

Comparative study between open haemorrhoidectomy and transanal suture haemorrhoidopexy

Malaya Krishna Nayak¹, Sucheta Panigrahi^{2*}, Raj Kishor Meher³, Adityananda Mohapatra⁴, Mukti Prasad Mishra⁵

¹Associate Professor, Department of Surgery, VIMSAR, Burla, Odisha, India

²Assistant Professor, Department of Surgery, VIMSAR, Burla, Odisha, India

³Assistant Professor, Department of Surgery, VIMSAR, Burla, Odisha, India

⁴PG Student, Department of Surgery, VIMSAR, Burla, Odisha, India

⁵PG Student, Department of Surgery, VIMSAR, Burla, Odisha, India

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Abstract

Introduction: Haemorrhoids are the most common disorder of the anal canal. Different surgical modalities are available for the management of grade III and grade IV haemorrhoids which do not respond to the conservative managements. Post-operative pain and recurrence are the most common complications. Stapler haemorrhoidectomy, Doppler guided arterial ligation, laser though claim to be beneficial are costlier and not available in the rural areas, where open haemorrhoidectomy is the treatment of choice. In our study we have compared the open haemorrhoidectomy with trans anal suture haemorrhoidopexy which has all the benefits, can be accepted and performed for the rural people. **Aim:** To compare the outcome of open haemorrhoidectomy with trans anal suture haemorrhoidopexy in grade III and grade IV haemorrhoids. During the period Nov 2018-Oct 2020, 30 patients were operated by open haemorrhoidectomy and 30 by trans anal suture haemorrhoidopexy. Data for early and late complications along with period of hospital stay and time for return to work were collected and compared. **Results:** Suture haemorrhoidopexy resulted in less post-operative pain, less requirement of analgesia, less period of hospital stay, early return to work with less post-operative complications. It can be recommended as safe cost effective alternative procedure for haemorrhoidectomy.

Keywords: Haemorrhoids, open haemorrhoidectomy, trans anal suture haemorrhoidopexy

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Introduction

Haemorrhoids are the most common anal canal disorder accounting nearly 4.4% to 36% of the population[1,2]. The symptoms varies from painless bleeding to prolapse of piles mass. These haemorrhoids resulted from increased pressure in haemorrhoidal plexus of veins, degeneration of fibro elastic tissue of the anal cushion [2,3]. The treatment varies from conservative to surgical procedures. Modification of diet, stool softeners, sitz bath, topical medications, sclera therapy, rubber band ligations and plications are helpful in grade I and II haemorrhoids. Grade III and IV haemorrhoids require definite surgical interventions[2-4]. Previously the haemorrhoid-ectomy either Milligan Morgan or Ferguson were the gold standards[3,4] which required replacement for severe post-operative pain and longer hospital stay. Later Dr. Antonio Longo introduced stapled haemorrhoidopexy while Morianga introduced Doppler guided hemorroidal arterial ligation[5,6]. In both procedures blood supply to the Haemorrhoidal plexus is cut-off and anal cushions is fixed. Though post-operative pain is taken care of recurrence is higher due to development of collaterals in single point of arterial ligations. These techniques are not affordable and not available in rural areas. In 2012 Dr. Shantikumar D Chivate introduced trans anal suture rectopexy where two double interlocking suture lines were taken

above the dentate line 2cm apart from each other(Fig-1).

In our study we have compared this suture haemorrhoidopexy with most commonly performed open haemorrhoidectomy in grade III and IV haemorrhoids in the rural areas.

Methods

This study was carried out in the department of surgery, VIMSAR, Burla, Odisha over a period from November 2018 to October 2020 with the aim to analyze and compare the outcomes of transanal suture haemorrhoidopexy and open haemorrhoidectomy.

Inclusion criteria- Patients attending surgery OPD with complaints of per-rectal bleeding, confirmed by per-rectal examination with grade III and IV piles.

Exclusion criteria- Patients with thrombosed prolapsed piles

-Pregnancy

-Haemorrhoids associated with anal fissure, anal stenosis, fistula and other co-morbid conditions.

Ethical clearance- The ethical clearance was taken from the institutional ethical committee and informed consent taken from each of the patients.

