



OPTIMIZING HEMORRHOIDAL SURGERY OUTCOMES: CHIVATE'S PROCEDURE CUTS RECURRENCE SIGNIFICANTLY

General Surgery

Dr Pramod Kumar Sah

Associate Professor, Dept. Of General Surgery Darbhanga Medical College, Darbhanga

Dr Sunil Kumar

Associate Professor, Dept. Of General Surgery RDJM Medical College, Turki, Muzaffarpur

Md Sohail Ahmad*Associate Professor, Dept. Of General Surgery Madhubani Medical College, Madhubani
*Corresponding Author

ABSTRACT

Background: Hemorrhoids, or anorectal vascular cushions, become symptomatic when they enlarge or prolapse, causing bleeding, mucous discharge, itching, pain, and prolapse. The objective of this study is to assess the effectiveness of the Chivate procedure compared to Longo's technique, focusing on key outcomes such as operative time, post-operative pain, complication rates, return to normal activity, and recurrence. The Chivate procedure, with its minimally invasive approach, aims to enhance patient recovery and reduce recurrence by precisely restoring the anatomical structure of the hemorrhoidal cushions. **Material And Methods:** In this prospective comparative study, conducted at Darbhanga Medical College from August 2023 to July 2024, a total of 50 patients with clinically diagnosed second, third, or fourth-degree haemorrhoids were enrolled and surgically treated. The patients were randomized into two groups: Group A (n=25), in which Chivate's procedure was performed, and Group B (n=25), in which Longo's Stapled Hemorrhoidopexy was conducted. Postoperative assessments were carried out at 12, 24, and 48 hours to monitor early recovery metrics, while follow-up evaluations at 2, 4, and 8 weeks, extending up to 6 months, enabled a systematic comparison of both procedures concerning operative time, postoperative pain, complication rates, recovery to normal activities, and recurrence rates. **Statistical Analysis:** Data analysis was conducted using standard statistical methods with SPSS software (version 200). Comparative evaluations between the two groups were performed using the Chi-Square Test, with statistical significance defined at a P-value of <0.05. **Results:** The Chivate technique (Suture Rectopexy) demonstrated reduced postoperative pain, as measured by the Visual Analogue Scale, along with shorter operative times, fewer days of hospitalization, and a quicker return to normal activities. The Longo technique (Stapled Hemorrhoidopexy) yielded similar results in these areas. While there were no significant differences in postoperative complications between the two procedures, the recurrence rate was lower in the Chivate technique. Specifically, 7 cases of recurrence were noted following Longo's procedure, compared to only 3 cases after the Chivate procedure. **Conclusion:** Several surgical techniques are employed in the management of haemorrhoids. However, our study indicates that the Chivate procedure (Suture Rectopexy) offers superior clinical outcomes compared to the Longo procedure (Stapled Hemorrhoidopexy), particularly in terms of minimizing recurrence rates and achieving better aesthetic results. While both procedures exhibit comparable postoperative recovery profiles, the Chivate technique demonstrates a significant advantage in reducing recurrence, making it a more efficacious option for the long-term management of hemorrhoidal disease.

KEYWORDS

Haemorrhoids; Recurrence; Piles; Complications; Suture (Chivate's) Rectopexy; Stapled (Longo's) Haemorrhoidopexy.

INTRODUCTION

Haemorrhoids are pathological engorgements of the vascular cushions in the anal canal, which play a critical role in maintaining anal continence by facilitating the closure of the internal anal sphincter. When these cushions become distended or inflamed, they may manifest as clinical symptoms including rectal bleeding, pain, prolapse, and pruritus.(1) Haemorrhoids are categorized into three primary types: internal, external, and interno-external, based on their anatomical location and presentation.

- **Internal Haemorrhoids:** These arise from the subepithelial vascular plexus above the dentate line. They are classified into four degrees based on the extent of prolapse:
- **Grade I:** Haemorrhoids that do not prolapse but are visible on anoscopy.
- **Grade II:** Haemorrhoids that prolapse during defecation but spontaneously reduce.
- **Grade III:** Haemorrhoids that prolapse and require manual reduction.
- **Grade IV:** Haemorrhoids that are irreducible and often cause significant pain and discomfort.
- **External Haemorrhoids:** These develop below the dentate line from the perianal vascular plexus and are covered by skin. They can present as lumps around the anus and may become thrombosed, causing acute pain.
- **Interno-external Haemorrhoids:** These involve a combination of both internal prolapse and external swelling, resulting in a more complex condition requiring surgical intervention.

