Section: General Surgery

Original Research Article

A COMPARATIVE STUDY OF SHORT-TERM RESULTS OF CONVENTIONAL HEMORRHOIDECTOMY VERSUS SUTURE HEMORRHOIDOPEXY AT TERTIARY CARE HOSPITAL

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Received *: 30/11/2023*
Received in revised form *: 13/01/2024*
Accepted *: 29/01/2024*

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DOI: 10.5530/ijmedph.2024.1.59

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2024; 14 (1); 311-317

ABSTRACT

Hemorrhoids are a prevalent ailment among humans, with a prevalence rate ranging from 4% to 36% in the general population. The current investigation was carried out at the Department of General Surgery, Osmania General Hospital, Hyderabad, Telangana, India, over a period of two years from November 2019 to November 2021.This study was a prospective comparison of standard Milligan Morgan haemorrhoidectomy and Suture haemorrhoidopexy for the treatment of grade 3 and 4 haemorrhoids. In this study, we examined the benefits and drawbacks of suture hemorrhoidopexy and open hemorrhoidectomy in 60 patients over a 24-month period. We ensured the safety of the patients throughout the trial. We have identified both the benefits and drawbacks of both strategies. Therefore, it was determined that suture hemorrhoidopexy is a secure procedure with numerous immediate advantages. This procedure is unique and has emerged as a viable alternative to open hemorrhoidectomy.

Keywords: Hemorrhoids, Conventional hemorrhoidectomy, Suture hemorrhoidopexy.

INTRODUCTION

Hemorrhoids are a prevalent ailment among humans, with a prevalence rate ranging from 4% to 36% in the general population. Hemorrhoids are defined as anal cushions that are normally present and can cause clinical symptoms such as expansion, bleeding, thrombosis, or prolapse.[1] There are two types of hemorrhoids: internal hemorrhoids, which originate from the sub-epithelial plexus located in the anal canal above the dentate line, and external hemorrhoids, which are swollen collections of blood vessels located outside the anus and covered by skin.[2] Internal hemorrhoids are classified into four primary categories based on the extent of their prolapse: Grade I refer to hemorrhoids that are neither visible or perceptible outside the anal margin; There are three grades of hemorrhoids: Grade II, which protrude while straining but retract on their own; Grade III, which require physical reduction; and Grade IV, which consist of chronically prolapsed hemorrhoids. Nevertheless, this may not consistently indicate the gravity of the patient's symptoms.[3] A significant number of individuals are asymptomatic. The primary and most common initial symptom is rectal bleeding during bowel movements. Aside from prolapsed hemorrhoids, other symptoms encompass mucus seepage, pruritus, impaired anal discrimination, flatus continence, and exceedingly rare fecal incontinence. Hemorrhoids often do not cause discomfort, but when they get thrombosed, they do.[4]

Several alternative therapeutic approaches have been devised for the treatment of hemorrhoids. The Milligan-Morgan hemorrhoidectomy, also known as conventional or open hemorrhoidectomy, was first introduced in 1937 and remains the most often used surgical procedure for treating hemorrhoids. The operation yields favourable outcomes, but it is highly painful and can lead to prolonged hospitalization and other consequences such as acute hemorrhage, urine retention, and late issues like incontinence and stenosis.[5] Suture hemorrhoidopexy has been

associated with improved shortterm outcomes, including less postoperative pain, shorter operating times, earlier return to work, and greater patient satisfaction. The present study was designed to compare the short term results of suture hemorrhoidopexy with Milligan- Morgan Hemorrhoidectomy.

MATERIAL AND METHODS

The current investigation was carried out at the Department of General Surgery, Osmania General Hospital, Hyderabad, Telangana, India, over a period of two years from November 2019 to November 2021.This study was a prospective comparison of standard Milligan Morgan haemorrhoidectomy and Suture haemorrhoidopexy for the treatment of grade 3 and 4 haemorrhoids. The study obtained approval from the institutional ethical committee and adhered to the principles of the declaration of Helsinki, as well as the criteria established by the Indian Council of Medical Research (ICMR). Patients participating in the trial provided written informed consent. The study comprised sixty individuals who underwent operations for haemorrhoids at Osmania Medical College Hospital in Hyderabad and met the specified criteria. Thirty patients received the Milligan Morgan procedure for traditional hemorrhoidectomy, while another thirty patients underwent Suture haemorrhoidopexy.

