

ELEVATING HEMORRHOIDAL TREATMENT: EMBRACING TRANSANAL RECTOPEXY SURGERY- AN OBSERVATIONAL STUDY

General Surgery

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ABSTRACT

Background: Haemorrhoids, a known disease which causes bleeding per rectum, first described in Egyptian papyrus at around 1700BC. Haemorrhoidae originated from Greek word haimorrhoides (phlebes) "(veins) liable to discharge blood". Since centuries, a large number of treatment modalities for haemorrhoidal disease are known, but none is the ideal one. The ideal treatment was not possible without understanding the definite pathology and pathological anatomy. Intense study of pathology of haemorrhoids was carried in the last 35 years, which led to renew interest in, by which the development of innovative procedures occurred. **Aim:** The aim of this study is to assess safety, pain and effectiveness of a new procedure Transanal Rectopexy in hemorrhoids Surgery. **Methods:** Between January 2023 and March 2024, a study was conducted at KPCMCH involving 73 symptomatic patients with grade II, III, and IV hemorrhoids. Patients with thrombosed hemorrhoids were excluded. The procedure used, trans anal suture rectopexy for hemorrhoids, was designed by Dr. S. D. Chivate and first published in 2012. Evidence for the procedure was collected from a level one meta-analysis longitudinal prospective study. All patients underwent clinical examination and evaluation for surgery. **Study Design:** Observational Study. **Results:** A retrospective analysis encompassed the medical records of 73 individuals treated at KPCMCH from January 2023 to March 2024. Within this cohort, 46 were identified as female, while 27 were male. Every patient presented with bleeding concerns, with additional symptoms including anaemia in 21 cases, pruritus ani in 11 cases, and mucoid discharge in 13 cases. The severity of hemorrhoids varied, with 22 individuals classified as grade II, 35 as grade III, and 16 as grade IV. After surgery, approximately 2.2% of cases reported a visual analog pain score of 2 to 3, while 97.7% reported minimal pain with a score of 1 to 2. Some minor bleeding occurred during the first and second weeks in 1.9% of cases and was treated conservatively. Treatment involved continuing oral cefoperazone (0.5 gram) twice daily for 5 days and daily laxatives (lactulose 30 mL) for 15 days. Patients were pleased with the less painful procedure. **Conclusion:** Trans-anal suture mucopexy offers a simple suturing method without the need for excising anorectal tissue. It has proven efficacy across all grades of hemorrhoids, boasting minimal complications and low recurrence rates. This innovative procedure stands as an excellent treatment option for grade II to IV hemorrhoids. Patients appreciate its minimal discomfort, short hospital stays, and prompt return to normal activities.

KEYWORDS

Hemorrhoids, Transanal mucopexy, Milligan-Morgan technique, Longo's procedure, DGHL.

INTRODUCTION

Haemorrhoids, a known disease which causes bleeding per rectum, first described in Egyptian papyrus at around 1700BC¹. Haemorrhoidae originated from Greek word haimorrhoides (phlebes) "(veins) liable to discharge blood"².

It is difficult to determine how common hemorrhoids are as many people with the condition do not see a healthcare provider³. Both sexes experience about the same incidence of the condition,^[1] with rates peaking between 45 and 65 years⁴. They are more common in higher socioeconomic status⁵.

Since centuries, a large number of treatment modalities for haemorrhoidal disease are known, but none is the ideal one. The ideal treatment was not possible without understanding the definite pathology and pathological anatomy⁶. Intense study of pathology of haemorrhoids was carried in the last 35 years, which led to renew interest in, by which the development of innovative procedures occurred⁷⁻⁹.

Three anal cushions are located in relation to the superior rectal arteries at the 3, 7, and 11 o'clock positions in the lithotomy position. The primary portion of each cushion is situated just above the dentate line and is covered by sensitive mucosa. In a cross-sectional view, the area between the cushions and the internal sphincter muscles reveals the submucosal layer, which contains veins, arteries, and muscular and connective fiber tissues. The piles mass is supported by fibroelastic collagen tissue and the muscular structure of Treitz (muscularis canalis ani)¹⁰. The venous plexus, arranged in sinusoidal formations, is known as the corpus cavernosum of recti. For a successful cure of piles, special consideration must be given to the mass, prolapse, and recurrence⁷.

