

Research Article

A comparative study of modern techniques of stapled versus enseal haemorrhoidectomy: a prospective randomized trial on 240 cases

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ABSTRACT

Background: Increasing incidence of haemorrhoids in population consuming diet rich in calories, low in fibre, spicy food, tropical climate and other known factors has led to development of new techniques for haemorrhoid treatment. The aim of study is to compare pros and cons of haemorrhoidectomy with stapler v/s enseal.

Methods: A prospective randomized trial was conducted on a total of 240 patients having 3rd and 4th degree haemorrhoids, divided into two groups of 120 each during 2012-2014 at NIMS Medical College and Hospital, Jaipur, India. Pre-operative complaints (bleeding P/R, rectal/perianal pain, mass coming out of anus), operative and post-operative outcomes, operative time, post-operative pain, bleeding, urinary retention, faecal/flatus incontinence, thrombosis of external haemorrhoids/perianal hematoma, anal/rectal stenosis, wound problems and recurrence were assessed.

Results: Average operating time was 1.5 times in Stapler Haemorrhoidectomy(SH) v/s Enseal Haemorrhoidectomy (EH), average hospital stay, recovery time and total analgesics required during 5 POD was almost 0.5 in SH v/s EH. Post-operative complications like bleeding, urinary retention, faecal/flatus incontinence, anal discomfort, rectal/anal stenosis and wound infection were found significantly less in SH v/s EH. Residual skin tags prolapse and recurrence was almost three times in SH v/s EH.

Conclusions: Both SH and EH are probably equally valuable techniques in modern haemorrhoid surgery. However Enseal has an advantage because ease of technique, but SH is a better technique with over all better outcomes.

Keywords: Circular stapler, Enseal, Haemorrhoids, Haemorrhoidectomy

INTRODUCTION

Around 5% of the general population has haemorrhoidal disease to some extent after the age of 40years, which increases by two to three folds in population consuming high caloric and low fiber diet, spicy food, bad dietary habits, hereditary and probably the tropical climate as well.¹

Haemorrhoids can be treated by various methods like open milligan morgan technique, close Ferguson technique, cryoablation, infrared coagulation, doppler guided superior haemorrhoidal artery ligation, excision

with laser or vessel sealer and Stapler haemorrhoidectomy etc. The ultimate aim is to make the patients free of all symptoms.

Vessel sealer (ENSEAL of ethicon endosurgery) is a new generation diathermy system and allows complete coagulation of tissue between its blades and blood vessels up to 7 mm in diameter. It generates a precise amount of bipolar energy and pressure that permanently changes collagen and elastin within the vessel wall and achieves haemostasis. Lateral spread of current is 1-2 mm which is minor and acceptable.

Stapled haemorrhoidopexy was developed by Dr. Antonio Longo in the year 1998. We used two types of circular staplers available in India; one is PPH03 of Johnson and Johnson endosurgery having non detachable enviel and the other HEM 3348 of Covidien having detachable enviel.

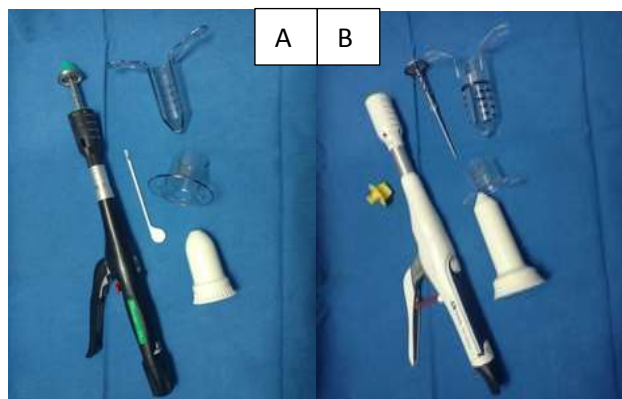


Figure 1: (A) PPH03 circular stapler of Johnson and Johnson having fixed anvil; (B) HEM 3348 circular stapler of Covidien having detachable anvil.

Both techniques are equally good, require less operating time, control post-operative bleeding, pain and prolapsed part of haemorrhoids and allow for early resuming of work.

