

## Original Research Article

# Outcome of Chivates trans anal suture mucoanopexy procedure for haemorrhoids: primary findings in South Indian population

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### ABSTRACT

**Background:** This procedure is used by surgeons all across India and we offer our preliminary findings from Southern India. To the best of our knowledge, this is the first publication from the rural part of Tamil Nadu to be disclosed.

**Methods:** One of the novel methods for treating grade III and IV haemorrhoids is the Chivate's procedure (CP). Restoring lowered anal cushions to their original positions and ligation of blood flow to the anal canal are the two main components of the Chivates surgery. Haemorrhoids' engorgement, prolapse, recurrence, and discomfort are the main factors influencing how haemorrhoids are treated.

**Results:** This procedure is the effective method with successful outcome in grade III and grade IV haemorrhoids. No complications like pain, soiling and leakage were noted.

**Conclusions:** CP of trans anal suture rectopexy for haemorrhoid is a very promising procedure with a short learning curve. In our experience with 58 patients, we conclude that the procedure successfully controlled mass, prolapse and recurrence of haemorrhoids.

**Keywords:** Grade III, Grade IV haemorrhoids, Constipation, Bleeding per anus, Mass per anus

### INTRODUCTION

A prevalent medical problem, haemorrhoids affects 4 to 36% of the population.<sup>1</sup> Hemorrhoidectomy is considered the gold standard method which was first reported by Milligan and Morgan in 1937; yet, it is a painful surgery.<sup>2</sup>

Haemorrhoids' primary vascular contribution comes from the superior rectal artery and middle hemorrhoidal artery's terminal branches of the internal hemorrhoidal plexus.<sup>3,4</sup> The vascular plexus is positioned submucosally, stretching from the upper boundary of the anatomical anal canal to the dentate line.<sup>5,6</sup> As compared to healthy volunteers, patients with symptomatic haemorrhoids had substantially larger blood vessels, more blood flowing through them, and faster blood flow.<sup>7</sup>

The artery diameter and blood flow are correlated with the haemorrhoid grades.

Treitz's muscle may become fragmented as a result of downward straining during prolonged and repetitive defecation. Haemorrhoids prolapse is caused by causes including severe straining and or increased intra-abdominal pressure from hard stools and constipation.<sup>6,7</sup> The idea that the anal canal lining slides is well acknowledged. Haemorrhoids in grades II to IV are a prime example of haemorrhoids that prolapse.

Various treatment modalities for haemorrhoids have been described, such as diet modification and laxatives, medication (steroids, local anaesthetic and dietary supplements), medical procedures (rubber band ligation, foam sclerotherapy, stapled haemorrhoidopexy, laser

haemorrhoidopexy, IRC).<sup>8</sup> However, there is no 'ideal' treatment modality inspite of several studies being conducted in last few years. In 2012, Dr. Shanthikumar D. Chivate, surgeon based in Mumbai, India, popularised this technique globally.<sup>9</sup> He published his 1<sup>st</sup> research technique 3 concept of transanal suture rectopexy in order to establish procedures for treating grade III and grade IV haemorrhoids. This study aims to report outcome of CP in South Indian population operated at centre.

## METHODS

### Study design

This was a retrospective descriptive study performed at Dr Scott's Laser, piles and fistula daycare centre in between December, 2021-December, 2023 in 58 patients.

Descriptive statistic: mean

Inclusion criteria was as follows: age group between 18-78 years, both sexes with grade III and grade IV haemorrhoids and mucosal prolapse.

Exclusion criteria were patients with liver cirrhosis, abnormal PT-INR, anaesthesia contraindications and thrombosed pile mass.

All the surgeries were performed and evaluated by a single surgeon. Investigations included: 1. Digital rectum examination. 2. Proctoscopy is done to find the exact grade of haemorrhoids. 3. Flexible sigmoidoscopy was performed in all cases to rule out proximal colonic mucosal diseases. 4. Blood investigation-complete blood count, liver function test, prothrombin time (international normalised ratio), blood grouping, random blood sugar, hepatitis B surface antigen, creatinine, human immunodeficiency virus.

