



COMPARISON OF TRANSANAL HEMORRHOIDO SUTUROPEXY VS STAPLER HEMORRHOIDOPEXY

General Surgery

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ABSTRACT

Introduction: Haemorrhoids are a common proctological disease that affects the quality of life in the patient population to a great extent. Nearly 4.4% to 36% of population is affected by haemorrhoids. The symptoms of haemorrhoids vary from painless bleeding to embarrassing and painful prolapsing mass. The etiology of haemorrhoids has been extensively researched. They result from an increased pressure in haemorrhoidal plexus of vein, with degeneration of fibroelastic tissue in anal cushions acting as a contributing factor. Increased pressure in venous plexus can be due to straining during defecation, coughing or due to heavy weight lifting while degeneration of fibroelastic tissue may be a result of old age or due to genetic predisposition

Aims: To compare the transanal hemorrhoido suturopexy with stapled hemorrhoidoexy in patients of haemorrhoids from clinical perspective

Methods: The present study was conducted in the Department of General Surgery, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh (India) from December 2018 to June 2020. It was a prospective study comparing transanal hemorrhoido suturopexy vs stapler hemorrhoidoexy method for the management of grade 2 and 3 hemorrhoids. A total of 60 (30 each group) consecutive patients were included in this study. The patients were divided into two groups: Group A: Hemorrhoido suturopexy group and Group B: Stapler hemorrhoidoexy.

Result: Result were interpreted on flowing parameter – age, sex, grade of hemorrhoid, operative time, post operative pain, hospital stay early and late complication. Mean operative time in group A 26.40 ± 2.4 min group B 16.40 ± 1.8 min and post operative pain score at 6 hour and 24 hour were in group A 3.00 ± 1.017 and 0.57 ± 0.568 respectively and in the group B 5.00 ± 0.788 , 0.90 ± 0.662 respectively. The hospital stay of patients was in group A 1.87 ± 0.346 days and in the group B 1.50 ± 0.509 days.

Conclusion: The new method transanal hemorrhoido suturopexy and stapler hemorrhoidoexy still require long follow up but transanal hemorrhoido suturopexy accepted for pain less cure of hemorrhoids. Stapler hemorrhoidoexy require skilled and more experienced surgeon to reduce complication. Appropriate donut and time of firing gun, should be done very carefully for good resection and anastomosis of mucosa and submucosa.

KEYWORDS

Transanal hemorrhoido suturopexy, Stapler hemorrhoidoexy, Hemorrhoids

INTRODUCTION

Haemorrhoids are a common proctological disease that affects the quality of life in the patient population to a great extent. Nearly 4.4% to 36% of population is affected by haemorrhoids. The symptoms of haemorrhoids varies from painless bleeding to embarrassing and painful prolapsing mass. The etiology of haemorrhoids has been extensively researched. They result from an increased pressure in haemorrhoidal plexus of vein, with degeneration of fibroelastic tissue in anal cushions acting as a contributing factor. Increased pressure in venous plexus can be due to straining during defecation, coughing or due to heavy weight lifting while degeneration of fibroelastic tissue may be a result of old age or due to genetic predisposition^[1]

Since the first mention of the disease in an Egyptian papyrus, the treatment of haemorrhoids has seen numerous modifications^[2]. While the conservative treatment such as modification of diet, stool softeners, topical medications and sitz bath do help in grade I haemorrhoids, invasive procedure become necessary in grade II, III, IV haemorrhoids. Rubber band ligation, piles plication, sclerotherapy^[3], and various cauterization methods are helpful in grade II haemorrhoids. But grade III, IV and failed grade II piles demands surgical intervention.

With the beginning of later half of the nineteenth century, haemorrhoidectomy by either MilliganMorgan or Ferguson technique has been the gold standard. In the 90's Dr. Antonio Longo introduced stapled haemorrhoidoexy while Morinaga introduced Doppler guided haemorrhoidal artery ligation^[4-5]. The basis of both of these techniques was cutting of the blood supply to haemorrhoidal plexus and fixation of anal cushions. Though they have gained popularity, the need for costly articles had kept them at bay in third world population.