The study was conducted in the department of surgery, VIMSAR, Burla on the patients with Grade III and IV haemorrhoids. The total 60 patients taken in the study were divided in two groups of 30 patients each. Odd numbers were assigned open haemorrhoidectomy and even numbers for transanal suture haemorrhoidopexy. Diagnosis was made from the clinical symptoms, per-rectal examinations and proctoscopy. Haemorrhoids were graded as per Goligher classification [2-4]. Grade III and IV patients were prepared for surgery after explaining the procedures and obtaining the written

*Correspondence

Dr. Sucheta Panigrahi

Assistant Professor, Department of Surgery, VIMSAR, Burla, Odisha, India.

E-mail: drsuchtetapanigrahi11@gmail.com

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informed consents with pre-operative routine evaluations. All the patients were operated by the same surgeon and same surgical unit of the surgery department.

Surgical procedure- After necessary hematological and pre-operative evaluations patients were prepared for surgery. They were kept in pre-operative semi solid diet. Enema was given in the evening of the day before and the morning of the surgery. After spinal or saddle block patients were positioned in lithotomy with head low to reduce the piles mass. The anal canal was lubricated with xylocain jelly. The laxed mucosa and sub-mucosal tissue were reduced to their anatomical positions. A self-illuminated slit with sliding valve proctoscope designed by Dr. Chivate was introduced. Anal canal was inspected and the Dantate line was identified after removing the sliding plate. A continuous double locking suture line was taken with 2-0 polygalactin on atraumatic 30mm ½ circle needles. The stitches were passed through the depth of the mucosa, sub mucosa and part of the muscle starting at 3 o'clock position. Continuous double locking sutures were taken with 1-2mm over lapping. The suture lines were

continued through the whole circumference of the rectum at the same level. The second suture line is placed at 2cm apart(Fig-1).The patients in the other group were prepared in the same manner and under same type of anaesthesia, open haemorrhoidectomy was performed. The required information were collected from the patients with pre-defined, pre-structured questionnaire about the socio-demographic profile. The patients were evaluated clinically and grading of the haemorrhoids is done. During and after the surgical procedure patients were evaluated for early complications, period of hospital stay and time for return to work. After the discharge patients were followed up bimonthly up to 6 months and then at 6 months interval for delayed complications. Data collected were tabulated with Microsoft excel and statistical analysis was done in SPSS Version 16 the qualitative variables were expressed in proportion and percentage and the quantitative variables in mean and standard deviation. At the end two operative procedures were compared with appropriate statistical test (t-test and Chi-square test) with 95% confidence, the P value of less than 0.05 was considered statistically significant[8-12].



Figure1:DrChivate's Procedure

Observation

Total of 60 patients were included in this study, 30 in each group. The mean age of the participants are 42.23 years majority of which belongs to 35-55 years (55%) the age distribution of the participants in both the groups were compared and found to be insignificant ($P>0.05$). Most of the cases were males, 41 (68.33%). In open haemorrhoidectomy group 8 (26.6%) were female and 22 (73.33%) were male, whereas in suture haemorrhoidectomy group 11 (36.6%) were female and 19 (63.33%) male. The slight difference in sex distribution in both the groups was found to be statistically insignificant ($p=0.57$). As per as the grade of haemorrhoids was considered in open haemorrhoidectomy group 12 (40%) were grade-III and 18 (60%) were grade-IV where in other group 10 (33.3%) were grade-III and 20 (66.6%) grade-IV. This difference was not statistically significant ($p=0.78$)(Table-1). The mean duration of operation time in open haemorrhoidectomy group was 31.46 (± 2.56) minutes and for suture haemorrhoidectomy group 39.33 (± 4.79) minutes is more and statistically significant ($p<0.001$) (Table-2). Among the early complications after surgery pain, fever and urinary retention were most prominent. A total of 28 (46.7%) patients complained of post-operative pain, 23 (76%) from open haemorrhoidectomy group and 5 (16.7%) from the suture haemorrhoidectomy group. This was found to be highly significant ($p<0.001$) (Table-3).

Total 16 (26.7%) patients complained of post-operative fever, 13 (43.3%) from the open haemorrhoidectomy group and only 3 (10%) from haemorrhoidectomy group. Statistically significant ($p<0.004$) (Table-3). A total of 38 (63.3%) patients had minimal post-operative bleeding, 17 (56%) of open group and 5 (16.7%) from the suture group which is statistically significant ($p<0.001$). All these patients were managed conservatively by local packs. 19 patients had post-operative urinary retention, 14 (46%) open haemorrhoidectomy group and 5 (16.7%) in suture haemorrhoidectomy group and required catheterization. It was statistically significant ($p<0.012$) (Table-3).

