and anal incontinence.

**Study Design:** Prospective, comparative study from August 2017 to August 2019.

**Materials and Methods:** A total of 80 patients between the age group of 20 and 70 years, diagnosed to have grade III or IV haemorrhoids were included in the study, divided into 2 groups, Group 1 undergoing Open haemorrhoidectomy (40 patients) and Group 2 undergoing Stapled haemorrhoidectomy (40 patients). Post operatively patients of both groups were reviewed at the time of discharge. All patients were given a questionnaire and data collected verbally and analysed statistically. Comparative analysis between the two groups were done based on Independent sample 't' test or students 't' test.

**Results:** The mean age of patients in Open haemorrhoidectomy (OH) group was 42.2 and Stapler haemorrhoidectomy (SH) group was 38.5. 86.6% were males and 13.4% were females in OH group, 90% were males and 10% were females in SH group. Post-operative bleeding in both OH and SH group had an incidence of 2%. Post-operative urinary retention was seen in 4% and 8% in OH and SH group respectively. In both groups, post-operative anal incontinence was not seen. Based on Independent sample 't' test the post-operative pain, Post-operative hospital stay and duration of resumption of daily activity was less in SH group compared to OH group and statistically significant with $p<0.001$. However, complications like post-operative bleeding, urinary retention and anal incontinence are almost same in both the groups

**Conclusion:** Stapled Haemorrhoidectomy is less painful with shorter duration of hospital stay and resumption of daily activity is faster than the open haemorrhoidectomy. However, long term follow-up is required to know the recurrence rate in stapled haemorrhoidectomy.

## KEYWORDS

Haemorrhoids, Haemorrhoidopexy, Staple

## INTRODUCTION

Haemorrhoids or Piles pila=a ball; latin-Haima blood; Rheias-flowing in Greek are one of the most common anorectal disorders. Haemorrhoids or piles are dilated veins of the anal canal and are more common in obesity, constipation and pregnancy. Classically they occur in the 3, 7 and 11 o'clock position. Symptoms of haemorrhoids are per rectal bleeding and prolapse. Bleeding is bright red in colour and which is painless. Haemorrhoids can be classified into 4 groups according to degree of haemorrhoids. Treatment of haemorrhoids depends on degree of haemorrhoids. Injection sclerotherapy and banding for first degree and second degree haemorrhoids. Haemorrhoidectomy is indicated in third and fourth degree haemorrhoids. The Milligan-Morgan open haemorrhoidectomy is the most widely practiced surgical technique used for the management of third and fourth degree haemorrhoids and is considered the "gold standard" though some early and late post-operative complications like anal pain, acute retention of urine, anal stenosis and incontinence is evident. Circular stapled haemorrhoidopexy (SH) was first described by Longo in 1998 as an alternative to conventional excisional haemorrhoidectomy . Some study of randomized controlled trials comparing stapled haemorrhoidopexy with traditional excisional haemorrhoidectomy has shown it to be less painful and that it is associated with quicker recovery. This article aims to review current available literature related to stapled haemorrhoidopexy and suggest a management approach based on the recent available evidence and to compare the two techniques (Open and Stapled Haemorrhoidectomy) in terms of post-operative pain, resumption of routine daily activity, Post-operative hospital stay, post-operative bleeding, urinary retention and anal incontinence.

## MATERIALS AND METHODS

This is a prospective, comparative study conducted in Smt. SCL Hospital, saraspur, Ahemdabad. The duration of study is 2 years from August 2017 to August 2019. A total number of 80 patients between the age group of 20 and 70 years who were diagnosed to have Grade III or IV Haemorrhoids, evaluated by Proctoscopy/ Colonoscopy and treated in Surgical Department were included in the study. They were divided into two groups, all odd numbers were assigned Open haemorrhoidectomy (OH) group and all even numbers were assigned Stapled haemorrhoidectomy (SH) group.

Group 1: Patients undergoing open haemorrhoidectomy (OH).
Group 2: Patients undergoing stapler haemorrhoidopexy (SH).