A CP was used for the purpose of this study (Figure 1).<sup>9</sup>



**Figure 1: CP.**

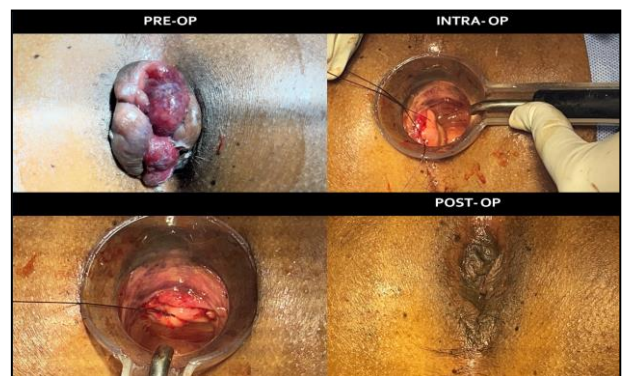
Informed consent was obtained after explaining procedure in detail.

### Technique

Polyethylene glycol powder was used to empty rectum as bowel preparation agent. Injection Gentamycin 80 mg was administered intravenously before surgery. Operation site was prepared. CP was done under saddle block /spinal anaesthesia. Patient was positioned in lithotomy with a steep head down, reducing the prolapsed pile mass. Anal canal was lubricated with 2% xylocaine jelly and gently massaged for 15 min. A self-illuminated slit with sliding valve proctoscope designed by Dr Chivate, was used. After removing the obturator, the dentate line was identified. Suturing was performed through aperture within the proctoscope, rectal mucosa was fixed to rectal wall. First layer was sutured 1 cm above dentate line, and 2<sup>nd</sup> circumferential suture line was completed 3 cm above the dentate line. Proximal suture starts and ends at 5' o'clock position, and distal starts and ends at 7'o'clock. Double interlocking sutures were made with 2-0 polyglactin 30 mm ½ circle round body atraumatic needle. After completion of procedure suture line was inspected for haemostasis. Then dressing was applied. No anal tampon was placed. Oral feeds were started 6 h following procedure and patient was discharged home once voided. At time of discharge, blood pressure, pulse, saturation and bleeding at operation site are checked. At time of discharge, patients administered tab. ofloxacin and tab. ornidazole twice daily for 3 days, along with, tab. ranitidine twice daily for 5 days. Laxatives are prescribed according to bowel habit. Patients are advised to avoid straining during defecation, high-fibre diet and plenty of water. Telephonically, patients followed up at regular intervals of 3 days, 1<sup>st</sup> week and 2<sup>nd</sup> week and were enquired about bleeding and bowel emptying counts.

### Principle

The main principle of CP is to take two circumferential rows of sutures in the anorectal junction above the dentate line. Hence, the result is the repositioning of the anal canal in its original place and disruption of blood supply to the anal canal. The proximal suture disrupts blood supply to the anal canal, and the distal suture line repositions the anal cushion in its original place. The sutures lie above dentate line, making procedure painless.



**Figure 2: Pre op, intra op and post op pictures.**

This procedure results in immediate shrinkage of prolapsed pile masses, thereby, providing enormous relief to the patient.

**RESULTS**

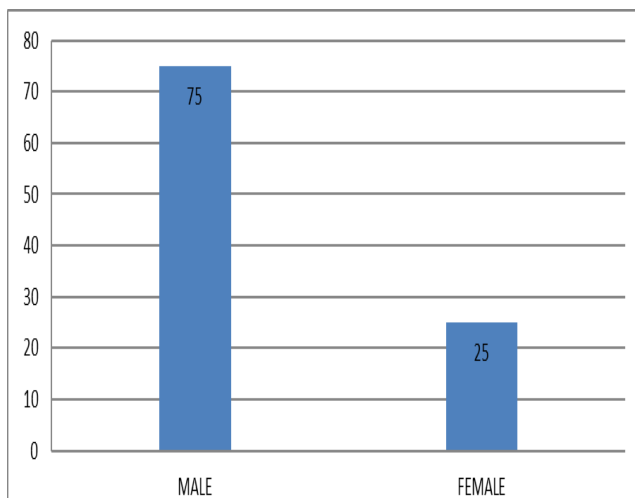
Among the 58 patients who underwent CP, one patient had recurrent prolapse in 12 'o clock position on the 3<sup>rd</sup> post operative day and the patient was taken to the operation room with stable vital signs and ligation excision done. One patient experienced bleeding from 9'o clock position with mild pain in anal region on the 7<sup>th</sup> post operative day and the patient had lost around 200 ml of fresh blood. Redo surgery done, suture ligation done using 2-0 5/8 braided and coated polyglycolic acid suture material.