But even after so many techniques recurrence remained a problem. The development of collaterals was the main contributing factor. In 2012 Dr Shanthikumar. D.Chivate presented the concept of transanal

hemorrhoidoexy^[6], in which ligation of blood vessels was done at two sites, thus decreasing the chances of collateral formation as well as dealing with the problem of mass prolapse.

We present this study with the aim of evaluating this new procedure and comparing it with stapled haemorrhoidoexy with regard to resolution of symptoms, ease of surgery, post-operative complications, and long term recurrence.

AIMS AND OBJECTIVES

To compare the transanal hemorrhoido suturopexy with stapled haemorrhoidoexy in patients of haemorrhoids from clinical perspective

MATERIALS AND METHODS:

The present study was conducted in the Department of General Surgery, Maharani Laxmi Bai Medical College, Jhansi, Uttar Pradesh (India) from December 2018 to June 2020.

It was a prospective study comparing transanal hemorrhoido suturopexy vs stapler hemorrhoidoexy method for the management of grade 2 and 3 hemorrhoids.

Sample Size:

A total of 60 (30 each group) consecutive patients were included in this study. The patients were divided into two groups:

- Group A:** Hemorrhoido suturopexy group.
- Group B:** Stapler hemorrhoidoexy.

INCLUSION CRITERIA:

- Grade 2 and grade 3 hemorrhoids

EXCLUSION CRITERIA

- Acute hemorrhoidal episodes with thrombosis

- Prior hemorrhoidectomy
- Intercurrent anal pathology (like fistula in ano and anal fissure)
- Prolapse of single anal cushion
- Anal stenosis

Transanal hemorrhoido suturopexy:

Patients were be given P.C. Eenema in the evening 12 hours and 6 hours before the operative procedure. After giving spinal anaesthesia, patients were be positioned in lithotomy with a little head low, which reduced the prolapsing pile masses. The laxed mucosal and submucosal tissues were be placed in their anatomical position. Anal canal was lubricated with xylocaine jelly. A self illuminated slit with sliding valve proctoscope, designed by D Chivate was used. After removing the sliding plate, dentate line was identified. The lax mucosa and submucosa was sutured to rectal muscles in two circumferential suture lines, 2cm and 4 cm proximal to dentate line. First stitch was tied and the subsequent stitches which were be 0.5-1 cm in length were double interlocked. The double interlocking avoided the purse string effect and thus the anal stenosis. Care was taken to not to take complete thickness of rectal wall in stitches. Since both the suture lines were above the dentate line in the insensitive part of anal canal, their was no problem of post operative pain. 2-0 polyglactin with round body 30 mm ½ needle was used. Lax mucosa and submucosa was sutured in its original position and the blood supply to haemorrhoidal plexus was cut off at two places, thus decreasing the chances of collaterals formation which causes recurrence.

Stapled haemorrhoidopexy:

Patients were prepared in the similar manner as with TR group by giving P.C Enema and were given spinal anaesthesia. After placing the patients in lithotomy position anal canal were massaged with xylocaine jelly and the circular anal dilator with obturator was introduced. Once the lax mucosa and submucosa has been repositioned, oburator was be removed and anal dilator was be secured with four stitches in the skin. With the help of proctoscope, a circumferential suture line was taken 2 cm above the dentate line. The sutures were taken at the depth of mucosa and submucosa only with Prolene 2-0 suture. After the completion of suture line, a finger was inserted and both end of the suture tightened, so as ascertain the uniformity of the suture line. After the completion of purse-string suture, the circular stapler was opened and inserted in the anal canal, with the anvil placed beyond suture line. Then a surgical knot was made and the ends of the thread pulled out with the help of suture threader. The ends of the suture were also knotted externally and were given traction using artery forceps. The stapler was then tightened and then fired and held closed for 30 seconds. The stapler was then loosened and removed. Suture line was then examined for completeness and for any tear.