The treatment of hemorrhoids depends on the degree of prolapse and the severity of symptoms. Conservative management is usually effective for first- and second-degree hemorrhoids, whereas third- and fourth-degree cases often require surgical intervention. Conservative treatments include dietary changes, such as increasing fiber intake, and using stool softeners to prevent constipation and straining. Sitz baths,

pain relief medications, and lifestyle adjustments like regular exercise and avoiding prolonged sitting are also advised, especially for Grade I and II hemorrhoids.(2) For cases that do not improve with conservative measures, surgical options like band ligation, sclerotherapy, infrared laser coagulation, cryotherapy, and radiofrequency ablation may be considered.

Chivate's procedure (Transanal Suture Rectopexy) is an advanced surgical technique used for the management of Grade III and IV hemorrhoids.(3) In this procedure, prolapsed hemorrhoidal tissue is carefully repositioned and sutured back into its original anatomical location in the anal canal. The process involves the use of absorbable sutures to fix the prolapsed tissue to the surrounding structures, effectively restoring the normal anatomy of the anal canal and preventing further prolapse. This technique ensures precise correction of the prolapsed hemorrhoidal mass, leading to a lower recurrence rate and fewer complications compared to other procedures. Additionally, Chivate's procedure offers superior long-term outcomes, with a faster recovery time and a significant reduction in postoperative complications, including less pain and reduced risk of infection. The procedure's precision in addressing the underlying prolapse contributes to its efficacy and lower recurrence rate.

In contrast, Longo's procedure (Stapled Hemorrhoidopexy) is a minimally invasive technique where a circular stapler is used to excise a portion of the mucosa located above the dentate line and then reattach the remaining tissue.(4) This technique aims to lift the hemorrhoidal tissue and restore it to its normal position while reducing the hemorrhoidal mass. Longo's procedure is preferred for its reduced operative time and minimal postoperative pain, offering faster recovery and a lower rate of complications compared to traditional hemorrhoidectomy.(5) However, it has been associated with a higher recurrence rate and certain risks, such as stapler-related injuries, mucosal prolapse, and potential bleeding. The stapler's cutting and

stapling mechanism can occasionally cause injury to the anal canal or lead to incomplete excision of the hemorrhoidal tissue, contributing to complications. While Longo's technique has a higher initial success rate, its long-term results are often less reliable compared to Chivate's procedure. Therefore, Chivate's procedure is often considered the superior option.

This study focused on comparing two surgical techniques—transanal suture rectopexy (Chivate's procedure) and stapled hemorrhoidopexy (Longo's procedure)—for treating second-, third-, and fourth-degree hemorrhoids. The comparison was based on postoperative pain, complications, hospital stay duration, return to normal activities, patient compliance, and recurrence rates.

MATERIALS AND METHODS

This prospective comparative study was carried out at Darbhanga Medical College between August 2023 and July 2024. The study involved the enrollment of 50 patients who were clinically diagnosed with hemorrhoids. Prior to the commencement of the study, ethical approval was obtained from the institutional review board to ensure that all procedures followed ethical guidelines and patient safety protocols. The study aimed to evaluate and compare the outcomes of different surgical treatments for hemorrhoids, focusing on patient recovery, complication rates, and long-term effectiveness.

Selection Criteria

Inclusion Criteria:

- 1. Patients with Grade II, III, or IV hemorrhoids associated with mucosal prolapse involving two or more masses.
- 2. Circumferential hemorrhoids.
- 3. Age range of 18 to 70 years.

Exclusion Criteria:

- 1. Patients with gangrenous or thrombosed hemorrhoids.
- 2. Patients with co-morbid conditions or associated gastrointestinal diseases.
- 3. Patients who were unwilling to participate in the study or unfit for surgery.

The participants were thoroughly evaluated through clinical history, examination, and proctoscopy. They were then randomly assigned to two groups: Group A, which underwent **Chivate's procedure (Transanal Suture Rectopexy)** with 25 patients, and Group B, which underwent **Longo's procedure (Stapled Hemorrhoidopexy)** with another 25 patients.

