Original Article

Outcome of Transanal suture haemorrhoidopexy and Stapled haemorrhoidopexy -A prospective observational study

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ABSTRACT:

Background: *Transanal suture haemorrhoidopexy is the preferred treatment due to its low cost, less post operative complication and decreased chance of recurrence in grade II and grade III Hemorrhoids.* ***Objective:*** *To compare the post-operative outcome of transanal suture haemorrhoidopexy and stapled haemorrhoidopexy in patients with grade II and III haemorrhoids.* ***Methods:*** *This study was conducted in the Department of Colorectal Surgery, Shaheed Suhrawardy Medical College hospital over a period of one-year. Sixty-two patients with haemorrhoids were enrolled in this study according to selection criteria. Data were collected, compiled and tabulated according to key variables. Qualitative data were expressed as frequency with percentage and quantitative data as mean with standard deviation. Quantitative data were analyzed by student's t-test and qualitative data by Chi-square test. Data were processed and analyzed by using software SPSS 22.0. For all analyses p-value <0.05 was considered statistically significant.* ***Result:*** *Mean age of the patients was 49.38 ± 7.17 years and 52.45 ± 6.17 years in Stapled hemorrhoidopexy and Trans anal suture hemorrhoidopexy group respectively (p>0.05). Males were predominant in both the two groups. In stapled hemorrhoidopexy group, grade of hemorrhoids was II (51.6%) and III (48.4%) whereas in Transanal suture hemorrhoidopexy group, grade of hemorrhoids was II (38.7%) and III (61.3%) (p>0.05). Operative time was lower in Stapled hemorrhoidopexy (26.93 ± 1.59 min) than Transanal suture hemorrhoidopexy (27.74 ± 1.63 min). Per operative bleeding was found more in stapled group. Most of the patients stayed in the hospital only one day in both the two groups. Only four patients in Stapled hemorrhoidopexy group and one patient in Transanal suture hemorrhoidopexy group stayed more than one day. Post-operative pain according to VAS was lower in Stapled hemorrhoidopexy group (1.90 ± 0.54) than Transanal suture hemorrhoidopexy group (2.09 ± 0.30) after 24 hours of the surgery. But there was no significant difference in pain after 7 days of surgery between the two groups. Post-operative complications were more in stapled hemorrhoidopexy than Trans anal suture hemorrhoidopexy, but not statistically significant. Recurrence (bleeding & prolapse) found more in stapled group than suture hemorrhoidopexy group. Treatment cost was significantly lower in trans anal suture hemorrhoidopexy.* ***Conclusion:*** *Based on this study, transanal suture hemorrhoidopexy showed less intra and post-operative hemorrhage, shorter duration of hospital stay, lower post-operative complications, and lower recurrence rate when compared to stapled hemorrhoidopexy. However, these differences were not statistically significant. The only statistically significant difference was in the operative cost, which was in favor of transanal suture hemorrhoidopexy.*

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Discussion

Hemorrhoidal disease is a common pathology with varying incidence[1,2] which affect nearly 4.4% to 36% of the population.[3] The symptoms range from painless bleeding to piles mass prolapse. Hemorrhoids are caused by disruption of the fibroelastic tissue of the anal cushion and increased pressure in the haemorrhoidal plexus of veins.[3,4]

Treatment modalities are conservative treatment (life style modification, oral medications, and topical treatment), Office-based procedures (rubber band ligation, injection sclerotherapy, cryosurgery, Infra-red coagulation), and surgical procedures (Excisional hemorrhoidectomy, Doppler guided hemorrhoidal artery ligation, Stapled hemorrhoidopexy, and Suture hemorrhoidopexy).[5] Conservative and office procedures can help with grade I and II haemorrhoids, but surgical interventions are required for grade III and IV haemorrhoids.[4]

Although there are several surgical techniques for haemorrhoidal disease, debates about the best choice still remain. Postoperative pain and discomfort, mucous discharge, daily activity limitation and recurrence remain the major drawbacks.[6]

The conventional hemorrhoidectomy is associated with a low rate of recurrence, but postoperative pain, discomfort and longer hospital stay are still of major concern. Other postoperative complications that a patient may experience after hemorrhoidectomy are urinary retention, bleeding, incontinence, wound infection, abscess formation, fistula formation, anal fissure, stenosis.[7,8] Therefore, many symptomatic patients often hesitate to receive treatment and are reluctant to undergo surgery.

Dr. Antonio Longo described the stapled hemorrhoidopexy procedure for the first time in 1993.[9] It avoids wounds in sensitive perianal and anal areas, which has the added benefit of significantly reducing postoperative pain. Longo's procedure involves cutting long strip of tissue and repositioning cushions with auto suturing by stapler and also cut off the blood supply of hemorrhoidal cushions above the dentate line.

