



**A STUDY OF COMPARISON OF TRANSANAL SUTURE RECTOPEXY WITH OPEN HEMORRHOIDECTOMY IN PATIENTS OF HEMORRHOID'S: A RANDOMIZED CONTROL TRIAL**

**Dr. Akshay K Rathod\***

M.S. General Surgery, Senior Resident, Sir J.J. Groups of Hospital & Grant Government Medical College, Mumbai, Maharashtra, India. \*Corresponding Author

**Dr. Shirish Bhagvat**

Professor & Head of unit, Department of General Surgery, Sir J.J. Group of Hospitals & Grant Government Medical College, Mumbai, Maharashtra, India,

**Dr. Shraddha Gangawane**

Assistant Professor, Department of General Surgery, Sir J.J. Group of Hospitals & Grant Government Medical College, Mumbai, Maharashtra, India,

**Dr. Geoffrey Kharmutee**

M.S. General Surgery, Senior Resident, Sir J.J. Group of Hospitals & Grant Government Medical College, Mumbai, Maharashtra, India.

**ABSTRACT**

**Aim:** To compare Transanal suture rectopexy with Open hemorrhoidectomy in patients of hemorrhoids. **MATERIALS AND METHOD:** After obtaining institutional ethics committee clearance, a prospective comparative study was done involving 60 patients with hemorrhoids undergoing either Transanal suture rectopexy [TR] or Open hemorrhoidectomy [OH]. With simple random sampling, the patients who fit into the criteria was randomized in to two groups A for Transanal suture rectopexy and group B Open hemorrhoidectomy **RESULTS:** Both the procedures were compared with respect to mean operating time, intra-operative & post-operative bleeding, postoperative pain & use of analgesia, duration of hospital stay along with six months of post operative complications in which we observed that Transanal suture rectopexy is better in terms of intraoperative bleeding, postoperative pain, duration of hospital stay and postoperative recurrence as compared to Open hemorrhoidectomy. **CONCLUSIONS:** Suture hemorrhoidectomy can be considered as a safe alternative approach for surgical treatment of hemorrhoids than open hemorrhoidectomy after adequate training. More studies are needed to declare it as a standard procedure for the cure of the disease of hemorrhoids

**KEYWORDS :** Chivate's procedure/Transanal suture rectopexy [TR], Milligan-Morgan/Open hemorrhoidectomy [OH], Post operative Pain, Peri operative bleeding.

**INTRODUCTION**

Hemorrhoids are defined as the symptomatic enlargement and distal displacement of the normal anal cushions associated with rectal bleeding due to a variety of activities such as straining and sitting for long periods during bowel movements, lifting heavy objects, obesity and severe coughing. It has been projected that about 50% of the population would have hemorrhoids at some point in their life probably by the time they reach the age 50 and approximately 5% population suffer from hemorrhoids at any given point of time<sup>1,2</sup>.

In the latter half of the nineteenth century, hemorrhoidectomy by either Milligan Morgan or Ferguson technique has been the gold standard<sup>3</sup>. In 2012, a new procedure was introduced Transanal suture rectopexy (Chivate's procedure) in which ligation of blood vessels is done circumferentially at two sites, thus decreasing the chances of collateral formation as well as dealing with the problem of mass prolapse<sup>4</sup>.

We present this study with the aim of evaluating and comparing Trans suture rectopexy with Milligan-Morgan or Open hemorrhoidectomy in view of resolution of symptoms, ease of surgery, post-operative complications and long-term recurrence.

**METHODOLOGY**

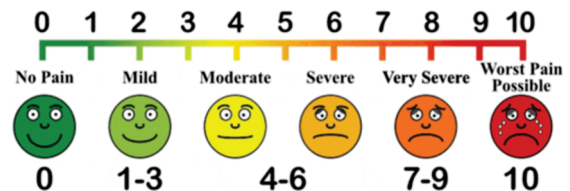
After obtaining institutional ethics committee clearance, a prospective comparative study was done involving 60 patients with hemorrhoids undergoing either Transanal suture rectopexy [TR] or Open hemorrhoidectomy [OH]. With simple random sampling, the patients who fit into the criteria was randomized in to two groups A for Transanal suture rectopexy and group B Open hemorrhoidectomy conducted under Spinal Anesthesia. Simple random sampling will be utilized.

softeners postoperatively. Post operative pain was assessed using Visual analogue scale (Fig 1). Sitz bath were advised as per their requirements during perioperative period.

At discharge patients were given advice on wound care, diet, defecation habits, and analgesic drug.