In **Chivate's procedure**, the rectal mucosa and submucosa are transfixated to the entire circumference of the anal canal in two rows, positioned 2 cm and 4 cm distal to the dentate line. This technique effectively prevents the prolapse of the anal cushions by fixing the tissue securely in place. The procedure provides precise correction of the prolapse, leading to lower recurrence rates, fewer complications, and quicker recovery. The minimal tissue removal ensures that anal function is preserved, making it a reliable choice for advanced hemorrhoidal disease.

In **Longo's procedure**, a circular stapler is used to excise a portion of the excess rectal mucosa above the dentate line. The remaining tissue is then reattached using a row of staples to prevent prolapse. The technique is minimally invasive, offers shorter operative time, and results in less postoperative pain. However, Longo's procedure is associated with a higher recurrence rate and potential complications, such as stapler-related injuries, mucosal prolapse, and bleeding.

The Outcomes Of Both Procedures Were Compared Based On Several Parameters:

- 1. Operating time (in minutes)
- 2. Intraoperative complications (e.g., bleeding, hematoma)
- 3. Postoperative complications (e.g., pain, urinary retention, mucosal prolapse)
- 4. Duration of hospital stay
- 5. Resumption of normal activities

All patients were followed up for up to six months to assess long-term complications and recurrence.

Statistical Analysis:

The data obtained were analyzed using SPSS software (version 200).

Descriptive statistics, including means and standard deviations, were used to summarize the demographic characteristics and outcomes. To assess differences between the two groups (Chivate's procedure vs. Longo's procedure), the Chi-square test was employed for categorical variables, and continuous variables were analyzed using either parametric or non-parametric tests, depending on the distribution of the data. A p-value of less than 0.05 was considered indicative of statistical significance.

RESULTS

In this comparative study, a total of 50 patients were included, with 25 patients assigned to Group A and 25 to Group B.

Table 1: Sex Incidence And Mean Value

Sex	Chivate's Procedure (No. of Cases = 25)	Percent age	Longo's Procedure (No. of Cases = 25)	Percent age
Females	6	24.00%	5	20.00%
Males	19	76.00%	20	80.00%
Chi-Square	0.200			
P-value	0.65			

The study group consisted of 39 males and 11 females. Of the 39 males, 19 underwent suture rectopexy, while 20 received stapled haemorrhoidopexy. Among the 11 females, 6 had suture rectopexy and 5 underwent stapled haemorrhoidopexy.

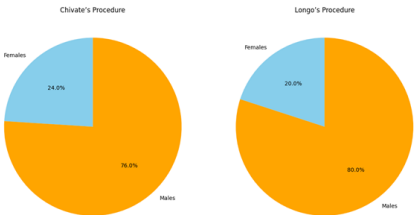


Table 2: Comparative Pre-operative symptoms and signs in both groups

Signs and Symptoms	Chivate's Procedure (No. of Cases = 25)	Percentage	Longo's Procedure (No. of Cases = 25)	Percentage	Chi-Square	P-Value
Bleeding	8	32%	9	36%	0.14	0.711
Pain	9	36%	10	40%	0.06	0.808
Mucus Discharge	14	56%	15	60%	0.08	0.779
Itching	8	32%	10	40%	0.27	0.601
Prolapse	10	40%	9	36%	0.09	0.764
II Degree Haemorrhoids	6	24%	7	28%	0.05	0.825
III Degree Haemorrhoids	4	16%	4	16%	0.00	1.00
IV Degree Haemorrhoids	5	20%	5	20%	0.00	1.00

The patients exhibited similar signs and symptoms prior to surgery, and this difference was found to be statistically insignificant. The patients exhibited similar signs and symptoms prior to surgery, and this difference was found to be statistically insignificant.

Table 3: Distribution of cases according to the number of haemorrhoids

Number of Haemorrhoids	Chivate's Procedure (No. of Cases = 25)	Percentage	Longo's Procedure (No. of Cases = 25)	Percentage	Chi-Square	P-Value
2 Haemorrhoids	5	20%	2	8%	2.299	0.318
3 Haemorrhoids	6	24%	3	12%		
>3 Haemorrhoids	14	56%	20	80%		

The difference in the number of haemorrhoids between Chivate's and Longo's procedures does not have a statistically significant impact.