Stapled hemorrhoidopexy is performed with a circular stapler device, which circumferentially disconnects the mucosa and submucosa above the dentate line. According to a number of studies, stapled hemorrhoidopexy is preferred by patients over standard hemorrhoidectomy because there is less pain, a shorter hospital stay, and an earlier return to work.[10]

Dr. Shantikumar Chivate modified this procedure and termed it as Transanal Suture Mucorectopexy. Suture hemorrhoidopexy (Transanal suture mucorectopexy) is a new invention for managing 2nd and 3rd degree Hemorrhoids. It is based on principles of plication of vessels above dentate line at two different levels by blocking of blood supply and preventing the neo vascularization and anchoring the rectal mucosa and submucosa to parks ligament.[3]

This study was conducted to compare the post-operative outcome of stapled haemorrhoidopexy with transanal suture haemorrhoidopexy in patients with grade II-III haemorrhoids.

Methods and Materials

This study prospective observational study was conducted in the Department of Colorectal Surgery, Shaheed Suhrawardy Medical College hospital, Dhaka from July 2022 to June 2023. A total of 62 patients with grade II to III hemorrhoids were enrolled in this study as study population. Patients with thrombosed piles or ulcerated piles, with grade I & IV hemorrhoids, hemorrhoid with other coexisting anorectal diseases (Anal stricture, Rectal growth, Inflammatory bowel disease, Perianal fistula and fissure) were excluded from this study.

Permission was taken from each participant by using an informed written consent form. The participants were interviewed face to face by the researcher for the purpose of collection of data. Then the patients were examined by the researcher for certain signs. Investigations were done for supporting the diagnosis. All data were compiled and edited meticulously. The data were screened and were checked for any missing values and discrepancy. All omissions and inconsistencies were corrected and were removed methodically. Computer based statistical analysis was carried out with appropriate techniques and systems with the help of professional statistician. Quantitative data were expressed as mean and standard deviation and qualitative data were expressed as frequency

distribution and percentage. Statistical analysis was performed by using window based computer software devised with Statistical Packages for Social Sciences (SPSS-22). A p-value <0.05 was considered statistically significant.

Results

Table 1: Demographic profile of the study subjects (N=62)

	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Age (years)			
≤40	5 (16.1)	2 (6.5)	
41 – 50	14 (45.2)	11 (35.5)	
51 – 60	9 (29.0)	16 (51.6)	
>60	3 (9.7)	2 (6.5)	
Mean ± SD	49.38 ± 7.17	52.45 ± 6.17	[a]0.076
Gender			
Male	19 (61.3)	21 (67.7)	[b]0.596
Female	12 (38.7)	10 (32.3)	

*Unpaired t test and bChi-Square test was done

Mean age of the patients was 49.38 ± 7.17 years and 52.45 ± 6.17 years in Stapled hemorrhoidopexy and Trans anal suture hemorrhoidopexy group respectively. There was no significant difference in age between the two groups. Males were predominant in both the two group.

Table 2: Co-morbidities of the study subjects (N=62)

Co-morbidities	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Hypertension	9 (29.0)	10 (32.3)	[a]0.783
Diabetes mellitus	16 (51.6)	13 (41.9)	[a]0.445
Heart disease	2 (6.5)	3 (9.7)	[b]1.000

*Chi-Square test and bFisher's Exact test was done

There was no significant difference in hypertension, diabetes mellitus and heart disease between the two groups.

Table 3: Grade of the haemorrhoids (N=62)

Grade of the hemorrhoids	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Grade - II	16 (51.6)	12 (38.7)	0.307
Grade - III	15 (48.4)	19 (61.3)	

Chi-Square test was done

In stapled hemorrhoidopexy group, grade of hemorrhoids was II (51.6%) and III (48.4%) whereas in Trans anal suture hemorrhoidopexy group, grade of hemorrhoids was II (38.7%) and III (61.3%) but there was no significant difference.

Table 4: Operative time (N=62)

Operative time (Min)	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Mean ± SD	26.93 ± 1.59	27.74 ± 1.63	0.053

Unpaired t test was done

Mean operative time was little shorter in stapled hemorrhoidopexy (26.93 ± 1.59 min) than Transanal suture hemorrhoidopexy (27.74 ± 1.63 min) but the difference was not statistically significant.

Table 5: Per-operative bleeding (N=62)

	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Bleeding	4 (12.9)	1 (3.2)	0.354

Fisher's Exact test was done

In Stapled hemorrhoidopexy group bleeding was observed in 04 patients during operation from stapled line of which 03 patients were managed by applying mattress suture by 2-0 vicryl and 01 were managed by applying pack and pressure. In Trans anal suture hemorrhoidopexy group bleeding was observed in only one patient from the suture line and was managed conservatively by applying pack and pressure.

Table 6: Post-operative hospital stay (N=62)

Post-operative hospital stay (days)	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
01 day	27 (87.1)	30 (96.77)	0.354
>01 days	4 (12.9)	1 (3.2)	

Fisher's Exact test was done

Most of the patients stayed in the hospital only one day in both the two groups. Only 04 patients of Stapled hemorrhoidopexy and one patient of Transanal suture hemorrhoidopexy group stayed more than one day because of post-operative bleeding.

