

# Prospective Study On Evaluation Of Stapler Hemorrhoidectomy

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## Abstract

**Objective:** Aim of this study is to evaluate the results of stapler hemorrhoidectomy considering operative time, intra-operative bleeding, post-operative pain and analgesia, post-operative complications, post-operative recovery, return to activity and patient acceptability. **Method:** The study included 30 patients of all age groups and both sexes. The equipment used was the PPH-03 set (procedure for prolapse and haemorrhoids set) consisting of 33mm endosurgical circular stapler, circular anal dilator [CAD 33], purse string suture anoscope [PSA 33] & suture threader [ST 100]. **Conclusion:** Stapler hemorrhoidectomy is much superior in terms of post-operative pain, intra-operative blood loss and return to work. Stapler hemorrhoidectomy does not involve dissection and excision of the perianal skin and this undoubtedly contributes to the reduced pain scores. This reduction in pain and absence of perianal skin wounds helped better and rapid recovery. Early functional and symptomatic outcomes have been satisfactory.

## INTRODUCTION

Hemorrhoids are one of the commonest afflictions of mankind from time immemorial.<sup>1</sup> It is estimated that 40% of the entire population have symptoms due to hemorrhoids, many of them are symptomatic and few are asymptomatic. Their occurrence is assumed to be the price that man had to pay following his evolution into erect posture.<sup>2</sup>

The name "Hemorrhoids" is a compound word of Greek origin, i.e. "Haema" meaning "Blood" and "Rhoos" meaning "Flowing". Its synonym word "Pile" is a Latin word meaning thereby a "bail". This disorder occurs with no respect to colour, creed or any social class. It is difficult to know the exact extent of the problem in a society because many patients, for the fear of undergoing proctological examination, do not report to the doctor. About 50% of the people more than 50 years of age have some degree of haemorrhoids that may or may not be symptomatic.<sup>1</sup>

The current theory about the development of hemorrhoids is hypothesized on various concepts, amongst these the most popular is that of "Anal Cushions". Anal cushions are an aggregation of blood vessels (arterioles, venules and arteriovenular communications), smooth muscles, elastic and connective tissue. These vascular cushions are present in the 3-, 7- and 11-o'clock positions in the anal canal (in

lithotomy position). The vascular cushions correspond to venous drainage of the anal canal and are distributed in a manner similar to branches of the hemorrhoidal arteries. These anal cushions are present since embryonic life. These cushions protrude into the lumen and provide lubrication of the fecal contents to minimize the mechanical mucosal damage due to friction and they facilitate the selective passage of flatus and hence prevent soiling. Repeated staining for prolonged duration causes an engorgement of these cushions along with their mucosa which in turn is rendered susceptible to frictional damage by fecal contents and hence is prone to hemorrhoidal bleeding. There is frequent descent of these cushions along with their mucosa. So, haemorrhoids are always associated with mucous membrane prolapse.

The orthodox view that haemorrhoids are the result of varicose changes in the anal submucosal veins has been challenged and alternative theories have been proposed.<sup>3</sup> Whichever view of the etiology is held, most writers consider constipation to be an important contributory factor in the formation of hemorrhoids.<sup>4</sup> Nevertheless, many patients with well developed hemorrhoids are not constipated.<sup>2</sup> Broader et al. found that only 10 percent of their patients complained of constipation.<sup>5</sup> In a normal population, 97% of people have a bowel frequency of

between 3 movements per day and 3 per week but both medical and lay opinions of normality in this physiological function are varied.<sup>6</sup>

Various association of this disease with certain physiological and pathological conditions has been proposed. Prasad et al. noted that the majority of their patients had clerical, business and sedentary occupations involving prolonged sitting, while only 34% were engaged in manual labor or ambulatory types of occupation.<sup>7</sup> Haemorrhoids can be symptomatic at any age of life but are uncommon before 20 years.

Nowadays a newer theory has been hypothesized which says that there are ligaments of “Tritize and Parks” which are claimed to be supporting ligaments of these mucosal cushions and any factors like neurogenic, nutritional or mechanical ones that damage these ligaments cause prolapse of these anal cushions.

The management of patients with hemorrhoids is multi-factorial, with proper evaluation and assessment of the symptoms besides the presence, quality, quantity and frequency of bleeding. The timing of presence and reducibility of prolapsed tissue helps to classify the hemorrhoids into various grades.

**First Degree:** The mucosa barely prolapses, but with severe straining may be trapped by the closing of the anal sphincter. Subsequently, venous congestion occurs occasionally, resulting in discomfort and bleeding. Clinically, there is no obvious external abnormality.

**Second Degree:** With further protrusion of the mucosa, the patient complains of an obvious mass, but this disappears spontaneously and rapidly after defecation unless thrombosis occurs.