Table 4: Comparative Parameters And Mean Values In Both Groups

Parameter	Chivate's Procedure	Longo's Procedure
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	Mean	SD	Mean	SD
Age (in years)	51.2	8.927	48.3	10.276
Duration of symptoms (in months)	31.8	8.732	34.5	9.874
Operative time (in minutes)	33.6	2.158	34.9	2.311
Duration of hospitalization (days)	2.0	1.053	1.93	0.765

In this study, the average age of patients in the Chivate procedure group was 51.2 years, while in the Longo procedure group, it was 48.3 years, with an overall mean of 49.8 years. The operative times for both procedures were quite similar, with the Chivate procedure averaging 33.6 minutes and the Longo procedure averaging 34.9 minutes, showing only a minimal difference. The hospital stay for the Chivate procedure was slightly longer, with an average of 2.0 days, compared to 1.93 days for the Longo procedure, though this difference was negligible.

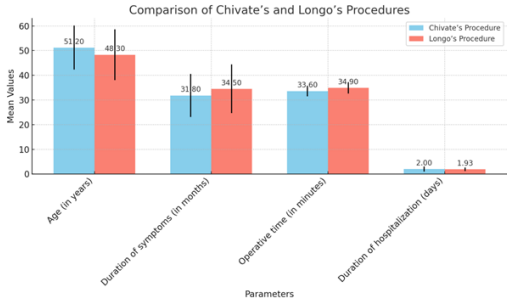


Table 5: Comparative Post-operative Complications In Both Groups

Post-operative Complications	Chivate's Procedure (Group A)	Longo's Procedure (Group B)
Total No. of Cases Operated	25	25
Bleeding	2 (8%)	4 (16%)
Prolapse	2 (8%)	4 (16%)
Pain & Urinary retention	3 (12%)	5 (20%)
Chi-Square	2.76	
P-value	0.61	

No statistically significant difference was observed between the two procedures regarding post-operative bleeding, prolapse, pain, or urinary retention.

Table 6: Comparison Of Patients Compliance In Both The Procedures

Compliance of the Patient Following Surgery	Chivate's Procedure (Group A)	Longo's Procedure (Group B)	Chi-Square	P-value
Total No. of Cases Operated	25	25	4.32	0.115
Good	8 cases (32%)	12 cases (48%)		
Very Good	7 cases (28%)	6 cases (24%)		
Better	10 cases (40%)	7 cases (28%)		

Chivate's Procedure (Group A) demonstrated better compliance in 40% of patients, compared to 28% in Longo's Procedure (Group B), although no statistically significant difference was observed.

Table 7: Long Term Complications On Follow Up

Recurrence	Chivate's Procedure (Group A)	Longo's Procedure (Group B)	Chi-Square	P-value
No. of Cases	25	25		
Recurrence	3 cases (12%)	7 cases (28%)	4.000	0.045: Significant
Recurrence of External Pile Mass in 4 Weeks	1 case (4%)	3 cases (12%)	2.500	0.042: Significant

In the present study, Chivate's procedure (Group A) exhibited a lower recurrence rate of 12%, with 3 cases of recurrence, compared to 28% in Longo's procedure (Group B), where 7 cases of recurrence were observed.

DISCUSSION

This prospective comparative study aimed to assess the effectiveness and outcomes of Chivate's procedure versus Longo's procedure in the treatment of haemorrhoidal diseases. Key parameters such as post-operative complications, recovery time, hospital stay duration, and patient compliance were the primary focus of the study. A total of 50 patients participated, with 25 undergoing Chivate's procedure and 25 receiving Longo's procedure.

In 1998, during the Endoscopy meeting held in Rome, Dr. Antonio Longo introduced the circular stapling technique as a revolutionary approach for the treatment of Grade II, III, and IV haemorrhoids. This procedure, known as stapled haemorrhoidopexy,(6) was found to yield favorable post-operative outcomes when compared to the traditional open surgical methods such as the Milligan & Morgan procedure. The success of Longo's technique was marked by reduced complications and quicker recovery times, positioning it as an effective alternative to more invasive surgical options for haemorrhoidal treatment.

