

## Comparitive Study between Conventional Hemorrhoidectomy with Harmonic Scalpel Hemorrhoidectomy

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### Abstract

**Introduction:** Hemorrhoids are common anal disorders. Surgical treatment required for third and fourth degree hemorrhoids. Milligan -Morgan hemorrhoidectomy is most commonly performed surgery for hemorrhoids, however in recent times several newer technique have been developed for hemorrhoids such as harmonic scalpel hemorrhoidectomy. In our study we compare outcome between two hemarrhoidal surgeries, harmonic scalpel hemorrhoidectomy and conventional hemorrhoidectomy. **Methods:** This is a prospective study conducted between January 2016 to December 2016 which included 60 patients with grade 3 and grade 4 hemorrhoids. Thirty patients underwent conventional hemorrhoidectomy and another thirty patients underwent harmonic scalpel hemorrhoidectomy. Operative time, postoperative pain, length of post-operative hospital stay, wound healing duration and post-operative complications were compared between two groups. **Results:** The harmonic scalpel hemorrhoidectomy group had significantly less operative time, postoperative pain, length of hospital stay, wound healing duration and less postoperative complications as compared to conventional hemorrhoidectomy group. **Conclusion:** Harmonic scalpel hemorrhoidectomy is a sutureless surgery with less operative time, postoperative pain, hospital stay and faster wound healing. This makes harmonic scalpel hemorrhoidectomy a superior

alternative for conventional hemorrhoidectomy with less morbidity and good patient compliance.

**Keywords:** Hemorrhoids; Milligan-Morgan Hemorrhoidectomy; Ferguson Closed Hemorrhoidectomy; Harmonic Scalpel Hemorrhoidectomy; Stapled Hemorrhoidopexy.

### Introduction

Hemorrhoids are common benign anal disorders that usually requires surgery. Although conservative management is enough for first and second degree hemorrhoids, surgical management is required for third and fourth degree hemorrhoids [1]. Most commonly performed surgery for hemorrhoids is Milligan-Morgan open hemorrhoidectomy and Ferguson closed hemorrhoidectomy [2, 3].

In recent times, several newer techniques have been developed for hemarrhoidal surgeries like stapled hemorrhoidopexy, harmonic scalpel hemorrhoidectomy, Doppler guided hemarrhoidal artery ligation [4, 5]. Harmonic scalpel is an ultrasonic cutting and coagulating electrosurgical device which has advantages such as minimal lateral thermal injury, less fumes, not making neuromuscular stimulations and more localized impact [6]. In this study we compare outcomes of harmonic scalpel hemorrhoidectomy (HH) with conventional hemorrhoidectomy (CH).

### Materials and Methods

Ours is a prospective study that includes 60 patients of third and fourth degree hemorrhoids admitted in K.R. hospital, Mysore during January 2016 to December 2016. The patients were randomly allotted into two

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groups. 30 patients underwent conventional hemorrhoidectomy (CH group) and other 30 patients underwent harmonic scalpel hemorrhoidectomy (HH group).

#### Inclusion Criteria

- Third degree hemorrhoids
- Fourth degree hemorrhoids

#### Exclusion Criteria

- Acute thrombosed hemorrhoids
- Patients with previous hemorrhoidal surgeries
- Associated other anal pathologies like fistula in ano, anal fissure

For conventional hemorrhoidectomy, after informed consent under anesthesia in lithotomy position, Proctoscopy done to inspect the position of internal piles and surgery starts from 7'o clock position hemorrhoid. Skin adjacent to hemorrhoid held with Alli's forceps, internal hemorrhoid held with artery forceps and v shaped cut is placed in the skin using curved scissors. Cut is deepened towards the anal canal to reveal the lower fibers of the internal anal sphincter. The sphincter is gently swept away with tissue forceps from the hemorrhoid, so that only the hemorrhoidal plexus with mucosa is present in the pedicle base. Pedicle is transfixed with catgut 2-0 atraumatic and distal part is excised. Hemostasis is achieved from the bed of the hemorrhoid by use of diathermy cautery. The same procedure is repeated at 3 and 11'o clock positions respectively. Wound is not sutured but left open. Anal pack is placed. Pack is removed on post-operative day 1.

In harmonic scalpel hemorrhoidectomy, after informed consent under anesthesia in lithotomy position, Proctoscopy done to inspect the position of

internal piles and surgery starts from 7'o clock position hemorrhoid. Skin adjacent to hemorrhoid held with Alli's forceps, internal hemorrhoid held with artery forceps and v shaped cut is placed in the skin using curved scissors. Cut is deepened and dissection and excision of the hemorrhoid is done using harmonic scalpel. The same procedure is repeated at 3 and 11'o clock positions respectively. Wound is not sutured but left open. Anal pack is placed. Pack is removed on post-operative day 1.

Outcomes in both the groups were compared in terms of duration of surgery, post-operative pain, length of postoperative hospital stay, wound healing duration and postoperative complications.

## Results

Sixty patients with grade 3 and grade 4 hemorrhoids admitted in K.R. Hospital, Mysuru, during period of January 2016 to December 2016 were selected for this study. Out of 30 patients in HH group 20 patients (66.7%) were males and 10 (33.3%) were females. In CH group 21 patients (70%) were male and 9 (30%) were female (Figure 1).

Mean age of presentation in HH group is  $45.93 \pm 18.17$  years and in CH group is  $47.23 \pm 15.70$ . No significant difference was seen between the two groups in relation to age and sex distribution.