The pressure in the hemorrhoidal plexuses increases due to various activities such as straining during bowel movements, prolonged sitting, lifting heavy objects, obesity, and severe coughing. Straining during defecation causes the anal sphincters to relax while the portal

veins, which lack valves, become engorged. These veins exit through the seromuscular wall of the rectum and drain into the portal tributaries. During strong rectal contractions, the portal veins get trapped and blocked in the seromuscular wall. Despite this, the arterial blood supply continues, leading to progressive engorgement of the hemorrhoidal plexus and piles mass¹¹. The primary symptom of internal hemorrhoids is rectal bleeding, characterized by bright red blood. It is suggested that the internal hemorrhoid plexus functions similarly to the corpus cavernosum, with direct arteriovenous connections¹². The blood is filtered without metabolic activity, retaining its arterial nature, which is bright red and has the pH of arterial blood¹³. This vascular theory explains the increase in the size of the piles mass.

Microscopic examination revealed that the connective tissue fibers in the submucosa play a crucial role in anchoring the hemorrhoidal cushions to the internal sphincter and longitudinal muscles of the rectum. The muscular-fibroelastic supporting tissues, known as the Parks ligament, can degenerate due to familial disorders, aging, or lose elasticity from constant straining during defecation¹⁴. When the hemorrhoidal mass protrudes from the anal canal, its mucosal covering becomes fragile and bleeds easily. The principle behind newer treatments for hemorrhoids, such as stapler hemorrhoidopexy and Doppler-Guided Hemorrhoidal Artery Ligation (DGHL), is to fix these loose, prolapsing cushions.

The procedure was first introduced by Dr. Antonio Longo in 1993. Longo's technique involves shortening the prolapsed tissue and reattaching the hemorrhoidal cushions to their original position using auto-suturing above the dentate line^{15,16}. In 1995, Morinaga developed a new method for hemorrhoidal artery ligation (HAL)¹⁷. This technique uses a specially designed proctoscope equipped with a Doppler transducer to identify and ligate the hemorrhoidal arteries. By ligating these arteries, the blood inflow is reduced, thereby decreasing the internal pressure in the hemorrhoidal plexus¹⁷.

All existing procedures for hemorrhoid treatment have a recurrence

rate ranging from 18% to 60%. It is challenging to assure patients that hemorrhoids are completely curable. In all these procedures, the hemorrhoidal vessels are occluded at a single location, which is the primary cause of recurrence. When an artery is ligated, the viability of the supplied area depends on the effectiveness of collateral circulation development. This collateral circulation is an alternative pathway formed by pre-existing branches of the artery above and below the occlusion site. These branches connect through smaller vessels (mid-zone vessels) that typically resist forward flow. However, when the main vessel is occluded, the pressure drops below the blockage, allowing reversed flow into the branches below the obstruction. This results in the physical enlargement of these collaterals, facilitating increased forward flow to nourish the area distal to the obstruction^{18, 19}. The development of these collaterals is the main etiological factor for hemorrhoid recurrence in procedures that ligate vessels at a single site.

The new procedure addresses mass, prolapse, and recurrence effectively. This study presents the new procedure and compares it with the Milligan-Morgan technique, Longo's procedure, and DGHL.

MATERIALS AND METHOD

Between January 2023 and March 2024, a study was conducted at KPCMCH involving 73 symptomatic patients with grade II, III, and IV hemorrhoids. Patients with thrombosed hemorrhoids were excluded. The procedure used, trans anal suture rectopexy for hemorrhoids, was designed by Dr. S. D. Chivate and first published in 2012. Evidence for the procedure was collected from a level one meta-analysis longitudinal prospective study. All patients underwent clinical examination and evaluation for surgery.

