Stapler Haemorrhoidopexy As Compared To Conventional Haemorrhoidectomy: A Short-Term Prospective Randomised Controlled Study

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Abstract

Background: There is growing evidence supporting a lesser degree of complications with stapler haemorrhoidopexy. We did a study to compare the postoperative evolution of patients after stapler haemorrhoidopexy and conventional haemorrhoidectomy.

Methods: Fifty patients with symptomatic haemorrhoids of late second, third and fourth grade, were randomly assigned to either stapler haemorrhoidopexy or conventional haemorrhoidectomy (25 each). Median follow-up was 6 months.
Results: In patients who underwent stapler haemorrhoidopexy, the duration of surgery was less (p=0.005), postoperative pain was less (p=0.0001), postoperative bleeding was also less (p=0.005), the patients were ambulated in 12-24 hours (p=0.05) and hospital stay was 1-2 days (p=0.0001). Fifty-two per cent of the patients returned to their routine work postoperatively in 2 days (p=0.002), 32% within 3 days (p=0.005) and only 16% within 4 days (p=0.05).
Conclusion: Stapler haemorrhoidopexy is effective in terms of decreased per- and postoperative blood loss, minimal pain, less requirement of analgesics and less pain at first bowel movement, faster wound healing with faster postoperative recovery and short postoperative hospital stay with early return to normal routine activity. However, long-term follow-up is necessary to determine whether these initial results are lasting.

INTRODUCTION

The word hemorrhoids is derived from Greek words (Haem-blood, Rhow-flowing) meaning dilated veins occurring in relation to the anus.

Haemorrhoids are one of the most common afflictions of human beings from time immemorial [1] . It is said that 40 percent of the population have symptoms due to haemorrhoids at some time of their lives, a price possibly man has had to pay following the evolution of his erect posture. Terrel expresses it in the following way: Man is a victim of a capricious creator. There is no doubt that man was intended to walk on all limbs, and having perhaps frustrated his creator's plan by walking on two, he has created several problems; haemorrhoids is one of them. The assumption of an erect posture was a prodigious accomplishment and man pays for his arrogance by the pain and humility that go with hemorrhoids. Morgagni [2] (1749) attributed haemorrhoids to the upright posture of man as the causative factor.

Vascular cushions within the anal canal of normal individuals do not differ anatomically from those in symptomatic patients. It is therefore probably illogical to talk about the incidence of vascular cushions since they are ubiquitous. Both sexes, all races and all ages have anal cushions. If the cushions are omnipresent then it is only the existence of symptoms that merits classification as a disease. Hundred percent of the population have haemorrhoids but only fifty percent are symptomatic.

The typical morphological situation of the haemorrhoidal and mucous prolapse is caused by weakening and breakage of the supporting muscular and connective fibers. Prolapse implies the distal dislocation of the internal haemorrhoidal cushions that push the external haemorrhoidal sac in an outward and lateral direction, thus causing the sacs to protrude. The upper haemorrhoidal vessels extend, while the middle and lower haemorrhoidal vessels are subject to the formation of “kinks.”

Hemorrhoid sufferers are often afraid to seek treatment

because they are afraid of the pain associated with haemorrhoidectomy. The interim results indicate that a procedure for prolapse and hemorrhoids (PPH) is good news for chronic hemorrhoid sufferers because they now have an effective, less painful option.

We are pleased that these interim results are being presented today so that surgeons and physicians can be aware of this procedure and can talk to their patients about PPH.

A new entry into the arena of excisional hemorrhoidectomy is the circular stapler haemorrhoidopexy. The technique uses a circular transanally placed purse-string suture, 4cm from the dentate line and within the enlarged internal hemorrhoids. Then a 33-mm stapler is placed transanally to perform a circumferential excision of the haemorrhoidal tissue and a repositioning and fixation of the anoderm to its proper location in the anal canal. The results appear promising, with decreased postoperative pain, shorter periods of convalescence, and similar complication rates compared with other forms of excisional hemorrhoidectomy.

Surgical treatment of hemorrhoids is by reducing the anal mucosa prolapse by using a circular stapler as an original technique conceived in 1993 by Dr. Antonio Longo [$_3$] in the Department of Surgery at the University of Palermo, Italy.

Around more than 250000 procedures have been done by many surgeons worldwide.

