

**PROSPECTIVE STUDY OF STAPLER HAEMORRHOIDECTOMY**

Raj Gajbhiye<sup>1</sup>, Bhupesh Tirpude<sup>2</sup>, Hemant Bhanarkar<sup>3</sup>, Ambrish Shamkuwar<sup>4</sup>, Rekha Gajalwar<sup>5</sup>, Ritesh Bodade<sup>6</sup>, Mahesh Soni<sup>7</sup>, Mukteshwar Deshmukh<sup>8</sup>

**HOW TO CITE THIS ARTICLE:**

Raj Gajbhiye, Bhupesh Tirpude, Hemant Bhanarkar, Ambrish Shamkuwar, Rekha Gajalwar, Ritesh Bodade, Mahesh Soni, Mukteshwar Deshmukh. "Prospective Study of Stapler Haemorrhoidectomy". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 73, December 25; Page: 15356-15363, DOI: 10.14260/jemds/2014/4070

**ABSTRACT: AIMS:** Study the efficacy of stapled haemorrhoidectomy using circular stapler in terms of benefits as duration of surgery, length of hospital stay, postoperative pain, time to return to normal daily or social activity and usefulness as for patient satisfaction. **MATERIAL AND METHODS:** Prospective study using circular stapler for grade II, grade III and grade IV haemorrhoids between age group 20 to 70 years was done over a period of Jun 2011 to Nov 2013. **OBSERVATION AND RESULTS:** Study enrolled 30 symptomatic patients. 21(70%) were males and 9(30%) females. Most common complaint was bleeding per rectum in 29 (96.66%) patients followed by itching 11 (36.66%) patients & constipation 8 (26.66%) patients. 19(63.33%) patients were grade III haemorrhoids, 6 (20%) were grade II and rest 5 (16.66%) grade IV. Mean operative time was 31.76 minutes for our team with same surgeon operating all cases. Postoperative pain recorded using VAS score was max 24 hours after the surgery with mean VAS 2.31 + 0.46(VAS -1 no pain). During stay 28(93.33%) patients required Step 1 pain analgesics (NSAIDS) while only 2(6.66%) were put on Step 2(opioids). Mean hospital stay of patients was 34.96 hours (1.45 days). 28(93.33%) patients were able to return to social activity by day 8 post operatively. 28(93.33%) were complication free while others had minor problems dealt accordingly. No recurrences in 6months follow up in all patients with 28(93.33%) patients reporting satisfaction for their treatment through the procedure. **CONCLUSION:** Haemorrhoids is a socially embarrassing disorder and this new procedure of stapler haemorrhoidectomy delivers a smile and dignity especially to Indian patients. Hence it should practiced and promoted for patients benefit.

**KEYWORDS:** Stapler haemorrhoidectomy, satisfaction, haemorrhoid, bleeding per rectum

**INTRODUCTION:** Haemorrhoids are one of the commonest afflictions of mankind from time immemorial. It is estimated that 40% entire population have symptoms due to haemorrhoids. Their occurrence is assumed to be the price that man had to pay following his evolution into erect posture. The earliest references of haemorrhoids date back to Egyptian papyri of 1700 BC. The first surgical treatment was described in the Hippocratic Treatises of 460 BC.<sup>1</sup>

The term haemorrhoids and piles are used synonymously but they are different. Haemorrhoid is derived from Greek word mean bleeding (Haem= Blood, Rhoos= Flowing). Piles derived from Latin word 'Pila' means 'Ball'. Though the disease has been referred by various terms in different languages, it would be referred here as "Haemorrhoidal disease."<sup>1</sup>

According to Parks, internal haemorrhoids are saccular dilatations of the terminal part of the haemorrhoidal venous plexus lying in the sub mucosa of the upper anal canal just above the mucocutaneous junction.<sup>1</sup>

Haemorrhoids are defined as symptomatic enlargement and distal displacement of the normal anal cushions. Normal anal canal has highly vascularised cushions forming masses of thick

## ORIGINAL ARTICLE

---

sub mucosa containing blood vessels, smooth and elastic connective tissue, located in the left lateral, right posterior and right anterior quadrant of anal canal. Abnormal cushions lead to haemorrhoids.<sup>2</sup>