Post-operative management:

Patients were managed in the surgery ward. Analgesics will be given on demand. Anal canal was examined the next day for any bleeding. If no complications occurred, patients were discharged the following day. All the post-operative complications were noted and the pain was assessed by visual analogue score. At 3 weeks, patients were analyzed for the resolution of symptoms and overall satisfaction. Patients were assessed for recurrence at 1 and 6 months.

STATISTICAL ANALYSIS:

Statistical analysis was performed using SPSS 22.0 software (IBM, New York, USA). Results were be considered statistically significant if $p \leq 0.05$. Both the groups were compared by Student's t test for parametric measurement and Mann Whitney U test for non-parametric measurements while analysing numerical values. In case of comparison for categorical values, Pearson's Chi-Square test was used for parametric measurement and Fisher's exact correct test for non-parametric measurements.

RESULT

Table 1: Age wise distribution in study group

Age (in years)	Group A (Transanal hemorrhoido suturopexy)		Group B (Stapler hemorrhoidopexy)	
	Number of patients	Percent	Number of patients	Percent
21-30 years	6	20.00%	4	13.33%
31-40 years	7	23.33%	11	36.67%
41-50 years	10	33.33%	5	16.67%
51-60 years	4	12.33%	5	16.67%
>60 years	3	10.00%	5	16.67%

Table 2: Mean age wise distribution in study group

Mean age wise distribution (in years)	Group A (Transanal hemorrhoido suturopexy)	Group B (Stapler hemorrhoidopexy)	p value
Mean±SD	44.13±14.093	43.97±13.735	0.96 (NS)

Table 3: Sex wise distribution in study group

Sex wise distribution	Group A (Transanal hemorrhoido suturopexy)		Group B (Stapler hemorrhoidopexy)	
	Number of patients	Percent	Number of patients	Percent
Male	22	73.33%	20	66.67%
Female	8	26.67%	10	33.33%

Table 4: Grade of hemorrhoids in study group

Grade of hemorrhoids	Group A (Transanal hemorrhoido suturopexy)		Group B (Stapler hemorrhoidopexy)	
	Number of patients	Percent	Number of patients	Percent
Grade 2	16	53.33%	20	66.67%
Grade 3	14	46.67%	10	33.33%

Table 5: Operative time (in minutes)

Operative time (in minutes)	Group A (Transanal hemorrhoido suturopexy)		Group B (Stapler hemorrhoidopexy)	
	Number of patients	Percent	Number of patients	Percent
15-20 minutes	0	0%	30	100%
21-30 minutes	30	100%	0	0%
>30 minutes	0	0%	0	0%

Table 6: Mean operative time (in minutes)

Mean operative time (in minutes)	Group A (Transanal hemorrhoido suturopexy)	Group B (Stapler hemorrhoidopexy)	p value
Mean±SD	26.40±2.430	16.40±1.831	0.001 (S)

Table 7: Mean postoperative pain score (VAS) in study group

: Mean postoperative pain score (VAS)	Group A (Transanal hemorrhoido suturopexy)	Group B (Stapler hemorrhoidopexy)	p value
6 hours	3.00±1.017	5.00±0.788	0.001 (S)
12 hours	0.93±0.740	2.53±1.042	0.001 (S)
24 hours	0.57±0.568	0.90±0.662	0.04 (S)

Table 8: Postoperative finding in study group

Postoperative finding	Group A (Transanal hemorrhoido suturopexy)		Group B (Stapler hemorrhoidopexy)	
	Number of patients	Percent	Number of patients	Percent
Bleeding	14	46.67%	19	63.33%
Residual prolapsed	1	3.33%	0	0%

Table 9: Hospital stay (in days) in study group

Hospital stay (in days)	Group A (Transanal hemorrhoido suturopexy)		Group B (Stapler hemorrhoidopexy)	
	Number of patients	Percent	Number of patients	Percent
1 day	4	13.33%	15	50.00%
2 day	26	86.67%	15	50.00%
>2 day	0	0%	0	0%

