

# Comparison of Open Haemorrhoidectomy and Stapled Haemorrhoidopexy: A Hospital-based Prospective Study

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## ABSTRACT

**Introduction:** Open Haemorrhoidectomy (OH) is a widely used procedure. While as a novel technique, Stapled Haemorrhoidectomy (SH) is gaining worldwide recognition for its benefits, regarding treatment procedures for haemorrhoids or piles.

**Aim:** To compare SH technique with OH technique on the basis of postoperative parameters including pain, resumption of daily activity, hospital stay, postoperative bleeding, urinary retention and anal incontinence.

**Materials and Methods:** This hospital-based, prospective study was conducted in Department of Surgery at SCL Hospital, Saraspur, Ahmadabad, Gujarat, India, from August 2017 to July 2018. The study included 80 patients between the age group of 20 to 70 years, diagnosed to have grade III or IV haemorrhoids. The patients were divided into two groups: group OH included patients undergoing open haemorrhoidectomy (n=40) and group SH included patients undergoing stapled haemorrhoidectomy (40 patients). Postoperatively, 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 was done based on Student's t-test.

**Results:** Out of the total 80 patients, 36 (90%) were males and 4 (10%) females in OH group whereas 35 (87.5%) were males and 5 (12.5%) females in SH group. The mean age of patients in the OH group was 42.2 years, while for SH the mean age was 38.5 years. In both groups, postoperative anal incontinence was not seen. Based on independent Student's t-test, the postoperative pain (p-value=0.024), postoperative hospital stay (p-value=0.032) and duration of resumption of daily activity (p-value=0.003) parameters found to be significantly lesser in SH group as compared to OH group. However, complications observed were comparable in both the groups like postoperative bleeding, urinary retention, and anal incontinence.

**Conclusion:** Stapled Haemorrhoidopexy is a safe procedure with number of advantages in terms of short operative time and less postoperative complications. However, as far as recurrence rate assessment in SH technique is concerned, long term follow-ups are required.

**Keywords:** Haemorrhoids, Outcomes, Piles, Surgical treatments

## INTRODUCTION

Haemorrhoids are known to cause rectal bleeding and prolapse. It is commonly observed in obesity, constipation and pregnancy [1]. The Milligan-Morgan Open Haemorrhoidectomy (OH) is used for the management of 3<sup>rd</sup> degree and 4<sup>th</sup> degree haemorrhoids and is considered the "gold standard" [2]. Early and late postoperative complications commonly evident are anal pain, acute retention of urine, anal stenosis, incontinence [3]. With advancements, circular Stapled Haemorrhoidopexy (SH) emerged as an alternative technique to the conventional excisional Haemorrhoidectomy [4]. Some study of randomised controlled trials comparing stapled haemorrhoidopexy with traditional excisional haemorrhoidectomy has shown it to be less painful and that it is associated with quicker recovery [5].

Hence, the present study aimed to compare the two techniques i.e., open haemorrhoidectomy and stapled haemorrhoidectomy, in terms of postoperative pain, resumption of routine daily activity, postoperative hospital stay, postoperative bleeding, urinary retention and anal incontinence.

## MATERIALS AND METHODS

This hospital-based, prospective study was conducted in Department of Surgery at SCL Hospital, Saraspur, Ahmadabad, Gujarat, India, from August 2017 to July 2018. The ethical approval was obtained from the Institutional Ethics Committee (0412). The diagnosis was explained to patient and their

attendants and proper written informed consent was taken for treatment.

**Inclusion criteria:** All patients in the age group of 20 years to 70 years, who presented to the Outpatient Department (OPD) with symptoms suggestive of haemorrhoids, evaluated by detailed history collection, systemic examinations, and local examination (digital rectal examination and proctoscopy) and were diagnosed to have grade III or grade IV haemorrhoids [6] were included in the study.

**Exclusion criteria:** Patients who had concomitant diseases like fissure-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 haematoma were excluded from the study.