Mortality due to haemorrhoids is rare, but morbidity is seen due to anaemia caused by bleeding haemorrhoids. Looking at the large number of patients of haemorrhoids and their sufferings many methods of treatment have been described since Babylon Era (2250 BC). Hippocrates has enunciated basic principles for surgical treatment of haemorrhoids and all modern techniques of treatment are based on same principle viz. ligation and excision of haemorrhoids. Over years many modifications and improvements in techniques have been employed and good results are achieved. The treatment for haemorrhoids can be conservative management, non-operative management and operative management. Operative treatment i.e. haemorrhoidectomy has been reserved for grade III and grade IV haemorrhoids comprehends to excision of haemorrhoidal tissue by open Milligan Morgan's haemorrhoidectomy<sup>3</sup> or closed Ferguson's haemorrhoidectomy.<sup>4</sup> These techniques are associated with open wound, severe pain, sphincter injury, removal of anoderm below dentate line. Considerable postoperative nursing care is needed, with a convalescence of at least 1 month.

Stapler haemorrhoidectomy was introduced in 1993 as an alternative to traditional techniques for operative management of haemorrhoids. This method was described and refined by Dr Antonio Longo, Professor Department Surgery, University of Palermo, in 1998.<sup>5</sup> In this method we excise a circumferential portion of lower rectal and upper anal canal mucosa and sub mucosa as circular strip and staple off the end branches of superior haemorrhoidal artery and performs an anastomosis with a circular stapling device. This method has less morbidity, less postoperative pain and earlier resumption to normal activities but requires skill to perform and still under surveillance for its widespread use.

**MATERIAL AND METHODS:** This prospective study was carried out at Indira Gandhi Medical College and Hospital, over a period of June 2011 to November 2013.

**Inclusion Criteria:** All symptomatic patients with grade II, grade III and grade IV haemorrhoids between age group 20 to 70 years.

**Exclusion Criteria:** Grade I haemorrhoids, Thrombosed haemorrhoids, Haemorrhoids in pregnancy, Haemorrhoids in patients with portal hypertension, Haemorrhoids with fistula in ano, perianal abscess, patients with coagulation disorders, sepsis and severe immunodeficiency. 30 numbers of cases who presented during this time frame and who met the inclusion criteria were selected.

After doing routine investigations for diagnosis and preanaesthetic check-up, patients were posted for surgery. All patients were given regional anaesthesia for procedure with Lithotomy position. All patients were given a dose of antibiotic injection cefotaxime 1 gm IV 1hr prior to procedure. Surgery performed using PPH ETHICON circular stapler 33 mm (Johnson and Johnson). After lubrication of the anal margin, a two finger anal dilation was performed. Then circular anal dilator with obturator introduced in anal canal with rotary movement. After removing the obturator, the prolapsed mucosa fell into the lumen of anal dilator. It is fixed to the perineum with four stitches taken with silk no 2-0. The purse string suture Anoscope was introduced through anal dilator. With 2-0 monofilament suture prolene on 25-30 mm curved round body needle purse string suture carried

## ORIGINAL ARTICLE

---

out 4-5 cm above Dentate line by rotation starting from 6'o clock position. This is ensured that suture line circularly included symmetric ring of mucosa and sub mucosa of rectum and not the vaginal wall in females and muscle layers of rectum. The stapler was opened to its maximum diameter and see for the red mark on indicator over staple gun and then its anvil was placed beyond the purse string suture. The stapler was slightly withdrawn to ensure the purse string could be visualized and tied. The end of the suture was pulled out of the lateral holes of the PPH and knotted externally using a suture threader. During this step the stapler should be gently pushed in, while the thread was pulled by the assistant or surgeon so that the prolapsed mucosa began to be accommodated. The instrument was then tightened to the end, by full rotation of the stapler knob, clockwise till the marking in indicator turns to green.