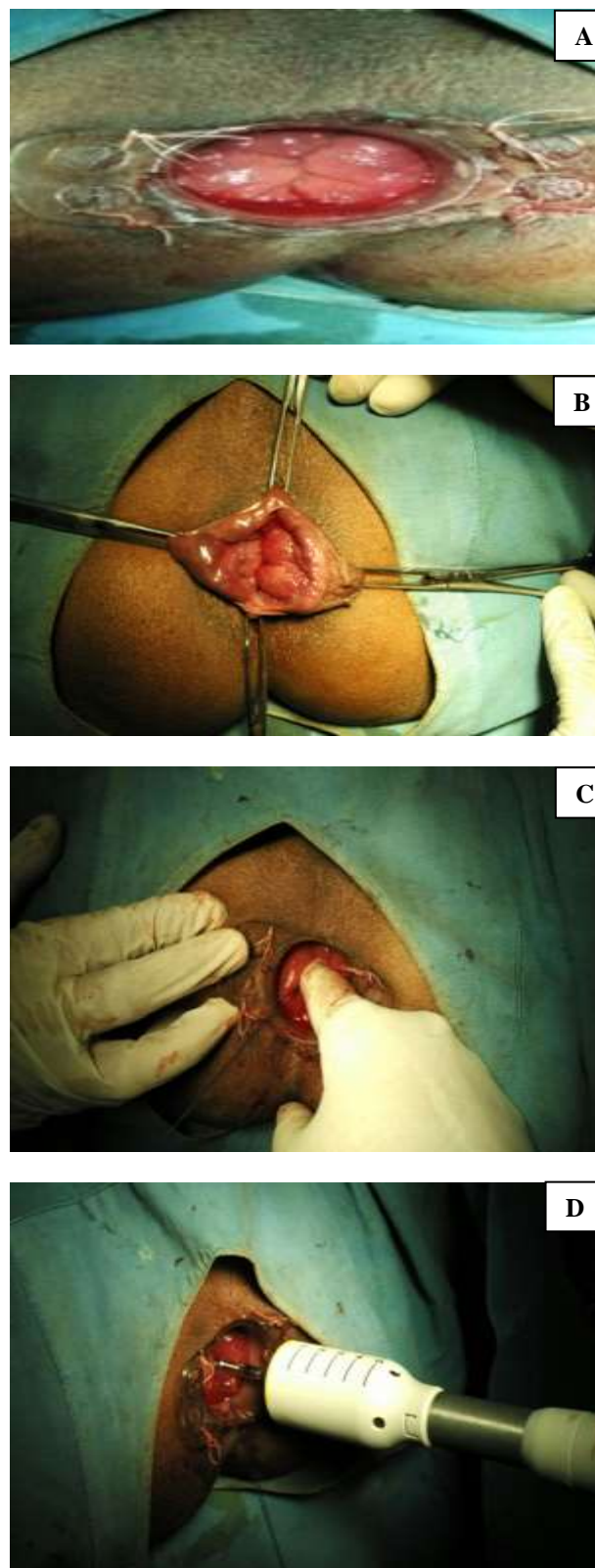
METHODS

A prospective randomized trial was conducted on a total of 240 patients having symptomatic 3rd and 4th degree haemorrhoids divided into two groups of 120 each. Group 'A' Stapler haemorrhoidopexy (SH) and Group 'B' Enseal haemorrhoidectomy (EH). All patients followed a fixed protocol. The operation was performed under either general anesthesia (78 patients i.e. 32.5%) or spinal/saddle block anesthesia (162 patients i.e. 67.5%) depending on anesthetist's advice or patient preference. A proctoclysis enema was given to all patients' 3-4hrs prior to surgery. All patients were operated in lithotomy position.