A total of 80 patients with grade III or grade IV haemorrhoids were included in the study and were divided into two groups of 40 patients each using simple random sampling:

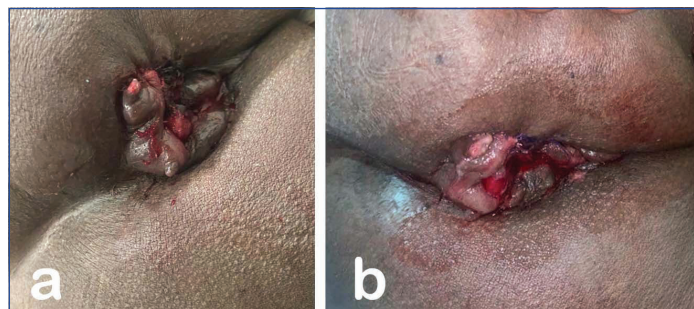
**Group OH:** Patients undergoing open haemorrhoidectomy were included in this group (n=40).

**Group SH:** Patients undergoing stapled haemorrhoidopexy were included in this group (n=40).

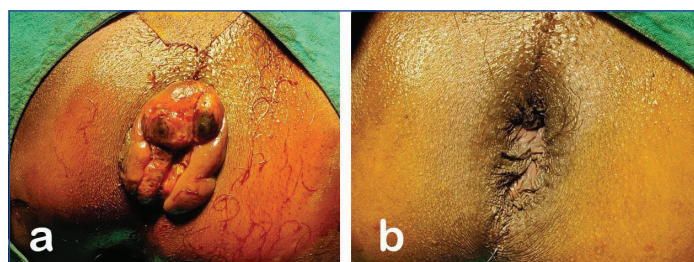
## Procedure

Preanaesthetic assessment of the included subjects and relevant investigations were done. Preoperative investigations were conducted

includes {complete blood counts, blood grouping, random blood sugar, serum creatinine, chest X-ray, bleeding time and clotting time, Anti-Human Immunodeficiency Virus (HIV) and Hepatitis B surface Antigen (HBsAG)}. After these investigation and preanaesthetic evaluations, the patients were planned for either OH or SH. All patients were given a cleansing enema before and early morning of surgery. Forty patients underwent open haemorrhoidectomy (Milligan Morgan open haemorrhoidectomy) [2] [Table/Fig-1]. Forty patients underwent stapled haemorrhoidopexy [7], external dressing was applied [Table/Fig-2]. Therapy was performed and follow-ups were conducted to check for symptomatic relief.



[Table/Fig-1]: a) Preoperative image of open Haemorrhoidectomy; b) Postoperative image of Open Haemorrhoidectomy.



[Table/Fig-2]: a) Preoperative image of stapled haemorrhoidopexy patient; b) Postoperative image of stapled haemorrhoidopexy.

**Postoperative assessments:** The operating time was calculated for the each patients [8]. Postoperative care, dressings were applied in patients and follow-ups were for both the groups [9]. The French Anaesthesia Society's recommendations were followed while treating postoperative pain [10]. A Visual Analogue Scale (VAS) was used to measure pain, with 0 denoting no discomfort and 10 denoting the greatest pain ever [11]. During the first postoperative day, the pain score was recorded every six hours, at the moment of the first motion, and every day until the end of the first week. With appropriate analgesia, the goal was to keep the VAS score under 5. The World Health Organisation (WHO) classification system was used to group prescribed analgesics [12]. Using the VAS score of 5, a class III analgesic was delivered (with paracetamol).

In addition to analgesics paracetamol, patients were instructed to take ciprofloxacin 500 mg twice daily, metronidazole 400 mg three times daily and lactulose syrup 20 mg once for two weeks. Additionally, sitz bathing twice daily for two weeks was prescribed for patients following open haemorrhoidectomy. When pain management and living conditions at home allowed, patients were discharged. One week after surgery, the patients underwent an outpatient review. In the event of an emergency, patients were instructed to report promptly. At 1 week, 3 weeks, and 6 weeks to 10 weeks after surgery, patients were evaluated.