Table 7: Post-operative pain according to VAS (N=62)

Post-operative pain	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
At 24 hours	1.90 ± 0.54	2.09 ± 0.30	0.086
At 7 days	0.19 ± 0.40	0.29 ± 0.64	0.480

Unpaired t test was done

Post-operative pain according to VAS was lower in Stapled hemorrhoidopexy group (1.90 ± 0.54) than Trans anal suture hemorrhoidopexy group. In Trans anal suture hemorrhoidopexy group VAS score was (2.09 ± 0.30) after 24 hours of the surgery, but there was no significant difference in pain after 7 days of surgery between the two groups.

Table 8: Post-operative complications (N=62)

	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Bleeding	4 (12.9)	1 (3.2)	0.354
Persistent pain	1 (3.2)	0 (0.0)	1.000
Anal stricture	2 (6.5)	0 (0.0)	0.470

Fisher's Exact test was done

In Stapled hemorrhoidopexy group 02 patient developed reactionary haemorrhage managed by applying mattress suture and 02 patients developed secondary haemorrhage, managed conservatively. In Transanal suture hemorrhoidopexy group only 01 patient developed reactionary bleeding from the suture line and was managed conservatively by applying pack and pressure.

Persistent anal pain was noted in one patient of Stapled hemorrhoidopexy group may be due to the very low stapled line closed to the dentate line and or incorporation sphincter muscle in the doughnut.

Anal stricture developed in 02 cases of Stapled hemorrhoidopexy group of which 01 patients were managed conservatively by anal dilator and one patient was managed with stricturoplasty. None of this patient developed stricture in the suture line in Transanal suture hemorrhoidopexy group. There was difference in post-operative complications between the two groups, but not statistically significant.

Table 9: Recurrence (N=62)

	Stapled hemorrhoidopexy	ransanal suture hemorrhoidopexy	p-value
Bleeding	4 (12.9)	0 (0.0)	0.113
Prolapse	3 (9.7)	1 (3.2)	0.612

Fisher's Exact test was done

In Stapled hemorrhoidopexy group 04 patients developed Recurrent bleeding and 03 patients developed recurrent prolapse. Of which 03 patients were re-operated by excisional procedure due to their severity of symptoms and 04 patients were treated with rubber band ligation. On the other hand, only one patient of Transanal suture hemorrhoidopexy group developed small recurrent prolapse and was managed conservatively.

Table 12: Treatment cost of the two procedure (N=62)

	Stapled hemorrhoidopexy	Trans anal suture hemorrhoidopexy	p-value
Cost	10,600 ± 0.0	800 ± 0.0	<0.001

Unpaired t test was done

Average cost of Stapled hemorrhoidopexy was Tk. 10,600 & of Suture hemorrhoidopexy was Tk. 800. The difference in cost between two groups was statistically significant.

Discussion

The search for a perfect solution to the problem of haemorrhoids is a global effort. Though all the present surgical techniques provide resolution in symptoms to a satisfactory level, post-op complications and recurrence remains a constant problem.

Average age of the patients in this study was almost similar to the study of Jain et al.[4]. In this study males were predominant in both the two group. Similar to this study Jain et al.[4] had similar male predominance. In stapled hemorrhoidopexy group, grade of hemorrhoids was II (51.6%) and III (48.4%) whereas in transanal suture hemorrhoidopexy group, grade of hemorrhoids was II (38.7%) and III (61.3%) but there was no significant difference in this study. Grade II hemorrhoid was prevalent in both the groups.[4]

Operative time was shorter in Stapled hemorrhoidopexy than suture hemorrhoidopexy. Which was similar to the study of Verma et al.[11] and Prasad et al.[5]. Similar to this study intraoperative bleeding was more in stapled hemorrhoidopexy group than Transanal suture hemorrhoidopexy group in the study of Prasad et al.[5]. In contrast to this study, Prasad et al.[5], Verma et al.[11] and Cheetham et al.[12] revealed that post-operative pain was higher in stapled hemorrhoidopexy group than transanal suture hemorrhoidopexy group. Similar to this study, Prasad et al.[5] found higher post-operative bleeding in stapled Hemorrhoidopexy compared to transanal suture hemorrhoidopexy but Manfredelli et al.[13] observed less postoperative bleeding in suture hemorrhoidopexy compared to Stapled Hemorrhoidopexy.

In this study duration of hospital stay was more in stapled hemorrhoidopexy than in suture hemorrhiodopexy because of post-operative bleeding. The same result was found in the study of Prasad et al.[5]. Similar to Tjandra and Chan[14], the recurrence of hemorrhoids after stapled procedure was more.

Stapled hemorrhoidopexy requires a circular stapler costing Tk. 10,000 and a suture material, costing Tk. 600. Transanal suture hemorrhoidopexy only requires two suture material,costing Tk. 800. So, there is significant difference of cost in two groups.

Conclusion

Stapled and suture hemorrhoidopexy reduce postoperative pain, hospital stay, and complications compared to excisional hemorrhoidectomy. In this research, transanal suture hemorrhoidopexy showed lower intra- and postoperative bleeding, hospital stay, complications, and recurrence rates than stapled procedures, although these variances were not statistically significant. Transanal suture hemorrhoidopexy was statistically superior only in terms of operative cost.

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