**Third Degree:** These are permanently prolapsed piles.

External hemorrhoids are present below the dentate line and lined by squamous epithelium. In intero-external hemorrhoids both above-mentioned conditions co-exist.

For Grade-I hemorrhoids, treatment options are dietary advices, sitz baths, topical medication such as creams, suppositories or wipes, sclerotherapy and infrared coagulation. However, long-term benefits are limited.

For Grade-II to Grade-IV, treatment options range from rubber band ligation (up to Grade-III), hemorrhoidectomy (conventional surgery) and stapler hemorrhoidectomy. Although rubber band ligation is an office procedure it

requires multiple visits as all piles cannot be banded in one sitting. Rubber banding may cause anorectal discomfort, brisk bleeding, thrombosis of external hemorrhoids and it cannot be done for patients with bleeding diathesis, with portal hypertension and in patients with combined interno-external hemorrhoids.

Hemorrhoidectomy removes hemorrhoids rather than just treating them and also recurrence is low. A scalpel is used during surgery to cut out the hemorrhoids which is relatively painful and recovery is even more painful than the hemorrhoids themselves; 2 to 3 weeks are taken before returning to normal activity. There is also a possibility of wound infection and a chance of short- and long-term incontinence.

A new surgical treatment of the hemorrhoidal condition reducing the anal mucus prolapse and hemorrhoidal masses by PPH-03 circular stapler (procedure for prolapse and hemorrhoids set) has been evolved which was conceived in 1998 by Dr. A. Longo.<sup>8</sup> It is based on the theory of “cushions”. He proposed the circumferential resection of a part of the rectal mucosa and submucosa above the dentate line using a stapler device at the anorectal angle at a distance between 3 and 4cm above dentate line. It has been postulated that this procedure obliterates the inferior hemorrhoidal artery and restores the mucosal prolapse, thus decreasing arterial blood flow and improving venous drainage of the hemorrhoids. Stapler hemorrhoidectomy is a short procedure, usually of 30-45 min., with the same anesthetic techniques as required for open techniques.

### **METHOD AND MATERIAL**

The technique for hemorrhoidectomy (Stapler Hemorrhoidectomy) was conducted in the Post-Graduate Department of Surgery, Acharya Shri Chander College of Medical Sciences and Hospital Sidhra, Jammu. In total, thirty patients were selected in this study.

**Inclusion criteria:** Patients of prolapse or prolapsing hemorrhoids, i.e. symptomatic Grade II hemorrhoids, Grade III hemorrhoids, Grade IV hemorrhoids

**Exclusion criteria:** Patients with Grade I hemorrhoids and patients with associated anal pathology like fistula and proctitis of any etiology.

The equipment used was the PPH-03 set (procedure for prolapse and hemorrhoids set) consisting of 33mm endosurgical circular stapler, circular anal dilator [CAD 33]

purse-string suture anoscope [PSA 33] & suture threader [ST 100].

The patients were kept on light low-residual diet a day before surgery and kept fasting overnight. They were given a Sodium Phosphate enema at night along with 2 tablets of bisacodyl (5 mg). They were operated either under spinal or epidural anaesthesia. The surgical technique and patient response were assessed by taking into consideration the below-mentioned criteria:

**Operative time:** This was the time after the patient was anaesthetized and placed in position till the extrusion of the anoscope.

**Blood loss estimation:** We weighed the standard dry gauze (4 x 4cm) and blood soaked gauze pieces postoperatively. The difference in weight was calculated as 1g weight equaling to 1ml of blood.

**Assessment of postoperative pain:** The concept of the visual analogue score was explained to each patient in the preoperative period with maximum imaginable pain as 10 and least as 1.

**Postoperative analgesia:** On the patient's demand injection diclofenac (75 mg) intramuscularly or injection tramadol (2 ml) I/V or top-up through epidural catheter was given.

**Patients' symptomatology:** It includes headache, vomiting, urinary retention, bleeding, postoperative discomfort and faecal urgency.

**Average hospital stay.**

**Return to normal activity.**

**Cost effectiveness.**

The patients were encouraged for discharge when there was no requirement for observation preceded by digital rectal examination. Duration of stay was recorded. The criterion for passage of first motion after surgery was considered conclusive for discharge.

## OBSERVATIONS

The following observations were drawn:

Mean time taken for the performance of circular stapler procedure was 46.8 min. This was significantly higher as compared to the time reported by various authors, which is attributed to the learning curve associated with using a new procedure.