Table 10: Mean hospital stay (in days) in study group

Mean Hospital Stay (in days)	Group A (Transanal hemorrhoido suturopexy)	Group B (Stapler hemorrhoidopexy)	p value
Mean±SD	1.87±0.346	1.50±0.509	0.001 (S)

Table 11: Early complication in study group

Early complication	Group A (Transanal hemorrhoido suturopepy)		Group B (Stapler hemorrhoidopepy)	
	Number of patients	Percent	Number of patients	Percent
Bleeding	1	3.33%	3	10.00%
Pain	2	6.67%	9	30.00%
Dehiscence	0	0%	0	0%
Fissure	0	0%	0	0%
Hematoma	0	0%	0	0%
Sepsis	0	0%	0	0%

Table 12: Late complication in study group

Late complication	Group A (Transanal hemorrhoido suturopepy)		Group B (Stapler hemorrhoidopepy)	
	Number of patients	Percent	Number of patients	Percent
Thrombosis	0	0%	0	0%
Fistula	0	0%	0	0%
Persistent pain	1	3.33%	3	10.00%
Recurrence	0	0%	3	10%
Stenosis	1	3.33%	3	10.00%

Table 13: Follow up in study group

Follow up	Group A (Transanal hemorrhoido suturopepy)		Group B (Stapler hemorrhoidopepy)	
	Number of patients	Percent	Number of patients	Percent
Incontinence at 1 month	0	0%	0	0%
Incontinence at 6 month	0	0%	0	0%
Recurrence after 6 month	1	3.33%	3	10.00%

DISCUSSION

The search for a perfect solution to the problem of hemorrhoids is a global effort. The optimal treatment of hemorrhoids should not only achieve low recurrence rate but also minimal postoperative pain and complications. Alternatives to conventional hemorrhoidectomy were advocated with the intent to avoid or reduce the severity of post operative anal pain, complications and accurate recovery after surgery. These alternatives include in my study stapler hemorrhoidopepy (SH) and transanal hemorrhoido suturopepy (THS).

Anal pain after surgery for hemorrhoids represents a dreadful adverse event of the procedure that may make some patients opt. to postpone surgery or to avoid it as compared to conventional hemorrhoidectomy. transanal hemorrhoido suturopepy and stapler hemorrhoidopepy are followed by minimal post operative pain. This study included 60 patients in which two groups of patients were made each containing 30 patients. The period of observation and follow up was from post operative to 6 month (Patients included in this group were between 2018 to 2020 with average time of 2 year period).

Study included the patients of mean age 43.97 year of stapler hemorrhoidopepy group and 44.13 year of mean age transanal hemorrhoido suturopepy group.

Sex wise distribution of stapler hemorrhoidopepy group had 20 (66.67%) male patients and 10 (33.33%) female patients. While transanal hemorrhoido suturopepy group contain 22 (73.33%) male patient and 8 (26.67%) female patients. The hemorrhoid grading of patients included were either II grade or III grade. In the stapler hemorrhoidopepy group included 20 (66.67%) patients grade II hemorrhoid and 10 (33.33%) grade III hemorrhoid.

While transanal hemorrhoido suturopepy group included 16 (53.33%) group II hemorrhoid and 14 (46.67%) of grade III hemorrhoid.

The operation time in stapler hemorrhoidopepy group had taken 15-20 minute with mean time 16.40min while in the transanal hemorrhoido suturopepy group had taken 21-30 min with mean time to conduct surgery were 26.40 min.

All the post operative complications were noted (objective as well as subjective) and examined carefully. Patients were discharged once all assessable complications were ruled out after examination. Anal canal was examined next day after removing pack, all patients were managed in post surgical ward and pain was assessed by visual analogue scale (VAS) at 6 hour, 12 hour and 24 hours post operative. All the patients took antibiotic, analgesic with stool softener (laxative) along with local application of xylocain gelly (2%) before defecation and sitz bath was advised for 7 days.

Post operative pain measured on VAS (Mean±SD) in stapler hemorrhoidopepy group of study after 6 hour= 5.0±0.78, after 12 hour= 2.52±1.04 and after 24 hour= 0.90±0.66 (Amit Jain et al^[7] mean VAS at 12 hour 2.10 and after 24 hour 1.50).