Patients who had concomitant diseases like fissure in ano, Fistula-in-Ano or perianal abscess, previously operated patients with recurrence, haemorrhoids in cirrhotic patients and patients with bleeding diathesis, patients with thrombosis of external haemorrhoids or Perianal hematoma were excluded.

All patients who presented to the outpatient department with symptoms suggestive of haemorrhoids were evaluated by- 1. Detailed history collection. 2. Systemic examinations. 3. Local examination (Digital rectal examination and proctoscopy). After explaining the diagnosis to the patient and attenders, they were consented for surgery. Pre-anaesthetic assessment and relevant investigation were done. Pre-operative Investigations conducted were complete blood counts, blood grouping, random blood sugar, serum

creatinine, chest X-ray, bleeding time and clotting time, Anti-HIV and HBsAG. After relevant investigations and pre anaesthetic evaluation, the patients were subjected for either Open haemorrhoidectomy or Stapled haemorrhoidectomy. All patients were given a cleansing enema before and early morning of surgery. 40 patients underwent Open haemorrhoidectomy and 40 patients underwent Stapled haemorrhoidectomy. Stapled haemorrhoidopexy was performed using circular anal dialator, purse string suture anoscope, suture threader, haemorrhoidal circular stapler. Post-operative pain therapy consisted of Intravenous Paracetamol 12 hourly for the 1st post-operative day, followed by oral NSAIDS in the form of Diclofenac 50mg 8th hourly was given for the next 3 post-operative days in both the groups. Additional analgesia was supplemented on patient's request. Urinary retention was defined as inability to void urine postoperatively for a period of 12 hours or more. All patients were given a questionnaire or data collected verbally and analyzed statistically. For descriptive statistic mean, standard deviation and percentage were computed. The significant difference of percentage between two groups was tested using Chi square test.

## SURGICAL TECHNIQUE

### STAPLED HAEMORRHOIDOPEXY

The circular anal dilator was gently inserted and secured into the anus thereby reducing the prolapse of the anoderm and parts of the anal mucous membrane. The circular anal dilator was then fixed to the perianal skin using of 1-0 silk. The obturator of the dilator was removed and replaced with the purse string anoscope. The 90 degree window in the anoscope was rotated through the anus for application of a 2-0 Prolene (polypropylene, Ethican, Inc.,) purse string suture. The circular purse string was placed at 3 to 5 cm above the dentate line. The purse string was started at 3 O'clock position moving in clockwise direction and including only the mucosa and submucosa. There were about 3 bites taken in each quadrant of the canal. A second 2-0 polypropylene simple stitch was placed perpendicular and contralaterally at 9 O'clock position. In women, the posterior vaginal wall was checked to avoid inclusion in the purse string. The hemorrhoidal stapler was opened to its maximum position and the head d gently introduced and positioned proximal to the purse string where upon it was secured. This ensured equal and opposite traction sutures to be passed through the stapling device for a more uniform loading (equal "pull down") of tissue into the drum of the stapler. The stapler was held in the closed position for 30 seconds before and 2 minutes after firing. After extraction of the stapling device, the purse string anoscope was inserted and the stapled line inspected for uniformity and presence of any bleeding or tears. Any bleeding was handled by under-running the bleeding points with 2-0 silk sutures. The stapler was opened and the completeness of the excised doughnut checked no anal pack was kept into the canal. External dressing was applied. The operating time was defined as the time from beginning of the surgery until the application of the dressing.

### OPEN HAEMORRHOIDECTOMY

Milligan Morgan open hemorrhoidectomy was done for the second group. The external and internal hemorrhoids were excised entirely up to the anorectal ring with help of scissors. The pedicles were doubly suture ligated with help of no.2 chromic catgut. Diathermy was used to achieve hemostasis, the wounds were left open to granulate. No packs were left in anal canal at end of this procedure. All patients received a normal diet postoperatively and were given oral lactulose 15 ml twice daily for preventing hard stools. Patients in both groups were advised same cleaning of the anal region and Sitz baths, and same kind of external dressing applied.