The stapler was then fired and held closed for one minute to assist in haemostasis. The stapler's head was then opened through two full rotations till the marking in indicator comes to centre. Then the gun slowly withdrawn and specimen of Doughnut was retrieved from the stapler and inspected to verify complete excision of the tissue and sent for Histopathological Examination. A digital examination confirmed that the stapler line was circumferential. A purse string anoscope was inserted into the anus to inspect bleeding at the staple line. A 2-0 vicryl suture was used to over sew the bleeding site if bleeds more. Here in this procedure external components were not dealt with directly as they get regressed in postoperative period. No attempt was made to remove external tag or any cutaneous component of haemorrhoid as it would result in postoperative pain and nullify the benefit of stapler haemorrhoidectomy.

Postoperatively patients were started on oral soft diet 6 hours after surgery with 20 ml lactulose laxative HS each day. Preoperatively patients were told about visual analog score (VAS) for pain, post operatively pain evaluation done using VAS scale starting at 12 hours from surgery. A score of 10 represented the worst pain and 1 score means no pain. A single dose of injection diclofenac was given as protocol to all patients immediate postoperatively. Accordingly patients were given injection Diclofenac 75 mg IV if score is more than 3 or patient demands it. Injection Tramadol added if patient could not tolerate the pain one hour after the injection diclofenac given and a record of type and frequency of this given kept. The criteria for discharge were no complaint of pain and requirement of analgesics. The criteria for first motion passed after surgery was not considered for discharge. Pain felt by patient after first motion was noted. Follow up was done after 3<sup>rd</sup>, 7<sup>th</sup>, 15<sup>th</sup> and 30<sup>th</sup> day of surgery and 6 months and 1 year to know patient satisfaction and any late complications like rectal stenosis and recurrence.

**OBSERVATION AND RESULTS:** All the patients in age group 20 years to 70 years taken into study after fulfilling the inclusion criteria's. The mean age of patients was 44 years +12.51(range 27-68 years). In this study 21 patients were male (70%) and 9 patients were female (30%). Most common complaint was bleeding per rectum in 29 (96.66%) patients. Associated symptoms were itching 11 (36.66%) patients, constipation 8 (26.66%) patients, something coming out of anal canal 6 (20%) patients, mucoïd discharge 6 (20%) patients and skin tag in 4 (13.33%) patients. Patients with symptoms of haemorrhoid and on proctoscopy with grade II, grade III and grade IV haemorrhoids were operated for stapler haemorrhoidectomy. Total patients with grade III haemorrhoids were 19 (63.33%), grade II 6 (20%) and grade IV were 5 (16.66%). The procedure of stapled haemorrhoidectomy was performed by same team and same surgeon. The minimum operative time

## ORIGINAL ARTICLE

---

required was 22 min and maximum time 45 min. The mean operative time was 31.76 minutes. With time expertise was achieved in further procedures. Postoperative pain recorded using VAS score & projected pain was maximum 24 hours after the surgery. The mean VAS score after 24 hours was  $2.31 + 0.46$ . On postoperative day 3 this score decreased to  $1.21 + 0.48$  and on day 7 it was  $1.03 + 0.18$ . On day 15, patients did not complain of any pain with VAS score 1(no pain). Pain experienced during passage of first motion was not significant.

Postoperative analgesic requirement was according to VAS score and on patients demand. Mean analgesic requirement was  $1.4 + 0.56$ . 12(40%) patients required one more dose of injection diclofenac and out of this 1(3.33%) patient's required single dose of opioid analgesic. 1(3.33%) patient required two more doses of injection diclofenac and 1(3.33%) more dose of opioid analgesic. 17 (56.66%) patients required single dose of injection diclofenac as protocol. The mean hospital stay of these patients was 34.96 hours (1.45 days). One patient had retention of urine and was admitted for 72 hours due to suprapubic discomfort. This study noted early return to social and daily work with mean duration to work was 8.3 days. One patient had retention of urine post operatively which resolved on its own and no catheterisation required. Minimal intraoperative bleeding was seen in one patient who was controlled by suturing the staple line with vicryl2-0 on round body.

All Doughnuts removed were sent for histological examination to know presence of muscle in the Doughnut. Out of 30 Doughnuts, 6 (20%) doughnuts had thin rim of smooth muscle with mucosa and sub mucosa. Thickness of this muscle was less than 3 mm and no other significant pathology were seen in these Doughnuts. 24 doughnuts had only rectal mucosa and sub mucosa. Postoperative follow up was done on day3, day7, day15, 1month and 6 months and then 1 year. All patients gave history of relief of the symptoms at one month follow up. One patient had bleeding per rectum 2 months post operatively which stopped with conservative management and on 6 months follow up there was no complaint. At 1 year of follow up no complaints were reported. 28 (93.33%) patients were well satisfied with the procedure and they got relieved of their symptoms. At 6 months follow up, this increased to 29 (96.66%) patients.