In the transanal hemorrhoido suturopepy group VAS (mean±SD) at 6 hour= 3.0±1.07 at 12 hour= 0.93±0.74 and after 24 hour= 0.57±0.56 (Amit Jain et al^[7] at 12 hour= 2.50 at 24 hour= 1.57) most of the patient had pain relief after 1 week and few patients had persist pain in stapler hemorrhoidopepy group after 1 week. In follow up the patient was examined the next day, anal canal was examined carefully and given attention for any possible complications thought in mind.

Post operative minor bleeding (Soaked gauze with blood and minor ozeing was noted in 19 (63.33%) patient in stapler hemorrhoidopepy group of study and 14 (46.67%) in transanal hemorrhoido suturopepy group of patients that required no further specific treatment for bleeding. (Basdanis et al^[8] 20% in stapler hemorrhoidopepy group Mattan et al^[18] 65% in stapler hemorrhoidopepy group Shanti Kumar D. Chevate et al^[6] 41.6% in transanal hemorrhoido suturopepy group. R. Lucarelli et al^[9] in stapler hemorrhoidopepy group 57.4% and transanal hemorrhoido suturopepy group 60.3%).

Post operative hemorrhoidal mass (prolapse) completely reduced immediate post operatively on table in our study of stapler hemorrhoidopepy group and 1/30 patient 3.3% residual hemorrhoidal prolaps in transanal hemorrhoido suturopepy group which further almost reduced after 1 week. (Amit Jain^[7] et al 3% stapler hemorrhoidopepy group and 2% transanal hemorrhoido suturopepy group)

The patient were called for follow up after 1 week, 1month, 6 month and also contacted with phone number provided by them.

Early complication:

The early complication noted in stapler hemorrhoidopepy group of study of bleeding 3/30 (10%) during defecation and 1 patient (3.33%) in transanal hemorrhoido suturopepy group of study which resembles other studies (R. Lucarelli et al^[11] 6.3% in transanal hemorrhoido suturopepy group and 17% in stapler hemorrhoidopepy group, Chivate's et al^[6] 11% in transanal hemorrhoido suturopepy group, Orrom et al^[19] 11% in stapler hemorrhoidopepy group, Araujo et al^[10] 11.80 in stapler hemorrhoidopepy, Hetzer et al^[11] 10% in stapler hemorrhoidopepy group of study.

In this study bleeding is more common in stapler hemorrhoidopepy group as compared to transanal hemorrhoido suturopepy group.

The pain was reported in stapler hemorrhoidopepy group by 9 (30%) patients which is mild and given analgesic further and in transanal hemorrhoido suturopepy group there were 2 (6.66%) patients complaining minimum pain during defecation which did not require any additional treatment. (Chevete et al^[6] 15% in transanal hemorrhoido suturopepy group ad Khubchandani et al^[12] 17.5% in stapler hemorrhoidopepy group).

There is no dehiscence, no hematoma, no sepsis and no fissure found in any patient as early complication.

Late complication:

Persistence of pain reported in stapler hemorrhoidopepy group 3 (10%) patients which was mostly during defecation and 1 (3.33%) patient complained in transanal hemorrhoido suturopepy group which is minimal and not required any specific treatment. (R. Lucarelli et al^[11] 11.8% stapler hemorrhoidopepy group, 8.6% in transanal hemorrhoido suturopepy group. Palimento et al^[13] 16.2% in stapler hemorrhoidopepy group).

Stapled hemorrhoidopepy involves purse string suturing in which if

the suture come too close to dentate line in may result in long term post operative persistant pain, if suture line missed a part of mucosa then it may post operative bleeding. In the transanal hemorrhoido suturopexy we use specially designed protoscope with light source. The illumination with sliding valve mechanism provides better vision to identified dentate line and mucosa and we do better suturing and in transanal hemorrhoido suturopexy there is no resection of tissue and auto suturing of mucosa done, so rate of post operation bleeding as well as pain also less compared to stapled hemorrhoidoexy, where incomplete suturing and sometime thin donut may cause bleeding.