## RESULTS

Out of the total 80 patients, 86.6% were males and 13.4% females in OH group, 90% were males and 10% females in SH group [Table1]. Number of patients having Grade III haemorrhoids are 38 in OH and 35 in SH [Table 3]. The mean age of patients in the OH group was 42.2, while for SH the mean was 38.5. Table [7] shows, the statistics of Age, Post-operative pain Visual Analog Score (VAS), Resumption of daily activity and post-operative Hospital stay of OH and SH group respectively. Post-operative bleeding in both OH and SH group had an incidence of 2% each, which is 1 out of 40 patients in each group [Table 4]. Post-operative Urinary retention was 4% in OH and 8% in SH group [TABLE 2]. None of the patients had post-operative anal incontinence [TABLE 5]. Table [6] compares the post-operative complications between OH and SH groups.

**TABLE 1. SEX DISTRIBUTION AMONG THE TWO GROUP**

| | OPEN HAEMORRHOIDECTOMY | | STAPLED HAEMORRHOIDOPEXY | |
|---|---|---|---|---|
| | FREQUENCY | PERCENTAGE(%) | FREQUENCY | PERCENTAGE (%) |
| MALE | 36 | 86.6 | 35 | 90 |
| FEMALE | 4 | 13.4 | 5 | 10 |
| TOTAL | 40 | 100 | 40 | 100 |

**TABLE 2. POSTOPERATIVE URINARY RETENTION**

| OPEN HAEMORRHOIDECTOMY | | |
|---|---|---|
| | FREQUENCY | PERCENTAGE (%) |
| PRESENT | 2 | 4 |
| NIL | 38 | 96 |
| TOTAL | 40 | 100 |
| STAPLED HAEMORRHOIDOPEXY | | |
| | FREQUENCY | PERCENTAGE (%) |
| PRESENT | 4 | 8 |
| NIL | 36 | 92 |
| TOTAL | 40 | 100 |

**TABLE 3. NUMBER OF THE PATIENTS HAVING GRADE 3 AND 4 HAEMORRHOIDS**

| | OPEN HAEMORRHOIDECTOMY | | STAPLED HAEMORRHOIDOPEXY | |
|---|---|---|---|---|
| | FREQUENCY | PERCENTAGE (%) | FREQUENCY | PERCENTAGE (%) |
| GRADE 3 | 38 | 96 | 35 | 88 |
| GRADE 4 | 2 | 4 | 5 | 12 |
| TOTAL | 40 | 100 | 40 | 100 |

**TABLE 4. POSTOPERATIVE BLEEDING**

| | OPEN HAEMORRHOIDECTOMY | | STAPLED HAEMORRHOIDOPEXY | |
|---|---|---|---|---|
| | FREQUENCY | PERCENTAGE (%) | FREQUENCY | PERCENTAGE (%) |
| PRESENT | 1 | 2 | 1 | 2 |
| NIL | 39 | 98 | 39 | 98 |
| TOTAL | 40 | 100 | 40 | 100 |

**TABLE 5. POSTOPERATIVE ANAL INCONTINENCE**

| | OPEN HAEMORRHOIDECTOMY | | STAPLED HAEMORRHOIDOPEXY | |
|---|---|---|---|---|
| | FREQUENCY | PERCENTAGE (%) | FREQUENCY | PERCENTAGE (%) |
| PRESENT | 0 | 0 | 0 | 0 |
| NIL | 40 | 100 | 40 | 100 |
| TOTAL | 40 | 100 | 40 | 100 |

**TABLE 6. COMPLICATIONS**

| PARAMETERS | OPEN HAEMORRHOIDECTOMY | | STAPLED HAEMORRHOIDOPEXY | |
|---|---|---|---|---|
| | FREQUENCY | PERCENTAGE (%) | FREQUENCY | PERCENTAGE (%) |
| POST OP BLEEDING | 1 | 2 | 1 | 2 |
| POST OP URINARY RETENSION | 2 | 4 | 4 | 8 |
| POST OP ANAL INCONTINENCE | 0 | 0 | 0 | 0 |