**DISCUSSION:** Advances and friendly techniques are the need of the present modern era and hence with the paper presentation by Dr Antonio Longo this was scrutinized to its limits and opted for feasibility by many surgeons worldwide. Here forth sharing some of these studies for comparing with the present study.

Shalaby & Desoky et al (2001)<sup>6</sup> reported a mean age group of 44yrs with a male to female ratio of 3:2. Maximum patients had grade IV haemorrhoids and bleeding per rectum as the most common symptom. Mean operative time of 9 min and vas score of 2.5. The mean postoperative analgesia was  $0.8 + 0.1$ . Mean pain while first motion reported 1.1 according to VAS score with a mean stay of 1.45 days. Patient returned to work on 8.2days. Minimal complications recorded. Histopathological examination of excised doughnut and confirmed the presence of mucosa, submucosa and muscularis mucosa in 70% cases and smooth muscle fibres, less than 1mm thick in 30% cases.

Gravie et al (2005)<sup>7</sup> reported a mean age of 51 yrs with 1:1 male female ratio. Max patients were grade III haemorrhoids with prolapse was the most common symptom. The mean operative time was 21 min. and a VAS score of 3. The mean postoperative analgesia was 1.3 and mean post-operative stay of 2.2 days. Complication reported was high due to multiple surgeons operating.

## ORIGINAL ARTICLE

---

Follow up of 2.21 years with 94% patients having relief in symptoms and anatomic assessment normal in 92% patients.

Reported a mean age group of 42.2 and a 3:2 male female ratio. Max patients were of grade III haemorrhoids and bleeding per rectum was the most prominent symptom. Mean operative time was 35 min and VAS score was 2.5. The mean stay in hospital was 1.09 days and patients returned to work on an average on 18 days. Complications minimal and follow up was eventful with maximum patient relief and satisfaction. 1 patient had recurrence and had to be operated with open procedure.

Bharati et al (2012)<sup>9</sup> reported a mean age group of 44.1. Max patients had grade III haemorrhoids and bleeding per rectum as the chief complaint. Mean operative time of 29 min with mean analgesia of 1.4 required. Patient on an average had a mean hospital stay of 2.7 days and patient went to work till 8<sup>th</sup> day of post-operative period. This study reported minimal complication and 89% patient satisfaction.

Wolthuis et al (2012)<sup>10</sup> studied recurrent symptoms after stapled haemorrhoidopexy and the impact on patient satisfaction after two years follow up. 165 patients with grade III and grade II haemorrhoids underwent SH in study period. The Mean age was 50 years and 56% patients were male. At follow up 79 (56%) patients remained symptom free and 89% were more than satisfied. Most common recurrent symptom was prolapse (52 patients) and anal bleeding (46 Patients). Despite recurrence of symptoms 89% patients were satisfied due to less severity of symptoms than at presentation.

Faucheron et al (2012)<sup>11</sup> reported a risk of rectal perforation with life threatening peritonitis following stapled haemorrhoidopexy, in a systematic review of the literature. From 2000 to the present, 29 articles reporting complications in 40 patients were identified. 35 patients underwent laparotomy with faecal diversion and a further patient was treated by low anterior resection. A specific complication was rectal perforation with peritonitis. Despite surgical intervention and resuscitation, there were 4 deaths.

Ammaturo et al (2012)<sup>12</sup> done randomized clinical trial at SH versus Milligan Morgan Haemorrhoidectomy for grade III haemorrhoids and studied 39 patients in SH group and found more short-term advantages as reduced pain, shorter length of hospital stay, earlier return to work and high patient satisfaction. At 2 years follow up recurrent prolapse was seen in six patients (13%) underwent SH.