The recurrence at 1 month reported in stapler hemorrhoidoexy group 10% and which 1 (3.33%) patients required further operation (reoperative) and there is no recurrence found in transanal hemorrhoido suturopexy group. In long term at 6 month 3/30 (10%) patients of same patient continue recurrence in stapler hemorrhoidoexy group and 1/30 (3.3%) patient in transanal hemorrhoido suturopexy group. (R. Lucarelli et al^[9] 11% in stapler hemorrhoidoexy, Chivate's et al^[6] 0% in transanal hemorrhoido suturopexy group, Ganio et al^[14] 13% in stapler hemorrhoidoexy group, Bikhchandani et al^[15] 9.5% in stapler hemorrhoidoexy group, Finco et al^[16] 9.5% in stapler hemorrhoidoexy group, Reoperation 7.5% by R. Lucarelli et al^[9] in stapler hemorrhoidoexy group).

Transanal hemorrhoidosuturopexy demand circumferential double interlocking of the submucosa and mucosa of anal canal at the level of 2cm and 4cm above the dentate line that's why ligation of hemorrhoidal vessels and fixation of lax mucosa is at two places, thus preventing long term recurrence due to collateral formation. So less recurrence rate in transanal hemorrhoido suturopexy group than stapler hemorrhoidoexy group because in stapled hemorrhoidoexy chance of recurrence high due to incompleteness of suture line at level of the ring. If even perfect suture ring, the formation of collateral by branch of superior rectal artery (blood vessel are not legated) result increase recurrence.

The anal canal stenosis were reported 3/30 (10%) patients in stapler hemorrhoidoexy group and 1 (3.33%) patients in transanal hemorrhoido suturopexy group. (Brown et al^[17] 7% in stapler hemorrhoidoexy group, Ho et al^[18] 8.8% in stapler hemorrhoidoexy group, Chivate et al^[6] 0% in transanal hemorrhoido suturopexy group). In stapler hemorrhoidoexy (MIPH) functional impairment is result of multiple factor such as excision of (resection) sensitive lower to 2-4 cm of the rectal mucosa, the capacity of rectum reduce as it divided in two part like an hour glass clock. Sometime thick donought resected causes anal stenosis.

There is no incontinence, noted in our study at 1 month to 6 month follow up and no any other significant complication reported in study, no change in bowel habit of patient in both group of study.

CONCLUSIONS

- Transanal hemorrhoido suturopexy for hemorrhoids is a very simple procedure and the learning curve is minimal. Specially designed protoscope make it easy. The procedure has been successful in controlling change of prolapse, residual mass and recurrence of hemorrhoids. Post operative stenosis is less in transanal hemorrhoido suturopexy than stapler hemorrhoidoexy. Cost of transanal hemorrhoido suturopexy (cost effective) procedure is much less than stapler hemorrhoidoexy. transanal hemorrhoido suturopexy and stapler hemorrhoidoexy may provide better outcome when used lower grade (II, III) of haemorrhoids.
- Transanal hemorrhoido suturopexy and stapler hemorrhoidoexy both give satisfactory result in treatment of haemorrhoids but transanal hemorrhoido suturopexy give better result outcome and less residual mass, recurrence, reoperation rate, stenosis and bleeding. Post operative pain almost less than that with stapler hemorrhoidoexy.
- Transanal hemorrhoido suturopexy is pain less surgery, less cost give more attention and attractive option for both the patient and surgeon towards transanal hemorrhoido suturopexy in comparison to stapler hemorrhoidoexy.
- The new method transanal hemorrhoido suturopexy and stapler hemorrhoidoexy still require long follow up but transanal hemorrhoido suturopexy accepted for pain less cure of hemorrhoids. Stapler hemorrhoidoexy require skilled and more experienced surgeon to reduce complication. Appropriate donut

and time of firing gun, should be done very carefully for good resection and anastomosis of mucosa and submucosa.

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