Inclusion Criteria

Grade 3 and grade 4 Haemorrhoids

Exclusion Criteria

- Acute haemorrhoidal episodes with thrombosis
- Prior haemorrhoidectomy
- Intercurrent anal pathology (like fistula in ano and anal fissure) Prolapse of single anal cushion
- Anal stenosis

Patients underwent preoperative clinical assessment and regular laboratory testing. All individuals underwent surgery as inpatients. The duration of patients' hospitalisation for analysis was computed commencing from the day of the surgical procedure. Prior to surgery, patients were instructed to abstain from eating or drinking overnight and were administered a phosphate enema on the morning of the surgery day. A single dose of ciprofloxacin and metronidazole was administered during anaesthesia for the surgery. The procedures were conducted with the patient in the lithotomy position, while under spinal anaesthesia. Patients underwent a follow-up examination while under anaesthesia to verify the severity of their haemorrhoids and to exclude any related anal conditions such as anal fissure and fistula in ano.

The Milligan Morgan technique of open haemorrhoidectomy involves the insertion of a Hill-Ferguson retractor into the anal canal to expose the full range of the haemorrhoids. Next a clamp is put including the vascular cushion to be removed together with any skin tag. The excision was performed using either a scalpel, scissors, or electrocautery. The surgical cut should extend beyond the boundary of the anus and towards the upper part of the anal canal in order to encompass the networks of blood vessels associated with haemorrhoids. The internal sphincter is deliberately separated from the dissection plane. Following a thorough dissection and mobilisation of the haemorrhoid pedicle, an absorbable suture ligature is applied and the haemorrhoid is removed. Hemostasis is accomplished with electrocautery or sutures. A tiny dressing is put following wound washing.

The colon is prepared for suture hemorrhoidopexy by consuming only oral liquids for a period of 24 hours. This includes taking 30 ml of lactitol every 6 hours. During saddle block or spinal anaesthesia, the patient is placed in the lithotomy position with the head lowered. This positioning is beneficial for lowering the size of haemorrhoids in instances classified as grade 2, 3, and 4. Additionally, it helps to restore lax mucosal and submucosal tissues to their natural position. The anal canal is liberally greased with a copious amount of jelly and then rubbed. The sim's speculum is employed to compress and elevate the piles masses, ultimately repositioning the lax mucosal and submucosal layers, which contain blood arteries. A proctoscope equipped with a self-illuminated slit and a sliding valve is utilised. The sliding plate has been extracted. The dentate line and swollen mucosa are observed. The lax mucosa and submucosa are affixed to the underlying rectal muscles by suturing small portions of tissue measuring 0.5 - 1 cm. The sutures are inserted through the entire thickness of the mucus, submucosa, and a portion of the muscle. The procedure begins at the three o'clock position, approximately 4 cm above the dentate line. A 2/o polyglactin is utilised for the stitch, which is done with a 30 mm half circle needle that is designed to be gentle and minimise tissue damage. Precautions are made to ensure that the stitch does not penetrate the rectal wall, but instead only targets a portion of the rectal muscle. The initial stitch is secured, and the subsequent stitch is commenced with a 1-2mm overlap onto the termination point of the previous stitch, ensuring a double lock. Double locking is employed for each stitch to prevent the occurrence of a purse string effect. If bleeding occurs, single locking is performed intermittently at the positions of 3, 7, and 11 o'clock. The suturing is performed continuously around the entire perimeter of the rectum at the same level. The second circular stitching is finished at a distance of 2 centimetres from the dentate line. Both suture lines are positioned superior to the dentate line, resulting in minimal or no postoperative pain. The procedure involves implementing only two suturing lines around the rectal wall, positioned 2 and 4 cm proximal to the dentate line.