None of the patients had complications such as pain, anal stenosis, soiling or leakage and impairment of continence was noted. All the patients were discharged after 8 hours on the same day except above mentioned 2 cases. Sigmoidoscopy revealed no malignancy in any case. Oral antibiotics and analgesics were given to all the patients for 5 days. There was no special cost for disposables. Laxatives were continued in patients with constipation. The patients were managed conservatively by sitz bath. The patients were satisfied with this procedure.

In CP the mean age of the patients were 42.5 years. people between 30-50 years of age were affected more. Out of 58 patients who underwent CP, 2 of them had complication (3.44%) and the remaining (96.55%) with no complication.

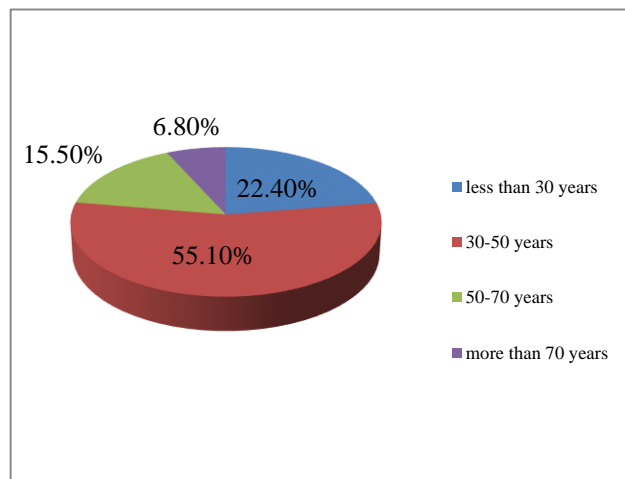
**Analysis**

In this retrospective study of CP, out of 58 patients 43 patients were male (75%) and 15 patients were female (25%). In CP the mean age of the patients was 42.5 years. Range 20 - 80 years of age group.



**Figure 3: Incidence by gender-male (75%), female (25%).**

The pie chart shows the percentage of people affected over an age less than 30 years to more than 70 years among the 58 patients. Patients between the age of 30 to 50 years are get affected more than the other age groups according to this retrospective study. Among the 58 patients who underwent the procedure 22.4% of them were less than 30 years of age, 55.1% and 15.5% of patients were between the age group of 30-50 years and 50-70 years, 6.8% of them were more than 70 years of age. According to the retrospective study people between 30-50 years of age were affected more.



**Figure 4: Incidence by age group.**

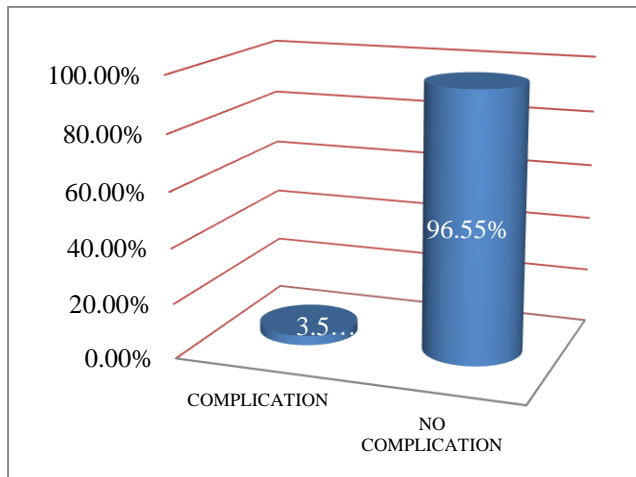
Clavien Dindo classification system is widely used in surgery for grading adverse complications which occurs as a result of surgical procedures; which was originally described by Clavien and Dindo in the year 2004. It consists of 7 grades (I, II, IIIa, IIIb, IVa, IVb and V).