Later, in 2012, Dr. Shanthi Kumar D. Chivate advanced the field further by presenting the concept of Transanal Sutured Rectopexy, also referred to as Haemorrhoidopexy. This innovative technique aimed to provide a more refined approach to managing Grade II, III, and IV haemorrhoids.(7) Through the use of suturing, Chivate's procedure demonstrated superior post-operative outcomes, including fewer complications and faster recovery, when compared to the traditional Milligan & Morgan surgery. This procedure offered an effective solution with enhanced patient recovery and fewer recurrence rates, making it a viable alternative to both open and stapled techniques.

In this study, the average duration of surgery was 34.25 minutes, with a minor variation between the two groups. For Group A, which underwent Chivate's procedure, the mean operative time was 33.6 minutes, while Group B, which underwent Longo's procedure, had a mean time of 34.9 minutes. These findings align with those of Daniel R et al., who noted comparable surgical durations for stapler haemorrhoidopexy. Additionally, Dinesh Prasad et al. reported longer surgical times of 53 minutes for the stapler group (Group A) and 37 minutes for the suture group (Group B), highlighting the shorter operative time associated with suture rectopexy.

In terms of post-operative bleeding, Chivate's procedure demonstrated a lower incidence compared to Longo's procedure. In our study, Group A (Chivate) had 2 cases of bleeding (8%), while Group B (Longo) had 4 cases (16%), indicating a clear advantage for Chivate in reducing bleeding complications. Similarly, Gravies J F et al. found that Chivate's procedure had a slightly lower risk, with only 3% of patients experiencing significant bleeding, compared to 8% in the Longo group. Furthermore, Mohan SV et al. reported a significantly lower bleeding rate in the Chivate group (7%) compared to the Longo group (14%), supporting the effectiveness of Chivate's technique in minimizing bleeding risks.(8)

In terms of post-operative pain and urinary retention, our study found that 3 patients (12%) in Group A (Chivate's procedure) and 5 patients (20%) in Group B (Longo's procedure) experienced these complications. This aligns with findings from Mohan SV et al. who reported a higher incidence of pain and urinary retention in Longo's group compared to Chivate's. Gravies J F et al. and Bhandari R S et al. also noted increased post-operative pain with Longo's procedure, attributing it to tissue manipulation and stapler use. Similarly, Daniel R et al. and Nisar PJ et al. found that Chivate's procedure was associated with fewer incidents of urinary retention, suggesting it may be less traumatic to pelvic structures. These findings support the notion that Chivate's procedure may offer advantages in minimizing post-operative pain and urinary retention.(9)

Our study found that Chivate's procedure resulted in higher patient satisfaction and compliance compared to Longo's procedure. In Group A (Chivate), 40% of patients reported "better" compliance, whereas only 28% in Group B (Longo) expressed similar satisfaction. This aligns with findings by Gravies J F et al. who observed better compliance and fewer post-operative issues in the Chivate group. Additionally, Bhandari R S et al. reported faster recovery and less discomfort in Chivate patients, contributing to improved overall compliance. These results suggest that Chivate's procedure offers better patient adherence and satisfaction.

In terms of recurrence, our study found 3 cases (12%) in Group A

(Chivate's) and 7 cases (28%) in Group B (Longo's). Supporting our findings, Giordano P et al. reported a higher recurrence rate with Longo's (30%) compared to Chivate's (14%), (10) while Mohan SV et al. observed a similar trend, with 25% recurrence in the Longo group and 15% in the Chivate group. These studies collectively confirm that Chivate's procedure results in a lower recurrence rate, suggesting better long-term efficacy in treating haemorrhoidal disease.

CONCLUSION

This study highlights the clear advantages of Chivate's procedure over Longo's procedure, particularly in terms of recurrence rates. Chivate's technique consistently demonstrated a lower risk of recurrence, reinforcing its long-term effectiveness in treating haemorrhoidal disease. In addition to a reduced risk of recurrence, Chivate's procedure also showed fewer post-operative complications, less pain, quicker recovery times, and better overall patient compliance compared to Longo's procedure. These findings suggest that Chivate's approach is not only more effective in preventing recurrence but also offers a more favorable post-operative experience. Further research with larger sample sizes and longer follow-up is needed to confirm these findings and establish Chivate's procedure as the optimal choice for haemorrhoidal treatment.

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