Statistical Methods

The current study has conducted a descriptive statistical analysis. Significance was evaluated at a

5% level of significance using a two-tailed, independent Student t test. This test was used to determine the significance of the study parameters on a continuous scale in a parametric condition between two groups. The study employed intergroup analysis using the Mann Whitney U test, a two-tailed, dependent test, to determine the significance of study parameters on a continuous scale in a non-parametric condition within each group. The Chi-square/Fisher Exact test was employed to determine the statistical significance of the study parameters on a categorical scale between two groups.

RESULTS

A comparative study was conducted on sixty patients, divided into two groups: 30 patients underwent suture hemorrhoidectomy, while the other 30 underwent traditional hemorrhoidectomy. The purpose of the study was to examine the short-term outcomes of these procedures.

Age

Among the 30 patients in the Suture Hemorrhoidectomy group, 24% were between the ages of 21 and 30, 31% were between the ages of 31 and 40, 33% were between the ages of 41 and 50, 11% were between the ages of 51 and 60, and 2% were over the age of 60.

Within the open Hemorrhoidectomy group, 25% of individuals were between the ages of 21 and 30, 25% were between the ages of 31 and 40, 28% were between the ages of 41 and 50, 11% were between the ages of 51 and 60, and 4% were over the age of 60. The average age of the patients was 39.69±11.03 years in the suture hemorrhoidopexy group and 39.2±10.22 years in the open hemorrhoidectomy group. [Table 1]

Gender

In suture hemorrhoidopexy group, 53% were males and 46% were females. In open hemorrhoidectomy group 63% were males and 39% were females. [Table 2]

Grade of Disease

In the suture hemorrhoidopexy group, 48% of patients had Grade 3 haemorrhoids and 51% had Grade 4 haemorrhoids. In the conventional hemorrhoidectomy group, 46% had Grade 3 haemorrhoids and 53% had Grade 4 haemorrhoids.

Duration of Surgery

Among the patients who received suture hemorrhoidopexy, 10 individuals had surgery that lasted between 20 and 30 minutes, while the other 10 had surgery that lasted longer than 45 minutes. Within the traditional hemorrhoidectomy group, 25 patients underwent surgery within a duration of 20 to 30 minutes, while the remaining 5 patients experienced surgery lasting longer than 45 minutes.

Table 1: Comparison of age distribution of patients studied

Age in years	SUTURE		OPEN		TOTAL	
	No	%	No	%	No	%
21-30	7	24.4	9	31.1	25	27.8
31-40	9	31.1	7	24.4	25	27.8
41-50	10	33.3	9	28.9	28	31.0
51-60	4	11.1	3	11.1	10	11.1
>60	0	0.0	2	4.4	2	2.1
Total	30	100.0	30	100.0	60	100.0
Mean ±SD	39.69±9.49		39.02±11.03		39.36±10.22	

Table 2: Comparison of gender distribution of patients studied

Gender	SUTURE		CONVENTIONAL		TOTAL	
	No	%	No	%	No	%
Male	16	53.3	22	73.3	38	63.3
Female	14	46.7	8	26.7	22	36.7
Total	30	100.0	30	100.0	60	100.0

Table 3: Comparison of grade of disease of patients studied

Grade	SUTURE.		CONVENTIONAL		TOTAL	
	No	%	No	%	No	%
Grade 3	14	48.9	13	46.7	27	47.8
Grade 4	16	51.1	17	53.3	33	52.2
Total	30	100.0	30	100.0	60	100.0

Table 4: Represents the operative duration of the surgery

		Surgery		Total
		Suture Hemorrhoidopexy	Open Hemorrhoidectomy	
Operative Duration	<45 min	10	25	35
	>45 min	20	5	25
Total	30	30		
Mean (Mins)	53.7667	37.0000		