**TABLE 7. GROUP STATISTICS**

| | HAEMORRHOIDECTOMY | N | MEAN | SD |
|---|---|---|---|---|
| POSTOP PAIN VISUAL ANALOG SCORE | OPEN | 40 | 5.22 | 0.980 |
| | STAPLER | 40 | 3.02 | 0.768 |
| RESUMPTION OF DAILY ACTIVITY | OPEN | 40 | 4.54 | 0.995 |
| | STAPLER | 40 | 3.32 | 1.002 |
| POSTOPERATIVE HOSPITAL STAY | OPEN | 40 | 2.62 | 0.521 |
| | STAPLER | 40 | 1.67 | 0.754 |
| AGE | OPEN | 40 | 42.2 | 12.727 |
| | STAPLR | 40 | 38.5 | 12.387 |

## DISCUSSION

Stapled haemorrhoidopexy is a novel technique in the treatment of haemorrhoidal disease. Various apprehensions exist of this technique and it is an unsafe and unworthy procedure in the wrong hands. Various studies have shown the indications, limitations, complications of this technique. The procedure invented by Italian colorectal surgeon Dr. Antonio Longo is now recognized to have less postoperative pain, less duration of hospital stay but few long term complications. Pain, post surgery is an important criteria for any procedure. In our study post-operative pain measured according to Visual Analog score was 3.02, scores lesser for stapler haemorrhoidectomy compared to open haemorrhoidectomy. The reduction in pain is attributed to the procedure being carried out above the dentate line which has no nerve endings carrying pain. Post-operative hospital stay was found to be statistically significant with a 0.6 score, less for stapled group with $p< 0.001$ and 95% confidence interval is .337 to .863. [11] the mean length of hospital stay was significantly less for stapled haemorrhoidectomy group $3.37 \pm 2.2$ Vs. $2.03 \pm 0.81$, $p= 0.003$. Resumption of daily routine activity is very important for any patient following any surgery. In our study routine daily activity were found to be carried out by patient 1.15 days earlier in stapled arm compared to open haemorrhoidectomy. The p value was less than 0.001 for this variable with a 95% confidence interval 0.754 to 1.547. This can be attributed to less post-operative pain and early discharge of the patient from the hospital. In terms of post-operative bleeding a 2% incidence was found in our study in both the stapled group and open group. While a study by Palimento D et al., [5], showed 21.6% patient in stapled group and 13.6% in open group to have post-operative bleeding. In our study post-operative urinary retention was 8% in stapled haemorrhoidectomy whereas it was 4% for open haemorrhoidectomy. This could be due to the effect of spinal anaesthesia on the patient and whether the patient had passed urine prior to surgery. This could also be because of incidentally higher prostatic disease in the patients of the stapler group the evaluation of which was beyond the scope of our study. Interestingly of the four patient with urinary retention in stapled group they were aged 60 years or above. Anal incontinence was not found in any patients in both group in our study.

## CONCLUSION

Stapled haemorrhoidopexy is safe with many short term benefits like less post-operative pain, early return from hospital and early return to their normal activity. This study was, therefore, undertaken to compare the following parameters between two randomly assigned groups of 40 patients each for the two procedures of SH and OH. The SH procedure for hemorrhoids is superior to Milligan-Morgan hemorrhoidectomy in terms of postoperative pain, operative time, duration of hospital stay and return to normal activity. Early functional and symptomatic outcomes have been satisfactory and appear similar to those achieved using conventional techniques. However, it is difficult to recommend stapled hemorrhoidectomy as a procedure of choice for all patients in view of economic considerations. However, for those who can afford the procedure, it offers a benefit of lesser operating time, less postoperative pain after the first day and earlier return to normal activity without increase in complications though long term follow up for recurrence is necessary.

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