Patients were asked to rate how well their symptoms were controlled, their level of faeces and flatus continence, how long it took them to resume their daily activities, and other

issue (painful defecation, pus discharge from wound). At each follow-up, a physical examination was also performed. Postoperative discomfort, the need for analgesics, operating time, hospital stay, the amount of time needed to return to normal activities, continence, patient satisfaction (subjective data on patients satisfaction) and complications were the end measures.

## STATISTICAL ANALYSIS

The relevant information of all patients was collected in Microsoft Excel sheet and the mean, standard deviation, and percentages were computed. The significant difference of percentage between two groups was tested using Independent Student's t-test.

## RESULTS

Out of the total 80 patients, 36 (90%) were males and 4 (10%) females in OH group whereas 35 (87.5%) were males and 5 (12.5%) females in SH group. The mean age of patients in the OH group was 42.2 years, while for SH the mean age was 38.5 years. The number of patients having grade III haemorrhoids was 38 (95%) in OH group and 35 (87.5%) in SH group whereas grade IV haemorrhoids was 2 (5%) in OH group and 5 (12.5%) in SH group [Table/Fig-3].

| Variables                      | Open Haemorrhoidectomy (n, %) | Stapled Haemorrhoidopexy (n, %) |
|--------------------------------|-------------------------------|---------------------------------|
| <b>Gender</b>                  |                               |                                 |
| Male                           | 36 (90)                       | 35 (87.5)                       |
| Female                         | 4 (10)                        | 5 (12.5)                        |
| <b>Age (years)</b>             |                               |                                 |
| 21-30                          | 7 (17.5)                      | 12 (30)                         |
| 31-40                          | 12 (30)                       | 11 (27.5)                       |
| 41-50                          | 18 (45)                       | 9 (22.5)                        |
| 51-60                          | 2 (5)                         | 6 (15)                          |
| 61-70                          | 1 (2.5)                       | 2 (5)                           |
| <b>Grading of haemorrhoids</b> |                               |                                 |
| Grade III                      | 38 (95)                       | 35 (87.5)                       |
| Grade IV                       | 2 (5)                         | 5 (12.5)                        |

[Table/Fig-3]: Demographic and clinical criterias of all study participants (N=40 in each group).

Postoperative urinary retention was 5% in OH group and 10% in SH group; postoperative bleeding in both OH group and SH group had an incidence of 2.5% each, which was one out of 40 patients in each group; and none of the patients had postoperative anal incontinence [Table/Fig-4].

| Parameters                      | Open haemorrhoidectomy (n, %) | Stapled haemorrhoidopexy (n, %) |
|---------------------------------|-------------------------------|---------------------------------|
| Postoperative bleeding          | 1 (2.5)                       | 1 (2.5)                         |
| Postoperative urinary retention | 2 (5)                         | 4 (10)                          |

[Table/Fig-4]: Complications observed among both groups.

[Table/Fig-5] shows the statistics of postoperative pain Visual Analogue Score (VAS), resumption of daily activity and postoperative hospital stay of OH and SH group, respectively. No patient reported any emergency. Patients having severe postoperative pain were treated by inj. tramadol i.v. 8 hourly and diclofenac suppository if needed. For patients having postoperative bleeding was treated with inj. tranexa i.v. 8 hourly. For patients of urinary retention were catheterised if needed.

| Postoperative parameters                     | Group    | Mean | SD    | p-value |
|--|----------|------|-------|---------|
| Postoperative Pain Visual Analog Score (VAS) | OH Group | 5.22 | 0.980 | 0.024   |
|  | SH Group | 3.02 | 0.768 |         |
| Resumption of daily activity (days)          | OH Group | 4.54 | 0.995 | 0.003   |
|  | SH Group | 3.32 | 1.002 |         |
| Postoperative hospital stay (days)           | OH Group | 2.62 | 0.521 | 0.032   |
|  | SH Group | 1.67 | 0.754 |         |