BENEFITS OF MIPH

- Reduced pain [4,5] with reduced blood loss [6]
- Short hospital stay [7] with faster return to normal activity [9]
- Faster postoperative recovery [8] with significantly reduced postoperative discomfort [10]
- It can be performed under local, regional and general anesthesia [11]
- First bowel movements appear early [12]
- Functional outcome is good [13]
- Patients were satisfied with this procedure [14]
- Less morbidity [15] with fewer complications [17]
- Easy to perform [19] with faster wound healing [16]
- In case of an emergency, haemorrhoidal crisis may be handled
- Short, safe [20] and effective procedure [18]

AIMS AND OBJECTIVES

To compare between circular-stapler haemorrhoidopexy and conventional haemorrhoidectomy in terms of:

1. Per-operative blood loss
2. Postoperative pain
3. Postoperative recovery with hospital stay and return to normal activity
4. Time taken for the procedure
5. Anesthesia used
6. Cost effectiveness
7. Patient satisfaction with psychological trauma and quality of life.
8. Postoperative complications
    a. Postoperative bleeding
    b. Urinary retention
    c. Infection (local sepsis), abscess or fistula formation
    d. Incontinence
    e. Stricture/stenosis
    f. Recurrence

MATERIAL AND METHODS

MATERIAL – MINIMALLY INVASIVE PROCEDURE FOR HAEMORRHOIDS

1. Endoscopy stapler (circular) (PPH 03)
2. Purse-string suture anoscope
3. Circular anal dilator
4. Purse-string suture threader
5. Rigid sigmoidoscope

METHOD

Position -> Lithotomy

Anesthesia -> Local/Regional/General anesthesia

MINIMALLY INVASIVE PROCEDURE FOR HAEMORRHOIDS

STEPS

1. Per-rectal examination with gentle dilatation done after lubrication with xylocaine jelly.
2. Rigid sigmoidoscopy is done to look for any pathology in the rectosigmoid region.
3. After doing preliminary painting and draping, the anal verge is held by three atraumatic forceps at the three points where the prolapse is smaller and the anoderm is slightly everted.
4. Such a maneuver facilitates the introduction of the circular anal dilator (CAD 33) after lubrication with xylocaine jelly. The introduction of the circular anal dilator 33 along with the obturator causes the reduction of the prolapse of the anoderm and points of anal mucous membrane. After removing the obturator, the prolapsed mucous membrane falls into the lumen of the circular anal dilator 33. The transparent circular anal dilator 33 allows visualization of the dentate line.
5. The circular anal dilator 33 should be affixed to the perianal skin through the four windows of the circular anal dilator 33 with silk or linen stitches on a cutting needle.
6. All remaining prolapsing tissue should be pushed back with atraumatic forceps through the window of the circular anal dilator 33.
7. The Purse-String Suture Anoscope (PSA 33) is introduced through the circular anal dilator 33 and the purse string carried out at least 4cm above the dentate line. This distance has to be increased in proportion to the degree of prolapse.
8. By rotating the Purse-String Suture Anoscope 33, it will be possible to complete a purse-string suture around the entire anal circumference.
9. The Hemorrhoidal Circular Stapler (PPH03) is opened to its maximum position. Its head is lubricated, introduced and positioned proximal to the purse string. The purse string is then tightened with a single throw.
10. With the help of the Suture Threader (ST100) both ends of the purse-string suture are pulled.
11. The PPH03 is then fired to staple the prolapse, keeping it in the closed position for 20 seconds before and after firing as a tamponade, which may be help promote haemostasis.

OBSERVATION & RESULTS

A comparative study of 25 cases of stapler haemorrhoidopexy and 25 cases of conventional haemorrhoidectomy was carried out in the department of surgery, MGM Medical College and associated M.Y. Hospital, Indore.

1) Examination:

1. Proctoscopy was done in each and every patient that showed the location of hemorrhoids in clockwise position, bleeding, enlarged hemorrhoids and gangrenous and necrosed hemorrhoids.
2. Rigid sigmoidoscopy was also done in each and every patient to rule out any pathology in the lower colon.

In this study there was no pathology in all 50 patients on sigmoidoscopy.

2) Duration of Surgery:

In the conventional group, duration of surgery ranged from 40 to 60 minutes.

In the stapler group, duration of surgery ranged from 20 to 55 minutes with most cases finishing in 20-30 minutes (16 cases out of 25 cases) because all these cases were done after the completion of the initial 5-6 cases which took quite a longer time because we were doing stapler haemorrhoidopexy for the first time in our institution ($p=0.005$).

This was quite indicative of our relative procedural and technical inexperience in the initial first 5-6 cases (Table-1).

Figure 1

Table 1: Duration of Surgery (Minutes)

S.No.	Conventional haemorrhoidectomy	Stapler haemorrhoidopexy
1	45	55
2	55	50
3	50	40
4	40	35
5	45	35
6	55	30
7	50	40
8	45	35
9	55	30
10	60	30
11	55	30
12	45	30
13	50	30
14	55	30
15	50	25
16	60	25
17	60	40
18	45	30
19	50	25
20	55	25
21	40	20
22	45	20
23	40	20
24	45	25
25	55	25

In the 25 patients of the conventional group, duration of surgery was 50 minutes on average (range: 40-60 min.), in the stapler-haemorrhoidopexy group it was 37.5 minutes on average (range: 20-55 min.; p= 0.005).