In SH group PPH03 was used on 76 patients while HEM 3348 circular stapler was used on the remaining 44 patients. HEM 3348 having detachable anvil which provide good working space for applying purse string suture and having no side holes in casing of device as in PPH03, so traction on purse string is not possible that results into less pulling inside prolapsed haemorrhoids and rectal mucosa into device housing that ultimately gets excised. 30 seconds time was given before and after shoot of stapler that acts as temponade and haemostasis as well. Operating time was recorded from the time of anal dilator insertion to the application of endoanal dressing. An interrupted purse string suture was applied 2-3cm above the dentate line with prolene 2/0 on 38mm round body needle, before tightening it was checked by placing

finger. Stapler opened up completely, enviel was placed proximal to purse string and tightened. Staple line was checked for any bleeding. Donut was sent for histopathology. PPH03 and HEM 3348 have their own technical advantages and disadvantages.

Steps of Stapler Haemorrhoidopexy



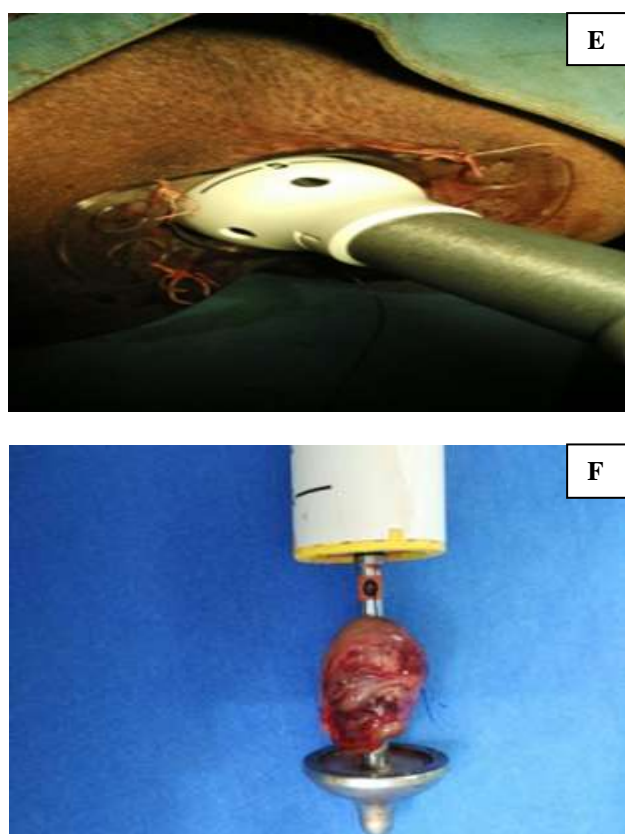


Figure 2: (A) Technique of holding anal margin, (B) dilator sheath fixation, (C) digital confirmation of purse string, (D) anvil placement beyond purse string, (E) stapler Closure, (F) donut inspection.

Enseal vessel sealer hand instrument blades were used to grasp the base of the haemorrhoids one by one and keeping away from its attachment to minimize tissue trauma due to thermal spread, a constant pressure on the pedicle was applied and activated, after complete coagulation haemorrhoidal mass was excised with scissor. During excision two things were kept in mind, mucosa covered haemorrhoids and cutaneous bridges were left between two adjacent haemorrhoids to minimize anal stenosis.



Figure 3: Enseal vessel sealer: technique of holding haemorrhoid mass with hand instrument blades.

RESULTS

Out of 240 patients (120 in each group) in SH and EH group, grade 3 and 4 haemorrhoids patients were 72 and 48 and 63 and 57, male: female 1:1.55 and 1: 1.22 and average age was 43.6 and 37.2 years respectively.

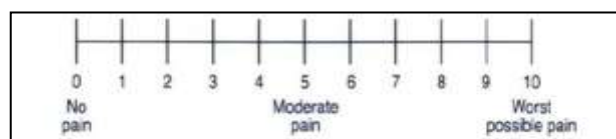
Table 1: Detail of patients under study.

	Stapled haemorrhoidopexy	Enseal haemorrhoidectomy
No. of patients	120	120
Sex		
Male	47	54
Female	73	66
Male : Female	1:1.5	1:1.2
Age average (range)	43.6(22-70)	37.2(26-66)
Haemorrhoids grade		
III	72	63
IV	48	57
Symptoms duration		
<1 year	17	28
1-2 years	35	39
>2 years	68	53

Table 2: Number and percentage of symptomatic patients.