Table 5: Represents the post-surgery findings of the patients

Post-Surgery Findings	Suture hemorrhoidopexy		Open hemorrhoidectomy	
	Present	Absent	Present	Absent
Post-Operative bleeding	5	25	12	18
Post-Operative urinary retention	4	26	11	19
Post-Operative sphincter spasm	1	29	12	18
Post-Operative Fever	2	28	8	22
Post-Operative Anal Stretch	0	30	10	20

Table: 6 Represents the comparison of duration of hospital stay in days

Duration of hospital stay in days	Suture hemorrhoidopexy	Open hemorrhoidectomy
> 2 days	22	14
< 2 days	8	16

Table: 7 Represents the long term follow up of the patients

	Suture hemorrhoidopexy		Open hemorrhoidectomy	
	Present	Absent	Present	Absent
Recurrence after long term follow up	5	25	12	18
Anal Structure after long term follow up	0	30	8	22

Table: 8: Represents the comparison of time taken to return to work in days in two groups

Return to work in days	Suture hemorrhoidopexy	Open hemorrhoidectomy
> 7 days	15	0
< 7 days	15	30

DISCUSSION

This was a hospital-based study conducted in the Department of General Surgery, Osmania General Hospital, Hyderabad, Telangana, India during span of two years from November 2019 to November 2021.The study was a prospective comparison between standard Milligan Morgan haemorrhoidectomy and Suture haemorrhoidopexy for treating grade 3 and 4 haemorrhoids.

We enrolled sixty individuals who met the criteria for our study and were receiving surgery for haemorrhoids. Among the 30 patients in the Suture Hemorrhoidectomy group, 24% were between the ages of 21 and 30, 31% were between the ages of 31 and 40, 33% were between the ages of 41 and 50, 11% were between the ages of 51 and 60, and 2% were over the age of 60. Within the open Hemorrhoidectomy group, 25% of individuals were between the ages of 21 and 30, 25% were between the ages of 31 and 40, 28% were between the ages of

41 and 50, 11% were between the ages of 51 and 60, and 4% were over the age of 60.

The average age of the patients was 39.69±11.03 years in the suture hemorrhoidopexy group and 39.2±10.22 years in the open hemorrhoidectomy group. According to a study conducted by Shalaby R and Desoky A, the average age of patients in the stapled group was 44.1 years with a standard deviation of 3.2, while in the open group, the average age was 49.1 years with a standard deviation of 12.2. The study conducted by Khan NF et al reported a mean age of 40.7±11.6 years.[7]

Among the participants in the open haemorrhoidectomy group, 63% were male and 36% were female. In suture haemorrhoidopexy, 53% of the patients were male and 46% were female. In our study, 48% of patients in both groups had grade 3 haemorrhoids, while 52% had grade 4 haemorrhoids. A study conducted by Khan NF et al revealed that the majority of patients (53.3%) had third degree haemorrhoids.[7]

The average duration of surgery is 53 minutes for suture hemorrhoidopexy and 37 minutes for conventional hemorrhoidectomy. Therefore, conventional hemorrhoidectomy requires less time for surgery compared to hemorrhoidopexy (p-value 0.000086). Mastakov et al,[8] discovered a comparable outcome regarding the average length of surgery, which was approximately 27.4 minutes, for a group of 27 patients who underwent open hemorrhoidectomy. In their study, Bhagwat VM et al (2017),[9] reported a comparable operating length of 49.80 minutes for a group of 50 patients who underwent standard open hemorrhoidectomy, which aligns with the findings of our investigation. On day 0, 60% of patients who had suture hemorrhoidopexy surgery experienced bowel movements, but only 33.33% of patients who had standard hemorrhoidectomy had bowel movements. Patients who undergo conventional hemorrhoidectomy experience more pain during the post-operative period compared to those who undergo a different procedure. Consequently, patients who have undergone this alternative procedure are able to pass stool more readily on the same day as the surgery.