Grade I of the Clavien-Dindo classification was defined as any deviation from the normal postoperative course without the need for pharmacological treatment or surgical, endoscopic, or radiological interventions. Acceptable regimen includes antiemetics, analgesics, antipyretics, diuretics and bedside wound care. Grade II was defined as complications requiring pharmacological treatment with drugs other than those permitted for grade I complication. Grade III of the Clavien-Dindo classification was originally defined as surgical complications requiring surgical, endoscopic, or radiological intervention, and was further classified into grade IIIa and IIIb depending on whether the intervention was performed under general anaesthesia. Grade IV was defined as a life-threatening complication that requires management in a high dependency and was further classified into grade IVa and IVb in terms of single or multi-organ dysfunction. Finally, a complication resulting in death was graded as V.

Among the 58 patients, one patient had recurrent prolapse and one patient experienced bleeding on the 3<sup>rd</sup> and 7<sup>th</sup> postoperative day.

Redo surgery done to these patients. According to Clavien-Dindo classification system it was graded under grade III because it was a surgical complication required surgery.

Out of 58 patients who underwent CP, 2 of them had complication (3.44%) and the remaining (96.55%) with no complication.



**Figure 5: Incidence of complication based on Clavien-Dindo classification.**

## DISCUSSION

In 1937, Milligan and Morgan performed haemorrhoid excision followed by pedicle ligation. However, the drawback of this procedure is pain along with longer period of hospitalization. To overcome this drawback of pain, stapled haemorrhoidopexy was introduced by Longo to decrease chance of prolapse by a stapled circular mucosectomy 4 cm higher than the dentate line.<sup>10</sup>

Doppler-guided HAL procedure has shown to recur in 12% of patients with a period of duration of 1 year in cases of haemorrhoids which were non-prolapsing.<sup>11</sup> Also, in grade III and IV haemorrhoids, the recurrence rate was between 12-40% during the first year. In the original study by Dr. Chivate, it was observed that on a 3 year follow up period, 3 patients had bulging of piles cushion into anal canal without bleeding.<sup>9</sup> In our experience with 58 patients, one patient had prolapsed on the 3<sup>rd</sup> post operative day and excision done. one patient experienced bleeding from 9'o clock position in anal region on the 7<sup>th</sup> post operative day and suture ligation done using 2-0 5/8 suture material.

In the lithotomy position, three anal cushions are present respective to the superior rectal end arteries at 3, 7 and 11 o'clock. The main part of the cushion lies just above the dentate line and is covered by sensitive mucosa. The submucosal layer is on the cross-section between the cushions and internal sphincter muscles, which consists of veins, arteries and muscular and connective fibre

tissues. The pile's mass is supported by fibroblastic collagen tissue and the muscular structure of Treitz (muscular canalisani).<sup>13</sup> The venous plexus present in the form of sinusoids is known as the 'corpus cavernosum of recti'.<sup>14</sup> The pressure of the haemorrhoidal plexuses is increased due to the activities such as overstraining during defecation, prolonged sitting, lifting heavy objects, obesity and severe coughing. Patients may present with irritable bowel syndrome (IBS), diarrhoea or constipation, prolonged sitting, overstraining during defecation with time duration of more than 10 minutes. Rectal bleeding is the main symptom of internal haemorrhoids, and the blood is characteristically bright red. It has been suggested that the internal haemorrhoid plexus is like the corpus cavernosum with direct arteriovenous communications.<sup>15</sup> Clinical features are pain and bleeding from the anus, itching and pile mass reduced by manipulation. In the CP, two circumferential suturing lines were implemented at 2 and 4 cm proximal to the dentate line in the rectal wall. However, we perform a slight modification by implementing the suture line 1 and 3 cm proximal to the dentate line.

In haemorrhoidectomy, the sutures are below the dentate line, and it is controlled by somatic innervation, which is sensitive to pain, touch, and temperature. Our modification of the CP being above the dentate line makes the procedure painless. Till date, there are no reports claiming to be performed as a daycare procedure. Our centre has done daycare procedures since its inception. In presence of associated comorbid like IBS in constipation, diarrhoea or both present, it is accordingly treated. The limitation is utilization of a self-illuminating proctoscope or anal speculum is essential.

## CONCLUSION

CP of transanal suture rectopexy for haemorrhoid is a very promising procedure with a short learning curve. In our experience with 58 patients we conclude that the procedure successfully controlled mass, prolapse and recurrence of haemorrhoids. The author recommends this particular procedure for grade III and grade IV haemorrhoids as it is cost effective and had no postoperative complications like pain, urinary incontinence, or faecal urgency.

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*Ethical approval: The study was approved by the Institutional Ethics Committee*

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