3) Complications (Table-2)

a) Pain: In the conventional group there was severe pain in 80% of patients which persisted for 3-5 days requiring injectable analgesics for 3-5 days followed by oral analgesics.

Twenty per cent of patients had moderate pain which persisted for 2-3 days requiring injectable analgesics for one day followed by oral analgesics, ultimately became mild pain, persisted even after discharge from hospital and was controlled by low-dose analgesia according to requirements.

In the stapler-haemorrhoidopexy group, 88% of patients had mild-degree pain controlled by oral analgesia from the evening of the day of surgery and only 12% had moderate pain which required injectable analgesia for one day followed by oral analgesia according to requirements (p=0.001).

This signifies a favorable aspect of this group making the procedure more acceptable and favorable to the patients not only because they are pain-free or have lesser pain but also because of early mobilization out of bed, shorter postoperative hospital stay and early return to work as compared to the conventional procedure.

b) Bleeding: In the conventional group, 48% had moderate to servere bleeding in the first 2-3 post-operative days.Only 4% had mild grade of bleeding.

In the stapler-haemorrhoidopexy group, 92% had mild grade (minimal) bleeding and only 8% had moderate bleeding (p=0.001).

Again, this signifies a favorable aspect of this group, i.e. minimal bleeding in the post-operative period as compared to the conventional group, making the procedure more acceptable and favorable to the patients as stapler haemorrhoidopexy may be done in anemic patients also and acute haemorrhoidal crisis may be tided over without transfusion of blood.

c) Wound infection (local sepsis):

In the conventional group, 20% of patients had minor wound infection from the 4 th –5 th post operative day, promoting longer hospital stay due to delayed wound healing and all wounds healed by secondary intention. No patient developed septicemia because of availability of good antibiotics and daily hot sitz baths.

In the stapler-haemorrhoidopexy group only 8% had a mild infection (p=0.05), once again tilting the balance in favor of this group because of faster wound healing due to less tissue handling and less tissue trauma.

Figure 2

Table 2: Complications

S. No.	Complication	Conventional haemorrhoidectomy	Stapler haemorrhoidopexy
1	Pain		
	Mild	0%	88%
	Moderate	20%	12%
	Severe	80%	0%
2	Bleeding		
	Mild	4%	92%
	Moderate	48%	8%
	Severe	48%	0%
3	Infection	20%	8%

Pain: Eighty per cent of patients had severe pain in the conventional group and there was no severe pain in the stapler-haemorrhoidopexy group (p = 0.0001). Twenty per cent of patients had moderate pain in the conventional group

and 12% of patients in the stapler-haemorrhoidopexy group. There was no mild pain in the conventional group and 80% of patients had mild pain in the stapler-haemorrhoidopexy group (p = 0.0002) in the postoperative days.

Bleeding: Forty-eight per cent of patients had moderate to severe bleeding in the conventional group and 8% of patients in the stapler-haemorrhoidopexy group (p = 0.005). Only 4% of patients had mild bleeding in the conventional group and 92% patients in the stapler-haemorrhoidopexy group (p=0.002).

Infection: Twenty per cent of patients had infection in the conventional group and 8% in the stapler-haemorrhoidopexy group.

4) Mobilization out of bed (Table-3)

In the conventional group, 60% of patients were out of bed in 72 hours and 40% in another 48 hours (because of pain). In the stapler-haemorrhoidopexy group, 84% of patients were out of bed in 12 hours and only 16% were out of bed in 24 hours (p=0.05), signifying the patient comfort with the stapler procedure helping in early and smooth rehabilitation because of less pain and less tissue handing and trauma.

Figure 3

Table 3: Mobilization out of bed (hours) post -operatively

S.No.	Conventional haemorrhoidectomy	Stapler haemorrhoidopexy
1	48	24
2	72	24
3	72	12
4	48	12
5	48	12
6	72	12
7	48	12
8	48	12
9	72	12
10	72	12
11	72	12
12	48	12
13	72	24
14	72	12
15	48	12
16	72	12
17	72	24
18	72	12
19	48	12
20	72	12
21	48	12
22	72	12
23	48	12
24	72	12
25	72	12

Mobilization out of bed was after 60 hours on average (range: 48-72 hours) in the conventional group and after 18 hours on average (range: 12-24 hours) in the stapler-haemorrhoidopexy group (p=0.05).

5) Duration of post-operative hospital stay (Table-4)

In the conventional group, hospital stay was 8-15 days, 92% of patients were discharged on days 10-15 and only 8% on days 8-9 because of pain and wound problems. In the stapler-haemorrhoidopexy group, hospital stay was 1-2 days, 84% of patients were discharged on day 1 and only 16% stayed for 2 days, signifying early rehabilitation and tilting the balance in favour of minimal invasive (stapler-haemorrhoidopexy) surgery.