The mean duration of hospital stay after surgery 3.43 (± 0.62) days in open group and 1.33(± 0.47) days in suture group. It shows that patient operated by suture haemorrhoidectomy were discharged earlier and it is statistically significant ($p<0.001$) (Table-4). When the time for return to work was compared it was found 4.6 days in suture group which is much earlier than the open group (11.8 days) and was statistically significant ($p<0.001$) (Table-4).

With one year period of follow up only 5 patients in open haemorrhoidectomy group developed delayed complications. Bleeding was seen in 2 patients. Incontinence, anal stenosis and recurrence in one patient each. None of these complications were seen in suture haemorrhoidectomy group (Table-5).

Table 1: Age, sex distribution and Haemorrhoid types among two groups

		OH	SH	Total	p-value
Age Group (Yrs.)	25-35	2 (6.67%)	5 (16.67%)	7 (11.67%)	0.45
	35-45	18 (60.00%)	15 (50.00%)	33 (55.00%)	
	45-60	10 (33.33%)	10 (33.33%)	20 (33.33%)	
	Total	30 (100.00%)	30 (100.00%)	60 (100.00%)	
Sex	Female	8 (26.67%)	11 (36.67%)	19 (31.67%)	0.5789
	Male	22 (73.33%)	19 (63.33%)	41 (68.33%)	
	Total	30 (100.00%)	30 (100.00%)	60 (100.00%)	
Haemorrhoid Types	GRADE III	12 (40.00%)	10 (33.33%)	22 (36.67%)	v0.788
	GRADE IV	18 (60.00%)	20 (66.67%)	38 (63.33%)	
	Total	30 (100.00%)	30 (100.00%)	60 (100.00%)	

Table 2: Comparison of Operation time of two procedure

Parameter	OH Mean (SD) (N=30)	SH Mean (SD) (N=30)	Total Mean (SD) (N=60)	p value
Duration of Operation (Min)	31.467 (2.596)	39.333 (2.832)	35.400 (4.795)	< 0.001

Table 3: Comparison of Early complications in two procedure

	Complications	OH (N=30)	SH (N=30)	Total (N=60)	p value
Pain	No	7 (23.3%)	25 (83.3%)	32 (53.3%)	< 0.001
	Yes	23 (76.7%)	5 (16.7%)	28 (46.7%)	
Fever	No	17 (56.7%)	27 (90.0%)	44 (73.3%)	0.004
	Yes	13 (43.3%)	3 (10.0%)	16 (26.7%)	
Bleeding	No	13 (43.3%)	25 (83.3%)	38 (63.3%)	0.001
	Yes	17 (56.7%)	5 (16.7%)	22 (36.7%)	
Urinary Retention	No	16 (53.3%)	25 (83.3%)	41 (68.3%)	0.012
	Yes	14 (46.7%)	5 (16.7%)	19 (31.7%)	

Table 4: Comparison of post-operative duration of hospital stay and return to work between two operations

Parameter	OH Mean (SD) (N=30)	SH Mean (SD) (N=30)	Total Mean (SD) (N=60)	p value
Post-operative Hospital stay (days)	3.43 (0.62)	1.33 (0.47)	2.383 (1.195)	< 0.001
Return to work In days	11.8	4.6	16.4	< 0.001

Table 5: Comparison of delayed complications between the two operations

	Delayed complications	OH (N=30)	SH (N=30)	Total (N=60)	p value
Bleeding	No	28 (93.3%)	30 (100.0%)	58 (96.7%)	0.150
	Yes	2 (6.7%)	0 (0.0%)	2 (3.3%)	
Incontinence	No	29 (96.7%)	30 (100.0%)	59 (98.3%)	0.313
	Yes	1 (3.3%)	0 (0.0%)	1 (1.7%)	
Anal stenosis	No	29 (96.7%)	30 (100.0%)	59 (98.3%)	0.313
	Yes	1 (3.3%)	0 (0.0%)	1 (1.7%)	
Recurrence	No	29 (96.7%)	30 (100%)	59 (98.3%)	0.313
	Yes	1 (3.3%)	0 (0%)	1 (1.7%)	