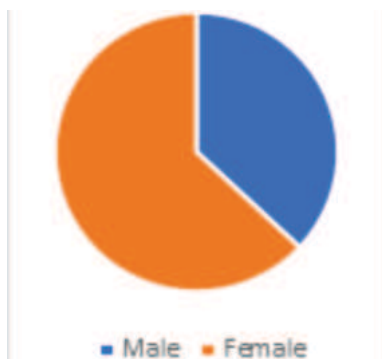
The bowel preparation involved oral liquids for 24 hours and 30 ml of lactitol every 6 hours. Under saddle block or spinal anaesthesia, patients were positioned in the lithotomy position with a steep head-down tilt. This positioning helped reduce the piles mass in grade II, III, and IV cases, allowing the lax mucosal and submucosal tissues to be repositioned upwards to their original location. The anal canal was generously lubricated with jelly and massaged.

A self-illuminated proctoscope with a sliding valve was used to visualize the dentate line and engorged mucosa. The repositioned lax mucosa and submucosa were fixed to the deeper muscles of the rectum with 0.5–1 cm stitch. These stitches were placed through the depth of the mucosa, submucosa, and part of the muscle, starting at the three o'clock position, 4 cm proximal to the dentate line, using a 2/0 polyglactin suture with an atraumatic 30 mm ½ circle needle. Care was taken to avoid passing the stitch completely through the rectal wall, only incorporating part of the rectal muscles. Each stitch was tied and the next stitch began 1–2 mm overlapping the previous one, with double locking to prevent a purse-string effect. Suturing continued circumferentially at the same level around the rectum.

A second circumferential suture line was completed 2 cm proximal to the dentate line. Both suture lines were above the dentate line, resulting in no postoperative pain. In summary, the procedure involved two circumferential suturing lines at 2 and 4 cm proximal to the dentate line in the rectal wall.

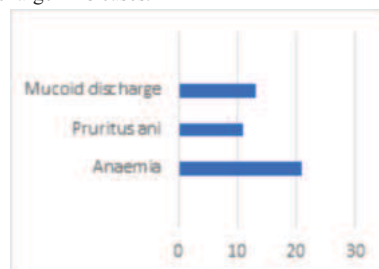
RESULTS

A retrospective observational analysis encompassed the medical records of 73 individuals treated at KPCMCH from January 2023 to March 2024. Within this cohort, 46 were identified as female, while 27 were male.

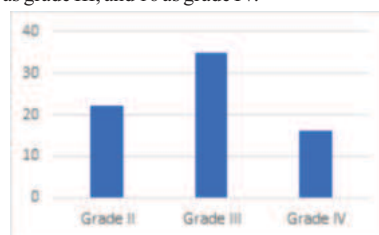


Every patient presented with bleeding concerns, with additional

symptoms including anemia in 21 cases, pruritus ani in 11 cases, and mucoid discharge in 13 cases.

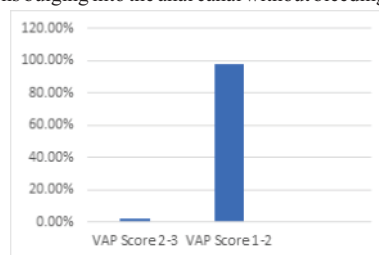


The severity of hemorrhoids varied, with 22 individuals classified as grade II, 35 as grade III, and 16 as grade IV.

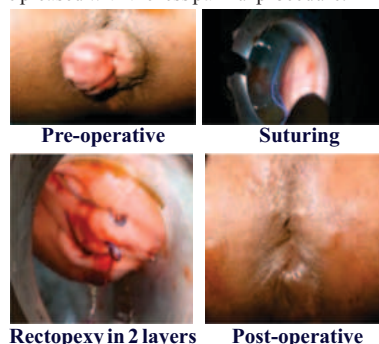


All patients were discharged within 24 hours after surgery. Hemorrhoid swelling decreased by 70% to 80% on the operating table, with further reduction occurring within 3 to 7 days. Some minor oozing was noted from mucopexy stitches in 23 patients during surgery, which was managed through manual compression with saline-soaked gauze. The anal sphincter was typically relaxed during operations, facilitating the insertion of the proctoscope. Postoperative proctoscopy conducted 1 week later revealed no signs of ischemia or stenosis between the two circumferential suture rows.