The present study is on the same path and is comparable to the above mentioned studies. The similarities are found most consistently with the studies of Gouda et al (2010)<sup>8</sup> and Bharati et al (2012)<sup>9</sup>. The availability of such a costly device was the key drawback to our study. Our being a government institute and with limited funds the sample size was restricted to 30. But still with more demand of this product probably the percentage of using this technique will increase.

**CONCLUSION:** Stapler haemorrhoidectomy is a flourishing advance which needs widespread application. The theoretical benefits are threefold. First, the interruption of inflow from the superior haemorrhoidal arteries to the internal haemorrhoids may contribute to improvement of symptoms by relieving vascular congestion. Second, the partial excision of the haemorrhoidal cushions themselves reduces the size of the internal haemorrhoids. Third, the resection of rectal mucosa reduces the tendency to prolapse and restores the internal cushions to their normal physiological position. The only requirement is expertise which develops with performing cases and growing

## ORIGINAL ARTICLE

---

experience. Our results suggest that stapled haemorrhoidectomy is an effective treatment for symptomatic second, third and fourth degree haemorrhoids. The advantages include less postoperative pain, fewer requirements of analgesia, early return of bowel function with no pain on defecation and early return to work. This will definitely decrease patient morbidity and ultimate cost of procedure. To conclude, Stapler haemorrhoidectomy is a feasible minimally invasive, safe, quick, easy to learn and simple procedure. The painless postoperative period is a dream for patient with great sufferings preoperatively. This procedure is effective and reproducible and can be used as a better alternative to conventional open haemorrhoidectomy for patients with grade II, grade III and grade IV haemorrhoids.

### BIBLIOGRAPHY:

1. Parks AG: De Haemorrhoids: A study in surgical history. *Guys Hosp Rep* 1955; 104:135- 156.
2. Loder PB, Kamm MA, Nicholls RJ, Phillips RK. Haemorrhoids: pathology, pathophysiology and aetiology. *Br J Surg.* 1994; 81: 946-954.
3. Milligan ET, Morgan CN, Jones LE, Officer R: Surgical anatomy of the anal canal and operative treatment of haemorrhoids. *Lancet* 1937; 1119-1124.
4. Ferguson JA, Heaton JR: Closed haemorrhoidectomy. *Dis Colon Rectum* 1959; 2: 1176- 1179.
5. Longo A Treatment of haemorrhoids disease by reduction of mucosa and haemorrhoidal prolapse with a circular suturing device: a new procedure. *Proceedings of the Sixth World Congress of Endoscopic Surgery.* Monduzzi, Bologna, 1998 pp777 -78.
6. Shalaby R, Desoky A Randomized clinical trial of stapled versus Milligan-Morgan haemorrhoidectomy. *Br J Surg* 2001, 88; 1049-1053.
7. Gravie JF, Paul-Antoine Lehur, Noel Hutten, Marc Papillon, Michel Fantoli and Bernard Descottes, et al. Stapler haemorrhoidopexy versus Milligan Morgan Haemorrhoidectomy: A prospective randomised multicentre trial with 2 years postoperative follow up. *Annals of Surgery* July 2005; 242 (1): 29-35.
8. Gouda M, Ellaben, Stapled haemorrhoidectomy versus Traditional Haemorrhoidectomy for the treatment of haemorrhoids. *World J Surg* vol 2, Issue 2010.
9. Bharati Hiremath, Gupta S. Stapled haemorrhoidopexy for haemorrhoids: a review of our early experience. *Indian J Surg,* 2012; 74 (2): 163-5.
10. Wolthuis AM, Pennincks F, Cornille JB, Fieuws S, D'Hoore A. Recurrent symptoms after stapled haemorrhoidopexy and the impact on patient satisfaction after a minimum of 2 years follow up: *Acta Chir Belg;* 2012; 112 (6): 419-22.
11. Faucheron JL, Voirin D, Abba J. Rectal perforation with life-threatening peritonitis following stapled haemorrhoidopexy. *Br J Surg.* 2012; 99 (6): 746-53.
12. Ammaturo C, Tufano A, Stapled haemorrhoidopexy vs Milligan Morgan haemorrhoidectomy for grade III haemorrhoids: a randomised clinical trial: *G Chir;* 2012; 33 (10): 346-351.