Figure 4

Table 4: Duration of Hospital Stay (days) post-operatively

S.No.	Conventional haemorrhoidectomy	Stapler haemorrhoidopexy
1	10	2
2	13	2
3	15	1
4	8	1
5	10	1
6	15	1
7	10	1
8	9	1
9	12	1
10	15	1
11	14	1
12	10	1
13	12	2
14	13	1
15	11	1
16	15	1
17	14	2
18	12	1
19	10	1
20	13	1
21	10	1
22	12	1
23	10	1
24	13	1
25	15	1

Duration of postoperative hospital stay was 11.5 days on average (range: 8-15 days) in the conventional group and 1.5 days on average (1-2 days) in the stapler-haemorrhoidopexy group (p=0.0001).

6) Return to work (Table-5)

In the conventional group, the patients were able to return to their normal daily activity/work in 20-30 days, i.e. quite a long lay-off from work, resulting in additional financial

burden. Only one patient of 62 years returned to work after 40 days because of associated bladder outlet obstruction and infection.

In the stapler-haemorrhoidopexy group, 52% of patients were able to return to their normal routine and work in 2 days (p=0.002), 32% in 3 days (p=0.005) and only 16% in 4 days (p=0.05) - once again a point of in favour of early rehabilitation in this group.

Figure 5

Table 5: Return to work (days) post-operatively

S.No.	Conventional haemorrhoidectomy	Stapler haemorrhoidopexy
1	25	4
2	30	4
3	40	3
4	18	3
5	20	2
6	30	2
7	20	3
8	22	3
9	25	3
10	28	2
11	24	2
12	20	2
13	25	4
14	26	3
15	23	2
16	28	2
17	30	4
18	24	3
19	20	2
20	27	2
21	20	2
22	26	2
23	20	2
24	24	3
25	30	2

In the conventional group, the patients returned to work postoperatively in 25 days on average (range: 20-30 days), in the stapler-haemorrhoidopexy group, 52% were able to return to their normal routine and work in 2 days (p=0.002), 32% in 3 days (p=0.005) and only 16% in 4 days (p=0.05).

7) Cost-effectiveness:

Cost of circular haemorrhoidal stapler for haemorrhoidopexy is high as compared to the conventional technique. In the conventional group, there are a multitude of factors adding to expenses such as longer persistence of pain and wound infection thereby prompting prolonged use of medication and also resulting in longer hospital stay as well as longer time to return to work (resulting in loss of work days), but stapler technique is still more costly.

SUMMARY & CONCLUSION

Coventional haemorrhoidectomy is still performed in many higher centers but in this era of minimal invasive surgery, stapler haemorrhoidopexy is fast replacing conventional haemorrhoidectomy.

In the present study, an attempt has been made to compare conventional haemorrhoidectomy with the new modality of stapler haemorrhoidopexy for the treatment of the distressing and widely prevalent disease of hemorrhoids.

An attempt has been made to assess the role of stapler haemorrhoidopexy in the treatment of late II nd , III rd and IV th grade haemorrhoids, thereby trying to highlight the advantages and disadvantages of this new method.

A randomized prospective study of 50 patients was conducted in the department of surgery, MGM Medical College and associated M.Y. hospital between July 2005 and September 2006. The study included patients of all age groups and both sexes.

The following conclusions have been drawn:

1. More cases in males than in females.
2. Age: 30-40 & 60-70 years.
3. Patients with hemorrhoids usually avoid surgery due to fear of severe pain after haemorrhoidectomy.
4. To study the etiology and pathogenesis, a much larger group matched with controls is needed. The only significant feature found was that more than half of the patients were constipated.
5. Among the associated ailments, anemia was the most common, mainly secondary to bleeding.
6. Intra-operative blood loss was significantly reduced in the stapler-haemorrhoidopexy group.
7. Time taken for surgery was significantly less in the stapler-haemorrhoidopexy group.
8. Stapler haemorrhoidopexy is associated with lesser pain as compared to conventional haemorrhoidectomy.
9. Stapler haemorrhoidopexy is associated with

quicker return to work indicating less tissue trauma and less tissue handling with faster wound healing.

10. Stapler haemorrhoidopexy is a short procedure and can be performed under local, regional and general anesthesia.

11. Stapler haemorrhoidopexy is associated with short postoperative hospital stay due to less pain.

12. In stapler haemorrhoidopexy, first bowel movements appear early due to less pain.

13. In stapler haemorrhoidopexy, functional outcome is good as compared to conventional haemorrhoidectomy.

14. Stapler haemorrhoidopexy is associated with less morbidity with fewer complications due to minimal tissue trauma and handling.

15. Greater patient satisfaction is found with stapler haemorrhoidopexy as compared to conventional haemorrhoidectomy.

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