After surgery, approximately 2.2% of cases reported a visual analog pain score of 2 to 3, while 97.7% reported minimal pain with a score of 1 to 2. Some minor bleeding occurred during the first and second weeks in 1.9% of cases and was treated conservatively. Two cases report piles with cushions bulging into the anal canal without bleeding.



Treatment involved continuing oral cefoperazone (0.5 gram) twice daily for 5 days and daily laxatives (lactulose 30 mL) for 15 days. Patients were pleased with the less painful procedure.



DISCUSSION

The new procedure involves simple suturing at 2 and 4 cm levels proximal to the dentate line. These sutures are placed above the dentate line, ensuring a pain-free postoperative experience. The Milligan-Morgan procedure, introduced in 1937, involves excision of the hemorrhoid and ligation of its pedicle, but it is very painful and typically requires 3–5 days of hospitalization and sedation²⁰. Consequently, patients often avoid this surgery.

Stapled hemorrhoidectomy, developed by Longo in the 1990s, addresses prolapse through circular stapled mucosectomy 4 cm above the dentate line, resulting in a pain-free area^{15, 21}. However, the reoperation rate after this procedure is 11%, primarily due to persistent, severe anal pain²². In 1995, Morinaga introduced hemorrhoidal artery ligation (HAL), which uses a proctoscope with a Doppler transducer to identify and ligate hemorrhoidal arteries above the dentate line, also in a pain-free area¹⁷.

Traditional open hemorrhoidectomy is considered safer than stapled hemorrhoidectomy, though it can result in severe complications like sepsis, rectal perforation, retroperitoneal abscess, and severe bleeding, which may necessitate further surgery²³⁻²⁶. Procedures like Doppler-Guided Hemorrhoidal Artery Ligation (DGHL) and trans anal suture rectopexy are technically safe with fewer complications. Over the past three years, suture rectopexy has been performed on 166 cases without significant incidents, proving its safety. Minor oozing occurred in 11% of cases but was controlled by compression, and mucosal tears were noted in 3% of cases without requiring treatment²⁷.

Open hemorrhoidectomy aims to minimize the loss of skin and perianal mucosa to prevent stricture. Ligation of the hemorrhoidal pedicle occludes blood supply at the top of the anal cushions, but smaller branches can dilate and develop collaterals, leading to a recurrence rate of about 18–25%²⁸.

Stapled hemorrhoidectomy involves only mucosectomy and autosuturing without vessel ligation, leading to a recurrence of hemorrhoidal symptoms in 24.8% of cases within six months and 25.3% within a year²⁹.

Reports of failures in stapled anopexy often cite incomplete resection of prolapsed tissue due to the stapler's limited capacity³⁰. Minimal Invasive Procedure for Hemorrhoids (MIPH) shows a 1–2% recurrence of symptoms within months and 20–30% within five years, without significant pain relief. MIPH can cause functional impairment, such as incontinence and increased stool frequency, due to excision of sensitive rectal mucosa^{31,32}.

The HAL procedure has a 12% recurrence rate over 12.5 months for non-prolapsing hemorrhoids, with higher rates for grades III and IV^{17, 19}. The superior rectal artery and its branches enhance collateral development, contributing to recurrence in stapler or DGHL procedures.

Chivate's procedure blocks vessels at two sites 2 cm apart, reducing collateral development and recurrence. The uninterrupted blood supply from the seromuscular layer prevents necrosis. Chivate's rectopexy reported minimal recurrence with two cases of piles cushions bulging into the anal canal without bleeding. In suture rectopexy, the mucosa is fixed to the rectal muscles, preventing prolapse.

Conventional hemorrhoidectomy can impair continence by removing piles cushions, while stapled hemorrhoidectomy can result in fecal soiling or urgency in a significant percentage of cases. In contrast, suture rectopexy and DGHL do not excise mucosa and do not alter bowel habits or cause incontinence.

CONCLUSIONS

Trans anal suture mucopexy offers a simple suturing method without the need for excising anorectal tissue. It has proven efficacy across all grades of hemorrhoids, boasting minimal complications and low recurrence rates. This innovative procedure stands as an excellent treatment option for grade II to IV hemorrhoids. Patients appreciate its minimal discomfort, short hospital stays, and prompt return to normal activities.

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