Pre-operative complaints	SH		EH	
	No.	%	No.	%
Constipation	72	60	63	52.5
Bleeding P/R	86	71.6	79	65.8
Rectal / perianal pain	38	31.6	21	17.5
Mass coming out of anus	97	80.8	71	59.1

Post-operative pain was recorded 12 hourly on visual analog scale (vas) based on numeric pain rating scale (0 indicating no pain and 10 severe pain) was slightly higher in sh v/s eh i.e.6.5 and 5.5.



0-10 numeric pain rating scale.

Table 3: Base points of study.

	SH	EH
Visual analog scale	6.5	5.5
Average operating time	26.25	17.18
Average hospital stay	2.1	3.6
Recovery time (return to work)	8	16
Analgesics required	5	11

Time in minutes, stay and recovery time in days.

Total analgesics required during 5 post-operative day, average hospital stay and recovery time was 5 and 11, 2.1 and 3.6, 8 and 16 respectively i.e. almost half in SH v/s EH. Operating time was 26.25 and 17.18 i.e. 1.50 times in SH of EH.

Immediate and late post-operative complications like bleeding, urinary retention, faecal/flatus incontinence, anal discomfort (burning, irritation, itching, moisture), rectal/anal stenosis and wound infection were 6 and 11, 8 and 17, 6 and 23, 11 and 63, 3 and 16, 2 and 13 respectively i.e. significantly less in SH v/s EH. No patient in either group had bleeding after 2 weeks and no patient required re-operative intervention to control bleeding. Thrombosis of external haemorrhoids and perianal haematoma was 21 and 3, 9 and 2 respectively i.e. very high in SH v/s EH. Residual skin tags/prolapse and recurrence was 10 and 3, 18 and 6 respectively i.e. almost three times higher in SH v/s EH.

Table 4: Immediate and late post-operative complaints.

Post-operative complaints	SH		EH	
	No.	%	No.	%
Immediate-Bleeding	6	5	11	9.16
Urinary retention	8	6.66	17	14.16
Faecal/Flatus incontinence	6	5	23	19.16
Anal burning, irritation, itching and moisture	11	9.16	63	52.5
Constipation	13	10.83	17	14.16
Thrombosis of external haemorrhoids	21	17.5	3	2.5
Perianal haematoma	9	7.5	2	1.66
Wound infection	2	1.66	13	10.83
Late-Anal / Rectal stenosis	3	2.5	16	13.33
Recurrence	18	15.0	6	5.0
Residual skin tags and prolapsed	10	8.33	3	2.5

DISCUSSION

In SH group in our study post-operative pain was observed in slightly more number of patients, probably due to anal spasm, comparable results were observed by Basdanis G et al.^{1,4,7,8} Despite positioning the stapled line above dentate line and absence of external wound, pain was observed. In due course of time prolapsed haemorrhoids shrunk. While in EH group less pain was probably due to damage of nerve endings in adjacent tissues by thermal spread. Operative time was observed higher in SH group, due to technical reason in applying correct purse string suture, similar results were observed by Hetzer FH et al.^{4,6,8} Average hospital stay, recovery time and analgesics required during 5 post-operative day (5 POD) were observed to be significantly lower in SH group, due to least dissection and no external wound.

Bleeding, acute urinary retention, faecal/flatus incontinence, anal discomfort (burning, irritation, itching, moisture) were significantly higher in EH group probably due to external wound and partial damage to anal sphincter.^{1,3,4,6,8-18} Anal/rectal stenosis observed was about five times higher in EH group in spite of leaving islands of normal skin and mucosa to avoid stricture formation, which was managed conservatively. Recurrence, residual skin tags and prolapse were observed to be three times higher in SH group, comparable results were observed by Yang J et al.¹⁻⁵

CONCLUSION

Both SH and EH techniques have comparable results, although EH has advantage of ease of procedure and less operative time. In author opinion SH is a better technique due to low incidence of post-operative urinary retention, faecal incontinence, perianal itching, anal/rectal stenosis and less hospital stay. Distressing symptom of pain was more or less equal in both groups.

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Ethical approval: Not required

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