Intraoperative blood loss was low (mean, 77ml). (Table 1)

**Figure 1**

TABLE 1: BLOOD LOSS DURING PROCEDURE

Peroperative blood loss	Number of patients
31-50 ml	9
51-70 ml	11
71-90 ml	3
39-110 ml	3
111-130 ml	2
131-150 ml	0
151-170 ml	0
171-190 ml	2

Duration of hospital stay was very short (mean, 2.6 days). (Table 2)

**Figure 2**

TABLE 2: POSTOPERATIVE DAYS OF DISCHARGE

Postoperative day of discharge	Number of patients	Percentage
2	n = 17	56.6%
3	n = 10	33.3%
4	n = 2	6.6%
7	n = 1	3.3%

Patients experienced little pain after the procedure. Pain evaluation with VAS score was 4.33 on first day, 1.76 on third day and 0.8 on seventh day.

Postoperative complications like urinary retention (n = 6), pain (n = 1), bleeding (n = 1) and postoperative headache (n = 1) were common and mostly seen in patients operated under spinal anesthesia, whereas only urinary retention (n = 2) occurred in patients operated under epidural anesthesia.

Patients were quick to return to routine work (average, 6.13 days).

In the maximum follow-up of 11 months and mean follow-up of 6 to 8 months, there were only 2 complications; one patient complained of rectal pain during defecation even 3 months after surgery and one patient complained of mild incontinence to gas and occasional rectal pain. However, both patients improved with time without any intervention.

The stapled hemorrhoidectomy has excellent patient acceptance and satisfaction. (Table 3)

**Figure 3**

TABLE 3: SATISFACTION SCORE

<b>Patients satisfied</b>	<b>27</b>	<b>90%</b>
<b>Patients not satisfied with surgery</b>	<b>3</b>	<b>10%</b>
a) Bleeding P/R	1	3.3%
b) Rectal pain	1	3.3%
c) Pain and mild incontinence	1	3.3%

The cost of the stapling instrument which is not reusable is the only disadvantage against this method to be used by the masses. However, the economic gain achieved by reducing the number of days of hospital stay and early return to work following stapler hemorrhoidectomy is enormous.

With promising results of the new stapled technique, the age of painless hemorrhoidectomy is here to come and stay.

Studies with longer follow-up are required to prove the benefit of stapler hemorrhoidectomy and any long-term complications.

## DISCUSSION

In our study of 30 patients subjected to stapler hemorrhoidectomy there were 18 males (60%) and 12 (40%) females with a mean age of 51.03 years and the mean duration of symptoms was 10 months. Twenty-four patients (80%) had constipation with a mean duration of 2 years; among them, 2 patients (66%) complained of irregular bowel habits having alternating diarrhea and constipation of the duration of 3 years and 2 years. Twenty-six (86.6%) patients out of 30 had bleeding per rectum; they complained of passage of bright-red colored blood after defecation, slight to start with but gradually increasing in quantity. Three patients (10%) complained of prolapse of hemorrhoidal masses that used to reduce spontaneously, 24 patients (80%) complained of prolapse of hemorrhoidal masses that had to be manually reduced, 3 patients (10%) complained of permanent prolapse

of hemorrhoidal masses that did not reduce even on manual reduction. Only 3 patients (10%) complained of itching in and around the anal region.

Time of surgery was calculated from beginning of procedure to application of dressing pad. The average time taken was 46.8 minutes. Except in two patients, the time required was shorter as compared to other patients. Time taken by these two patients was 1 hour 15 min. and 1 hour 20 min., respectively, because after completion of the procedure fresh bleeding continued and on inspecting the suture line disruption was found at one site in both patients where re-suturing was needed using catgut 2-0.

Blood loss during surgery in our series of 30 patients varied (approximately) from 50ml to 180ml. Mean blood loss was 77ml. The blood loss was estimated by counting the number of gauze pieces soaked. Amongst 30 patients who underwent circumferential mucosectomy, postoperative bleeding occurred in 1 patient (3.3%) and urinary retention occurred in 6 patients (20%).

For the treatment of postoperative pain epidural top-up, parenteral diclofenac sodium and tramadol were used for the first postoperative day when they were on intravenous fluid treatment. On the second postoperative day, all patients except one (who developed bleeding) were shifted to oral drugs. Diclofenac sodium in combination with serratiopeptidase was given as oral therapy. Postoperative pain evaluation using the visual analogue score of 30 patients of our series yielded an average of 4.33 on first day, 1.76 on third and 0.8 on seventh day. Only 1 patient (3.3%) complained of pain despite being administered routine injection of diclofenac sodium, postspinal headache occurred in 1 patient (3.3%). The majority of the postoperative complications occurred in patients who underwent surgery under spinal anesthesia.

Average hospital stay in patients was 2.6 days. All patients were discharged after blood-free and pain-free bowel evacuation. Patients went on their routine work after an average of 6.13 days following the circular stapled procedure.

In our series of 30 patients who underwent stapled hemorrhoidectomy, 27 patients (90%) were satisfied and agreed that they will recommend the same procedure to other people who were suffering from hemorrhoids.

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