Therefore, suture hemorrhoidopexy is superior to standard hemorrhoidectomy in terms of defecation on the first day. The management of postoperative pain according to the criteria established by the French Anaesthesia Society. The evaluation of pain was conducted via a visual analogue scale (VAS). The objective was to maintain the VAS score below 3 by implementing appropriate analgesics, following the pain management standards established by the World Health Organisation (WHO). The occurrence of postoperative pain (VAS score >2) was observed in 80% of patients who underwent conventional hemorrhoidectomy, while only 40% of patients who underwent suture hemorrhoidopexy experienced the same (p value 0.001565). These findings indicate that postoperative pain is more prevalent in patients who have conventional hemorrhoidectomy compared to those who undergo suture hemorrhoidopexy. The primary disadvantage in the traditional hemorrhoidectomy group is the presence of postoperative discomfort. Therefore, suture hemorrhoidopexy is increasingly being recognised as a generally acceptable surgery that results in higher levels of patient satisfaction. Our findings align with the study conducted by Adil Shaker in 2018, where out of 190 patients, 80.1% experienced moderate to severe pain after the operation.[10]

The occurrence of pain during defecation was 43.33% in patients who underwent suture hemorrhoidopexy, while it was 80% in individuals who underwent standard hemorrhoidectomy (p value 0.001305). Therefore, suture hemorrhoidopexy is superior to open hemorrhoidectomy in terms of reducing postoperative pain during defecation. Sieleznef et al. (2014) found that patients who underwent traditional hemorrhoidectomy experienced increased postoperative pain after their first bowel movement at 12 hours, 24 hours, and 7 days after the treatment. (195 patients).[11]

Post-operative bleeding

A comparative and statistical analysis was conducted, revealing a bleeding incidence of 16.64% in the suture hemorrhoidopexy group, compared to 40% in the hemorrhoidectomy group (p value 0.041193). The mean blood loss in suture hemorrhoidopexy is superior to standard hemorrhoidectomy in terms of bleeding, since it exhibits less intraoperative bleeding and a lower likelihood of postoperative bleeding. In traditional hemorrhoidectomy, it is believed that the cause is the premature detachment of the tied-off blood vessel before sufficient blood clotting can place in the supplying artery. Possible options include returning to the operating theatre for suture ligation or using tamponade at the bedside through Foley's catheter or anal packing. Due to the absence of this element in suture hemorrhoidopexy, there is a lower occurrence of bleeding during and after the operation. Due to the absence of this element in Suture hemorrhoidopexy, there is a reduced occurrence of bleeding during and after the operation. This discovery bears resemblance to the study conducted by Adil Saker,[10] wherein a 56% occurrence of postoperative haemorrhage was observed in the open hemorrhoidectomy group. Moh. Shies conducted a study on 45 patients, where postoperative bleeding occurred in 77.7% of patients who underwent traditional hemorrhoidectomy, which aligns with our findings. Bhagvat VM et al (2017) reported a comparable outcome of an average blood loss of 76.8 ml in the open hemorrhoidectomy operation.[9]

Post-operative urinary retention

A comparison and statistical analysis were conducted, revealing a 13.33% incidence of urine retention in Group A, in contrast to 36.67% in Group B (P value 0.036888). Therefore, suture hemorrhoidopexy is superior to standard hemorrhoidectomy due to its lower likelihood of causing urine retention. This problem may occur as a

result of postoperative discomfort or the impact of spinal anaesthesia. Therefore, more assessment and investigations are necessary to evaluate this complication by avoiding spinal anaesthesia and administering regional perianal block/pudendal block. Other recommendation is foley catheterization preoperatively, and removed on first postoperative day. Bhagvat VM et al (2017) conducted a study on 50 patients who underwent conventional hemorrhoidectomy and discovered that 16.6% of them experienced postoperative urine retention.[9] Neeralagi CS et al (2017) reported a 23.33% occurrence rate of urine retention in the traditional hemorrhoidectomy group, which aligns with the findings of our study. According to a study conducted by Chik B et al, the occurrence rate of urine retention after traditional haemorrhoidectomy was 15.2%.[13]