**Fig. 1 Case of grade III haemorrhoid painting and drapping done**



**Fig. 2: Showing Immediate reduction of haemorrhoid postoperatively**



**Fig. 3: Showing Doughnut in stapling gun**



**Fig. 4: Showing Doughnut of haemorrhoids**

Authors	Year	RB	RU	FU	PH	P & D	PT	RS
Shalaby & Desoky et al <sup>64</sup>	2001	1	7	N	N	1	3	2
Habr Gama et al <sup>71</sup>	2003	4	N	N	N	N	1	N
Gravie et al <sup>72</sup>	2005	2	1	6	1	N	7	N
Riaz et al <sup>76</sup>	2008	9	N	10	1	1	1	1
Gouda et al <sup>46</sup>	2010	3	1	2	N	4	N	N
Grigoropoulos et al <sup>78</sup>	2011	6	3	8	N	N	N	N
Butterworth et al <sup>82</sup>	2012	6	3	N	N	2	N	N
Bharati et al <sup>79</sup>	2012	2	3	N	N	10	N	N
Present study	2013	1	1	N	N	N	N	N

**Table 1: Showing various studies with various complications**

RB: Rectal Bleeding, RU: Retention of Urine, FU: Faecal Urgency, PH:- perianal Haematoma, P&D: Pain & Discomfort, PT: perianal Thrombosis, RS: Rectal Stenosis.

# ORIGINAL ARTICLE

## RETURN TO WORK:

AUTHORS	YEAR	MEAN TIME TO RETURN TO WORK
Shalaby & Desoky et al <sup>64</sup>	2001	8.2 days
Tjandra et al <sup>74</sup>	2007	15.85 days
Gouda et al <sup>46</sup>	2010	18 days
Bharati et al <sup>79</sup>	2012	7 days
Present Study	2013	7.86 days

Table 2: Showing mean time to return to work in various studies

## GRADES OF HAEMORRHOIDS IN WHICH STAPLER HAEMORRHOIDECTOMY DONE:

Authors	Year	Total number of patients	Grade II	Grade III	Grade IV
Shalaby & Desoky et al <sup>64</sup>	2001	82	13	32	37
Habr Gama et al <sup>71</sup>	2003	177	ND	132 (74%)	45 (25.4%)
Hasse et al <sup>72</sup>	2004	80	ND	80	ND
Azizi et al <sup>75</sup>	2008	49	7 (14.3%)	38 (77.5%)	1 (2%)
Gouda et al <sup>46</sup>	2010	30	ND	21 (70%)	9 (30%)
Bharati et al <sup>79</sup>	2012	50	20 (40%)	30 (60%)	ND
Present study	2013	30	6 (20%)	19 (63.33%)	5 (16.66%)

Table 3: Showing grades of haemorrhoids in various studies

- ✓ In the present study maximum patients studied had grade III haemorrhoids which corresponds to Hasse et al (2004).<sup>72</sup>

### AUTHORS:

1. Raj Gajbhiye
2. Bhupesh Tirpude
3. Hemant Bhanarkar
4. Ambrish Shamkuwar
5. Rekha Gajalwar
6. Ritesh Bodade
7. Mahesh Soni
8. Mukteshwar Deshmukh

### PARTICULARS OF CONTRIBUTORS:

1. Professor, Department of Surgery, IGGMC, Nagpur.
2. Associate Professor, Department of Surgery, IGGMC Nagpur.
3. Assistant Professor, Department of Surgery, IGGMC, Nagpur.
4. Senior Resident, Department of Surgery, IGGMC, Nagpur.
5. Resident, Department of Surgery, IGGMC, Nagpur.

6. Assistant Professor, Department of Surgery, IGGMC, Nagpur.
7. Resident, Department of Surgery, IGGMC, Nagpur.
8. Assistant Professor, Department of Surgery, IGGMC, Nagpur.

### NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:

Dr. Bhupesh Tirpude,  
302, C-Wing, Majestic Height,  
Shivaji Nagar, Hill Road,  
Nagpur-440010.  
Email: btirpude@gmail.com

Date of Submission: 06/12/2014.  
Date of Peer Review: 07/12/2014.  
Date of Acceptance: 17/12/2014.  
Date of Publishing: 23/12/2014.