Operative time was significantly lesser in HH group ( $15.23 \pm 3.07$  minutes) as compared to CH group ( $27.13 \pm 3.33$ ). Length of post-operative hospital stay in HH group was  $1.3 \pm 0.47$  days and in CH group was  $2.27 \pm 0.45$  days with p value  $T0.001$ . Wound healing duration was significantly less in HH group ( $16.67 \pm 2.47$  days) as compared to the CH group ( $27.30 \pm 4.98$  days) (Table 1).

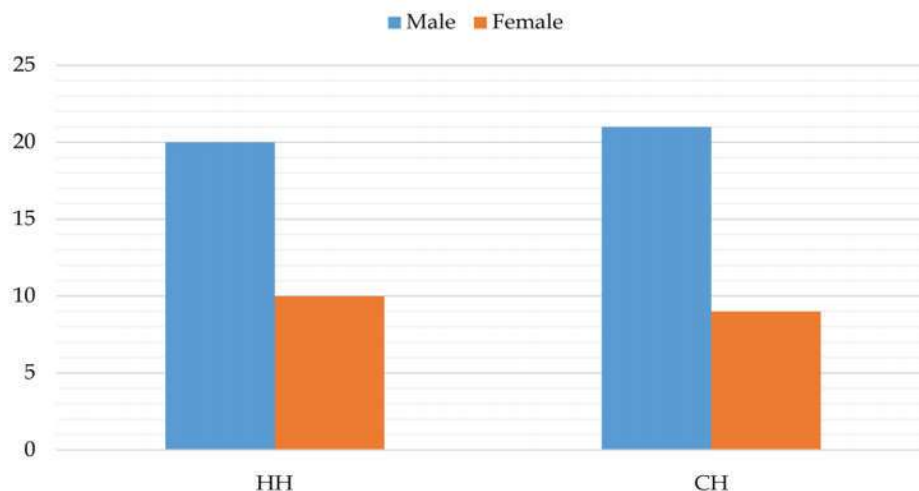


Fig. 1: Sex distribution of the patients

**Table 1:** Patient statistics

	HH	CH	P value
Operative time (minutes ± SD)	15.23 ± 3.07	27.13 ± 3.33	0.001
LHS (days ± SD)	1.3 ± 0.47	2.27 ± 0.45	0.001
Wound healing duration (days ± SD)	16.67 ± 2.47	27.30 ± 4.98	0.001

SD- Standard deviation

LHS- Length of hospital stay

**Table 2:** Post-operative pain score

	HH	CH	P value
Post-operative day 1	4.07±1.31	6.73±0.98	0.001
Post-operative day 7	1.70±0.79	4.73±0.91	0.001
Post-operative day 28	0.20±0.41	1.37±0.49	0.001

**Table 3:** Post operative complications

	HH		CH	
	Number	Percentage (%)	Number	Percentage (%)
Urinary retention	4	13.33	11	36.67
Bleeding	1	3.33	3	10
Infection	0	0	1	3.33
Residual prolapse	0	0	1	3.33

Post-operative pain in both the groups were compared on Day 1, Day 7 and Day 28 using Visual analog scale (VAS) score. VAS score in HH group on day 1, day 7 and day 28 were 4.07±1.31, 1.70±0.79 and 0.20±0.41 respectively and in CH group were 6.73±0.98, 4.73±0.91 and 1.37±0.49 respectively. Pain was significantly lesser in HH group. (Table 2)

Post operatively 4 patients (13.33%) had urinary retention in HH group as compared to 11 patients (36.67%) in CH group. Incidence of bleeding in HH group was 1 (3.33%) as compared to 3 (10%) in CH group. There was no significant difference in residual prolapse and infection rate in both the groups (Table 3).

## Discussion

Conventional hemorrhoidectomy is considered as treatment of choice for hemorrhoids. Conventional hemorrhoidectomy for grade 3 and grade 4 hemorrhoids is a tedious procedure associated with significant morbidity and prolonged convalescence [6].

Harmonic scalpel is an ultrasonic cutting and coagulating electro-surgical device which has advantage of causing minimal lateral thermal injury (1-3mm) which results in minimal swelling, edema and post-operative pain.

In comparison between HH group and CH group, operative time, length of post-operative hospital

stay, wound healing duration, post-operative pain and complications were significantly less in HH group.

In 2002 Ramadan E et al. conducted a randomized prospective comparative study between harmonic scalpel hemorrhoidectomy and milligan-morgan hemorrhoidectomy for third and fourth degree hemorrhoids and they stated harmonic scalpel hemorrhoidectomy was virtually a bloodless operation with minimal tissue damage and a less postoperative time and a fast return to normal activity [7].

In 2001 Armstrong et al. conducted a prospective randomized trial comparing between harmonic scalpel vs electro cautery hemorrhoidectomy and study demonstrated significantly reduced postoperative pain in patients of harmonic scalpel group and they stated that reduced postoperative pain in harmonic scalpel likely results from the avoidance of lateral thermal injury [8].

Abohashem AA et al. conducted a single blind randomized study comparing harmonic scalpel hemorrhoidectomy with electro cautery hemorrhoidectomy for complex grade 3 and grade 4 hemorrhoids between July 2007 to December 2008 and their study demonstrated significantly reduced postoperative pain after harmonic scalpel hemorrhoidectomy compared with bipolar electro cautery hemorrhoidectomy due to reduced excessive lateral thermal injury in harmonic group [9].

## Conclusion

Harmonic scalpel hemorrhoidectomy is a sutureless surgery with less operative time, postoperative pain, hospital stay and faster wound healing. This makes harmonic scalpel hemorrhoidectomy a superior alternative for conventional hemorrhoidectomy with less morbidity and good patient compliance.

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