Post-operative sphincter spasm

A comparative statistical analysis was conducted, revealing a sphincter spasm incidence of 3.34% in Group A, in contrast to 40% in Group B (P value 0.000567). The primary causative element for sphincter spasm is pain. Due to the increased pain associated with the typical hemorrhoidectomy technique, there is a higher occurrence of postoperative sphincter spasm. In the study conducted by Lohsiriwat et al (2012), it was shown that there was a 28% occurrence of sphincter spasm during the open haemorrhoidectomy technique. The discovery bears resemblance to our investigation.[14]

Anal stricture Comparative statistical analysis revealed a complete absence of anal stricture in Group A, in contrast to a 33.33% incidence in Group B. Regarding postoperative anal stricture, suture hemorrhoidopexy is significantly superior to traditional hemorrhoidectomy. The usual flexible outer layer of the rectum is replaced by scar tissue as a result of excessive removal of the outer layer and the inner layer of the rectum. Dietary adjustments are effective in treating mild stricture. Regular bowel movements offer the most inherent form of stretching. Lateral sphincterotomy or flap surgery are effective treatments for managing moderate to severe strictures. In their study, Lohsiriwat et al (2012) discovered that the standard method of performing hemorrhoidectomy resulted in a 6% occurrence of anal stricture after surgery.[14]

Duration of hospital stay

The data was subjected to comparison and statistical analysis. 46.67% of patients were discharged within 2 days in the conventional hemorrhoidectomy group, while 73.33% of patients were discharged in the Suture hemorrhoidopexy group (P value 0.035015). Suture hemorrhoidopexy has a shorter hospitalisation period compared to standard hemorrhoidectomy, allowing patients to resume their normal activities sooner. In a study conducted by Shantikumar Chivate et al., it was noted that the milligon morgan operation is quite painful and necessitates 3-5 days of hospitalisation and sedation. Due to its lower level of pain, suture hemorrhoidopexy necessitates a shorter hospital stay.[15] According to Neeralagi CS et al (2017), the average duration of hospitalisation for 120 patients who underwent traditional hemorrhoidectomy is 4.1 days, which aligns with the findings of our study.[12]

The incidence of recurrence on long-term follow-up was compared and statistically evaluated. The results showed that Group B had a recurrence rate of 6.67%, while Group A had a recurrence rate of 40% (P value 0.002271). Suture hemorrhoidopexy surpasses traditional hemorrhoidectomy in terms of long-term outcomes, since it exhibits lower rates of long-term recurrence and higher levels of patient satisfaction. The primary objective of traditional hemorrhoidectomy is to minimise the excision of skin and perianal mucosa in the anal canal, which connects the two removed haemorrhoids, in order to prevent the development of stricture. Pedicel ligation is performed to block the blood flow in the upper part of the anal cushions in order to treat haemorrhoids. Subsequently, the smaller branches of the tied blood vessels undergo dilation and form new connections with the blood vessels in the surrounding tissue. This process has the potential to contribute to the recurrence of the condition, which occurs in approximately 18-25% of cases. Chivate's approach involves the occlusion of blood vessels at two specific locations, spaced 2 cm apart. This technique effectively minimises the likelihood of collateral formation and recurrence. Recurrences observed in the suture hemorrhoidopexy group may be attributed to insufficient suture bite (inadequate mucorectopexy) or the initial learning curve. The technique relies on the individual's level of ability. In their study, Sakr et al. (2009) observed a recurrence rate of 9.16% in open procedures.[16]

CONCLUSION

In this study, we examined the benefits and drawbacks of suture hemorrhoidopexy and open hemorrhoidectomy in 60 patients over a 24-month period. We ensured the safety of the patients throughout the trial. We have identified both the benefits and drawbacks of both strategies. Therefore, it was determined that suture hemorrhoidopexy is a secure procedure with numerous immediate advantages. This procedure is unique and has emerged as a viable alternative to open hemorrhoidectomy.

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