Discussion

In this study we had extensively studied and analyzed the two surgical procedures of open haemorrhoidectomy and trans anal suture haemorrhoidopexy. Both the procedures were performed in two groups of 30 patients each with almost similar age, sex and grade of haemorrhoids (grade-III and IV). In our study mean duration of surgery is longer in suture haemorrhoidopexy group 33.33 (± 4.79) minutes in comparison to 31.46 (± 2.56) minutes in open group. It is because we took two double interlocking suture lines with overlapping of 2-3mm and taking care about the depth of suture, so that only the superficial part of the muscle are taken in the suture lines. Open haemorrhoidectomy took less time and is significant ($p < 0.001$). In our study post-operative pain was managed according to the guidelines of French Anesthesia Society. Pain was assessed using the Visual Analogue Scale (VAS). The aim was to keep the VAS score below 3 with adequate analgesia using the WHO guidelines for pain management. In our study post-operative pain, VAS score 3 or more was 76.7% in open- haemorrhoidectomy group and only 16.7% in suture group ($p < 0.001$). As the 2 suture lines were taken above the

dented line the pain is absent or minimal in suture haemorrhoidopexy. The pain is more due to extensive dissection in open haemorrhoidectomy group, which is the most common drawback of this procedure. Our observation was similar to different studies in which 80% of the patients had moderate to severe post-operative pain [16-18]. Post-operative bleeding was more in open group 56.7% in comparison to SH group only 16.7% with $p < 0.001$. It is more due to the earlier dissection prior to ligation of the pedicle and post-operatively exposed raw area in open haemorrhoidectomy. In suture group there is no tissue dissection so the bleeding is minimal. This was similar to different studies where 56% of post-operative bleeding was there [19]. Post-operative urinary retention was more common in open group (46.7%) and less in suture group (16.7%), p value is 0.012. This complication maybe due to more post-operative pain. Duration of hospital stay was 3.43 (± 0.62) days in open group and 1.33 (± 0.47) in suture group, $p < 0.001$. S.Chivate observed that open haemorrhoidectomy is a painful procedure with 3-5 days of hospital stay which is higher than the suture group.

NeeralayEtol 2017 state 4.1 day of hospital stay in a study with 120 patients is similar to our study.

The patients undergoing sutured haemorrhoidopexy were able to return to work in 4.6 days was much earlier than the open haemorrhoidectomy group 11.8days ($p<0.001$). As far as the delayed complications bleeding is seen in 2 (6.7%) patients undergoing open haemorrhoidectomy and no such case in suture group ($p=0.150$). These patients were managed conservatively. Only 1 patient of haemorrhoidectomy group developed mild anal stenosis. Normal pliable anoderm is replaced by cicatrized tissue due to extensive dissection of anoderm and rectal mucosa. This mild anal stenosis could be managed by dietary modifications. The regular passage of stool provides the most natural stretching of anal cushion and the cure. As in sutured haemorrhoidopexy group there is no tissue dissection and the sutures were doubly locked, there is no purse sting effect and no chance of developing anal stenosis. Only one patient undergoing haemorrhoidectomy developed mild incontinence which was temporary and could be managed conservatively. The main factor behind this is the extensive dissection and injury. Only one patient in haemorrhoidectomy group (3.3%) developed recurrence within one year of follow-up period. In this procedure pedicle is ligated at top of the anal cushion, later this ligated vessel developed collaterals to join the vessel in the intermediate tissue causing this recurrence. In sutured haemorrhoidopexy 2 suture lines were taken 2cm apart leaving a large area in-between, decreasing chance of collateral developments and the recurrence.

Conclusion

We studied the advantage and disadvantages of open haemorrhoidectomy and trans anal suture haemorrhoidopexy in 60 patients over a period of 24 months without compromising the safety of the patients and we found the advantages and disadvantages of both the techniques. Suture haemorrhoidopexy though take little bit more operative time resulted in less post-operative pain, less requirement of analgesia, less post-operative complications, less period of hospital stay and early return to work resulting in less financial loss.

Thus the trans anal suture haemorrhoidopexy can be recommended as a safe, cost effective alternative procedure to open open haemorrhoidectomy and can be performed at any rural setup after an adequate training.

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