**[Table/Fig-5]:** Shows the post operative analysis of patients of Open Haemorrhoidectomy (OH) and Stapled Haemorrhoidectomy(SH). p-value <0.05 was considered as statistically significant

## DISCUSSION

Stapled haemorrhoidopexy is a new treatment modality for treating haemorrhoidal disease. This approach has a lot of negative connotations, and it is a risky and untrustworthy practice in the wrong hands. The indications, limits, and difficulties of this approach have been documented in several researches. Dr. Antonio Longo, an Italian colorectal surgeon, developed this surgery, which is now known to have reduced postoperative discomfort, a shorter hospital stay, and minimal long-term consequences. Postsurgery pain is a critical requirement for each operation [13].

In the present research, postoperative pain assessed using the VAS score and found to be 3.02, in SH group, hence significantly lower than OH. The treatment was performed above the dentate line, which contains no nerve endings transmitting pain. This resulted in a decrease in discomfort. The postoperative hospital stay was shown to be statistically significantly lower for the stapled group patients. Following any operation, it is critical for patients to resume their normal usual activities [14]. Hence, the patients undergone stapled haemorrhoidopexy resumed their daily activities faster as compared to those of open haemorrhoidectomy procedure in the present research. This may be due to the patient experiencing less postoperative discomfort and being discharged from the hospital sooner. In the present investigation, authors discovered a 2.5% rate of postoperative haemorrhage in both the stapled and open groups, almost similar to that reported in previous study [15].

According to Palimento D et al., 21.6% of patients in the stapled group and 13.6% of patients in the open group had postoperative haemorrhage. In the present research, postoperative urine retention was found to be 8% in SH and 4% in OH. This might be related to the patient's reaction to spinal anaesthetic and whether or not the patient had voided urine before surgery. This might possibly be due to patients in the stapler group having incidentally greater prostatic disease, which was outside the scope of this research. Surprisingly, all four patients with urinary retention in the stapled group were above the age of 60. In the present investigation, no individuals with anal incontinence were detected in either group [16].

Thejeswi P et al., and Bhandari RS et al., highlighted that patients who underwent SH treatment option experienced far less postoperative pain than OH treatment. In the present research, alike results were observed where postoperative pain visual analog score for SH were quite better as compared to OH. However, both the studies done by the authors and present data on SH do not endorse any associated long-term complications, but supported better therapeutic short-term outcomes [17,18]. However, the observations from a randomised controlled trial conducted in the last decade contradicted these above results, stating that both the techniques have equal satisfactory long-term results [19].

Khalil KH et al., studied SH with (sutured) and without (stapled) preliminary dissection where postoperative resting and squeeze pressures were reduced by the stapled method after a trimester study [20]. The stapled technique resulted in less postoperative pain (p-value=0.04), a greater degree of satisfaction (p-value=0.01)

and faster wound healing (p-value<0.001). Similar facts were highlighted in a study which presented distinct advantages of SH in treating irreducible prolapsed piles. These two studies complied and eventually supported the various distinct advantages of SH in comparison to OH [1]. Hospital stay in open group was 2.62 day and in stapled 1.67 days whereas in the study done by Sachin ID and Muruganathan OP, it was 4 days and 2 days, respectively [21].

## Limitation(s)

Small sample size was the limitation of the present study.

## CONCLUSION(S)

Stapled Haemorrhoidopexy is a safe procedure with a number of short-term advantages, including less postoperative discomfort, quicker discharge from the hospital, and quicker return to regular activities. The SH technique for haemorrhoids is preferable than OH. Early functional and symptomatic results have been positive, and they seem to be comparable to those obtained using traditional methods. For those who can afford it, however, the treatment has the advantage of a shorter operating time, less postoperative discomfort after the first day, and a faster return to normal activities without an increase in complications, albeit long-term recurrence monitoring is required.

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