The two groups will be analyzed on variables such as:

- a) Pain: assessed by visual analog scale.
- b) Duration of surgery
- c) Intraoperative bleeding
- d) Postoperative bleeding
- e) Length of hospital stay.
- f) Long term complication: Anal stricture, prolapse, recurrence.



**Figure 1: Visual analogue scale**

Source: greatbrook.com/visual-analog-survey-scale/

**Statistical Analysis**

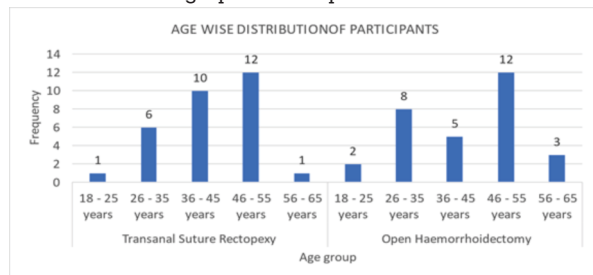
Descriptive statistical Analysis will be carried out in the present study. Confidence interval will be 95 %. Significance is assessed at 5% level of significance. Student t test two tailed independent will be used for continuous parametric variable. Mann Whitney u test two tailed dependent will be used for continuous non parametric variable. Chi square / fisher exact test will be used to study parameters in categorical scale.

All the patients were administered with analgesics and stool

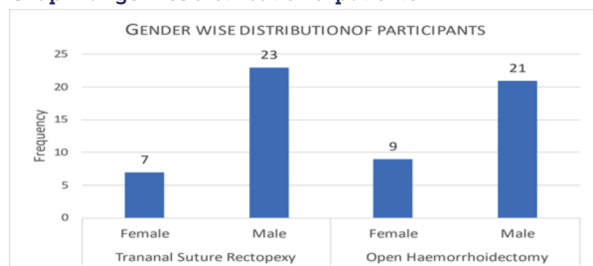
P value <0.05 will be considered statistically significant.

**RESULTS**

In a study period of two years, total sixty patients of haemorrhoids being equally divided in two groups of 30 each (Trans anal suture rectopexy – TR and Open haemorrhoidectomy – OH) for the study. After the surgery, all the patients were followed for a minimum period of 6 months. The mean age of patients was 42.73 years ± 8.788 (Range 23 - 78 years) in TR group while it was 42.2 years ± 10.672 (Range 21 – 76) years in OH group which was statistically insignificant (P value 0.833). There were 7 females (23.3%) in TR group while in OH group the count of female was 9 (30%). This difference was statistically insignificant (P = 0.559). Graph 1 and 2 shows demographics of the patients.

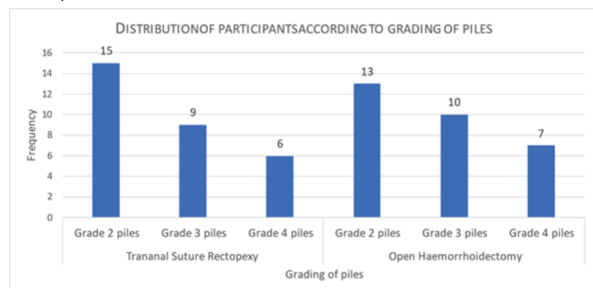


**Graph 1: Age wise distribution of patients**



**Graph 2: Gender distribution of patients**

When the severity of haemorrhoids was considered, there were 15 patients of second degree, 9 patients of third degree and 6 patients of fourth degree haemorrhoids in TR group. In OH group, this count was 13, 10 and 7 for second, third and fourth degree haemorrhoids respectively (Graph 3). The difference between the two groups was insignificant (P = 0.873).



**Graph 3: Distribution of patients according to grading of Hemorrhoides**

**Duration Of Surgery And Intraoperative Bleeding:**

The mean operative time was 30.43 ± 4.636 minutes and 36.67 ± 5.726 minutes for TR and OH group respectively (Table 1). Our study shows that Open haemorrhoidectomy procedure requires less time for surgery than suture rectopexy (P value <0.001).

Blood loss estimation was done using gravimetric method which depends on weighing surgical sponges before and after surgical use. Estimated blood loss is determined by assessing the weight difference before and after use, with every gram of weight equivocal to 1 mL of blood loss.

The mean intraoperative bleeding was 27.33 ± 5.979 and 36 ±

11.552 in TR and OH group respectively (Table 1). There was less intraoperative bleeding in transanal suture rectopexy as compared to open hemorrhoidectomy (P = 0.001).

Post-op bleeding before discharge was present in three patients of TR group and seven patients of OH group, which was managed by gauze packing and laxatives. P value came out 0.165 which is statistically insignificant.

**Table 1: Comparison of intraoperative bleeding and duration of surgery between TR and OH group.**

Parameter	Group	Mean	Standard Deviation	t-Test	P Value
Intra-operative bleeding	Transanal Suture Rectopexy	27.33	5.979	-3.649	0.001
	Open Hemorrhoidectomy	36	11.552		
Duration of surgery	Transanal Suture Rectopexy	36.67	5.726	4.639	<0.001
	Open Hemorrhoidectomy	30.43	4.636		

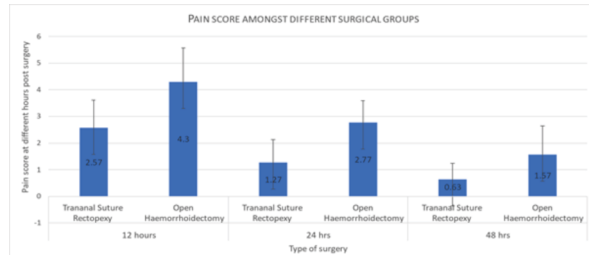
**Postoperative Pain:**

Postoperative pain was assessed using a Visual analogue scale (VAS). The aim was to keep the VAS score below 3 with adequate use of analgesia using the world health organization (WHO) guidelines for pain management.

The VAS score at post-operative period of 12, 24 and 48 hours for the two groups are compared (Graph 4). The difference was statistically significant at 12 hours (P value <0.001), 24 hrs (P value <0.001), and 48 hours (P value <0.001) of surgery. This suggest that postoperative pain is more in OH group as compared to TR group (Table 2).

**Table 2: Visual analogue scale at 12,24 and 48 hours postoperative**

VAS Scale	Groups	Mean	Standard Deviation	t-TEST	P value
12 hrs.	Transanal Suture Rectopexy	2.57	1.04	-5.801	<0.001
	Open Hemorrhoidectomy	4.3	1.264		
24 hrs.	Transanal Suture Rectopexy	1.27	0.868	-6.89	<0.001
	Open Hemorrhoidectomy	2.77	0.817		
48 hrs.	Transanal Suture Rectopexy	0.63	0.615	-4.135	<0.001
	Open Hemorrhoidectomy	1.57	1.073		



**Graph 4: Visual analogue scale 12,24 and 48 hours postoperative**

**Postoperative Dosage Of Analgesia:**

Postoperative pain was managed by giving doses of intravenous diclofenac sodium. Each dose contained 75mg of diclofenac sodium. The mean requirement of doses of analgesia was 1.97 and 3.17 for the TR and OH group respectively. This difference was significant (P value <0.001). Thus, showing that OH groups required more analgesia dose

as compared to TR group.

**Duration Of Hospital Stay:**

The mean duration of hospital stay was 3.2 days in TR group and 4.3 days in OH group. P value came out <0.001 which showed that there is statistically significant difference in the 2 groups based on duration of hospital stay. Patients with Transanal rectopexy were discharged early as compared to Open hemorrhoidectomy group.

**Resumed Duty After Discharge:**

Patients were observed for resumption of duty after discharge. The mean duration of resumption of duty was 3.57 days in TR group and 11.1 days in OH group. P value came 0.017 which was statistically significant. It was observed that patients operated with Transanal suture rectopexy resumed duty early as compared to OH group.

**Table 3: Comparison of dosage of analgesia required, hospital stay and resumption of duty after discharge**

Category	Groups	Mean	Std. Deviation	P value
Dosage of analgesic required	Trananal Suture Rectopexy	1.97	0.669	<0.001
	Open Haemorrhoidectomy	3.17	0.913	
Resumed duty after discharge	Trananal Suture Rectopexy	3.57	1.406	0.017
	Open Haemorrhoidectomy	11.1	16.693	
Hospital stay	Trananal Suture Rectopexy	3.2	0.847	<0.001
	Open Haemorrhoidectomy	4.3	1.088	

**Postoperative Follow Up:**

Per rectal bleeding at one month of follow up was present in four patients of OH group and three patients of TR group with the difference being insignificant (P = 0.687). Three patients in OH group developed prolapse at one month of post-op period, while in TR group this count was zero. The difference was also statistically insignificant (P = 0.076). The patients were managed conservatively by laxatives and sitz bath (Table 4).

Per rectal bleeding at three months of follow up was present in four patients of OH group and two patients of TR group with the difference being insignificant (P = 0.389). Three patients in OH group developed prolapse at one month of post-op period, while in TR group this count was one. The difference was statistically insignificant (P = 0.3). The patients were managed conservatively by laxatives and sitz bath.

At six months of follow up five patients of OH group had per rectal bleeding while only one patient from TR group has developed bleeding. This difference was statistically insignificant. (P = 0.085). Three patients of the SH group had prolapse while only one patient of TR group had prolapsed at six months, and this difference too was insignificant (P = 0.3). None of the patient either from TR group or OH group developed anal stricture.

**Table 4: Post operative complications of TR and OH group**

Follow up	Complications	Transanal Rectopexy	Open Hemorrhoidectomy	P Value
1 month	Bleeding	Yes	3	0.687
		No	27	
	Prolapse	Yes	0	0.076
		No	30	
3 months	Bleeding	Yes	2	0.389
		No	28	
	Prolapse	Yes	1	0.3
		No	29	

6 months	Bleeding	Yes	1	5	0.085
		No	29	25	
	Prolapse	Yes	1	3	0.3
		No	29	27	

**DISCUSSION**

The search for a perfect solution to the problem of hemorrhoids 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.

Dietary modifications, stool softeners, topical medications and sitz bath helped in grade I hemorrhoids. Rubber band ligation, piles plication, sclerotherapy, and various cauterization methods are helpful in grade II hemorrhoids. But grade III, IV and failed procedures in grade II piles demands surgical intervention<sup>5</sup>. 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.

Among the tissues of the digestive tract, anal canal lining is most richly innervated tissue and the major worry after hemorrhoidectomy is postoperative pain. Conventional hemorrhoidectomy that is considered as gold standard treatment has withstood the test of time, but has been associated with significant postoperative morbidity that is pain. Emphasis has been applied for management of postoperative pain. Varied number of studies has been published in the literature in an attempt to identify approaches with reduced postoperative morbidity<sup>6</sup>. Transanal suture rectopexy has been shown in many randomized trials to have less postoperative morbidity. Conventional hemorrhoidectomy is still the procedure of choice because of low expense and ease of technique, even though many newer procedures have subsequently been proposed<sup>7</sup>. As open hemorrhoidectomy are associated with considerable postoperative pain and due to loss of anoderm there is reduced anal sensation in open procedure<sup>8</sup>. Open wound in anal canal has been implicated in post op morbidity.

In many countries now Transanal suture rectopexy has gained attention because of better patient compliance, less intraoperative bleeding and less post-operative pain. nonetheless, randomized controlled trials have reported conflicting results about Transanal suture rectopexy verses open hemorrhoidectomy<sup>9</sup>. In this randomized control trial, about sixty patients undergoing hemorrhoidectomy, who have fulfilled the criteria have been selected and included in our study. Patients are randomized in to two groups, group A will have 30 patients undergoing Transanal suture rectopexy and group B will have 30 patients undergoing Open hemorrhoidectomy. Both the procedures were compared with respect to mean operating time, intraoperative bleeding, postoperative bleeding and pain along with six months of post operative complications in which we observed that Transanal suture rectopexy is better in terms of intraoperative bleeding, postoperative bleeding, pain and recurrence as compared to Open haemorrhoidectomy.

Transanal suture rectopexy is better in terms of long term follow up as compared to Open hemorrhoidectomy because there is less long-term recurrence and better long-term satisfaction of patient<sup>10</sup>. The main principle of open hemorrhoidectomy is to minimize the loss of skin and the perianal mucosa of the anal canal that bridges between the two excised Hemorrhoides. The pedicle ligation of haemorrhoid is done to occlude blood supply at the top of anal cushions. Later on, the smaller branches of the ligated vessels start dilating and develop collaterals to join the blood vessels of the intermediating tissue; this is the potential cause of the

recurrence that remains about 18-25 %<sup>11</sup>. In Chivate's procedure (Transanal suture rectopexy), the vessels are ligated at two sites at the distance of 2 cm and 4cm beyond to dentate line, which reduces the chances of development of the collaterals and recurrence. Although recurrences were noted in suture hemorrhoidopexy group, it may be due to initial learning curve or inadequate suture bite (inadequate mucorectopexy). So, the procedure is skill dependent<sup>12</sup>.

## CONCLUSION

Since centuries, a large number of treatment modalities for hemorrhoidal disease are known but none is the ideal one. We studied the advantages and disadvantages of Transanal suture rectopexy and Open Haemorrhoidectomy of sixty patients over eighteen months period in our study, without compromising any safety of the patients. Both Transanal suture rectopexy and open haemorrhoidectomy procedure are less expensive, safe and easy to perform with minimal learning curve. Both gives satisfactory results in the treatment of haemorrhoids on long term follow up but TR provides less intraoperative and postoperative bleeding, reduced pain leading to reduced hospital stay and early return to work along with better recovery and less recurrence. Transanal suture rectopexy technique has these advantages at the expense of longer operative time, which can be neglected as it did not affect the outcome.

More studies are needed to declare it as a standard procedure for the cure of haemorrhoids

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