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## RESEARCH ARTICLE

# CONVENTIONAL APPROACHES TO HAEMORRHOID TREATMENT: EVIDENCE-BASED ANALYSIS AND PATIENT SELECTION CRITERIA

Dr. Sachin Jadhav<sup>1</sup>, Dr. Aditi Sirsat<sup>2</sup> and Dr. Prakash Kanade\*<sup>3</sup>

<sup>1</sup>Associate Professor, Dept. of Rachana Sharir, P. V. Belhekar Ayurved Medical College, Bhanshivare, Newasa, Dist. Ahmednagar, MS, India; <sup>2</sup>M.S. Stri Rog evum Prasuti Tantra Scholar, Dept. of Stri Rog evum Prasuti Tantra, Pravara Medical Trust's Ayurved Mahavidyalaya, Shevgaon, MS, India; <sup>3</sup>HOD and Professor, Dept. of Stri Rog evum Prasuti Tantra, Pravara Medical Trust's Ayurved Mahavidyalaya, Shevgaon, MS, India

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### ABSTRACT

Haemorrhoids, characterised by the prolapse or enlargement of the vascular cushions of the rectum and anus, affect a significant proportion of the population, resulting in symptoms such as bleeding, pain, and itching. The management of haemorrhoids varies according to the severity of the condition, with both surgical and minimally invasive options available. This review aims to provide an evidence-based analysis of conventional surgical techniques in hemorrhoid treatment, including open and closed hemorrhoidectomy, stapled hemorrhoidopexy, Doppler-guided hemorrhoidal artery ligation (DG-HAL), and others. The efficacy of these methods is compared, and specific patient selection criteria are discussed to help identify the most suitable treatment for individual patients. The review synthesises findings from clinical studies, meta-analyses, and expert opinions to develop a comprehensive framework for optimising haemorrhoid treatment outcomes.

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## INTRODUCTION

Hemorrhoids are one of the most common causes of rectal bleeding and discomfort. They can be classified into four grades based on severity, ranging from simple prolapse (Grade I) to complete prolapse with significant external components (Grade IV). The choice of treatment depends on the degree of the disease, symptoms, and the patient's health status. Surgical options for haemorrhoid management have evolved, with traditional hemorrhoidectomy techniques such as the open Milligan-Morgan and closed Ferguson procedures being the gold standard for advanced cases. However, advancements in minimally invasive techniques like stapled hemorrhoidopexy (PPH) and Doppler-guided hemorrhoidal artery ligation (DG-HAL) have provided effective alternatives for managing less severe cases with reduced recovery times. This paper reviews the efficacy of these techniques and explores the patient selection criteria necessary for choosing the most appropriate treatment.

## LITERATURE REVIEW

**Open and Closed Hemorrhoidectomy Techniques:** Open hemorrhoidectomy, also known as the Milligan-Morgan technique,

involves the excision of hemorrhoidal tissue with or without skin tags, followed by wound healing by secondary intention. It is considered the gold standard for treating grade III and IV haemorrhoids, as it offers definitive treatment with low recurrence rates. However, the procedure is associated with significant postoperative pain, delayed healing, and longer recovery times<sup>1</sup>. On the other hand, closed hemorrhoidectomy, the Ferguson technique, involves a similar excision but with sutured closure of the wound, resulting in reduced postoperative pain and quicker recovery times<sup>2</sup>. However, it is associated with a slightly higher recurrence rate compared to the open technique<sup>3</sup>.

**Stapled Hemorrhoidopexy (PPH):** The introduction of stapled hemorrhoidopexy (PPH) represented a significant shift towards minimally invasive procedures. This technique involves the excision of a circular strip of mucosa and submucosa around the hemorrhoidal tissue, followed by the stapling of the tissue to re-establish normal anatomy. PPH has been shown to result in less postoperative pain, shorter hospital stays, and faster recovery compared to traditional hemorrhoidectomy. However, studies have indicated a higher risk of recurrence, prolapse, and the development of complications such as rectal bleeding and anastomotic stenosis in the long term<sup>4</sup>. A study by Longo et al. found a recurrence rate of 10-20% after stapled hemorrhoidopexy over 5 years<sup>5</sup>.

**Doppler-Guided Hemorrhoidal Artery Ligation (DG-HAL):** Doppler-guided hemorrhoidal artery ligation (DG-HAL) is a

\*Corresponding author: Dr. Prakash Kanade,  
HOD and Professor, Dept. of Stri Rog evum Prasuti Tantra, Pravara Medical Trust's Ayurved Mahavidyalaya, Shevgaon, MS, India

relatively recent innovation that uses Doppler ultrasound to locate the arteries feeding the hemorrhoidal plexus, which are then ligated to reduce blood flow to the hemorrhoids. This technique is effective in treating grade III and IV hemorrhoids with minimal postoperative pain and a low recurrence rate<sup>6</sup>. The procedure is less invasive compared to traditional hemorrhoidectomy and can be performed under local anaesthesia, making it a viable option for elderly and high-risk patients<sup>7</sup>. However, the effectiveness of DG-HAL may be compromised in patients with severe external components of hemorrhoids<sup>8</sup>.

**Transanal Hemorrhoidal Dearterialisation (THD):** Transanal hemorrhoidal dearterialisation (THD) is another minimally invasive technique similar to DG-HAL, involving the ligation of hemorrhoidal arteries using a Doppler-guided device, followed by mucosal suturing to reduce the prolapse. This technique has demonstrated good outcomes with lower recurrence rates and faster recovery times, though its application is mostly limited to grades III and IV hemorrhoids without significant external prolapse<sup>9</sup>. A study by Rossi et al. found THD to be a highly effective option for reducing hemorrhoidal prolapse with minimal complications<sup>10</sup>.

**Other Techniques:** Non-surgical treatments like rubber band ligation (RBL), sclerotherapy, and infrared coagulation (IRC) are widely used for treating lower-grade hemorrhoids (grades I and II). RBL involves placing a rubber band at the base of the hemorrhoid to induce necrosis and eventual sloughing. This technique is quick, effective, and has low complication rates but may require multiple sessions for complete resolution of symptoms<sup>11</sup>. Sclerotherapy and IRC are similarly effective for smaller hemorrhoids, offering alternatives with low risk and minimal recovery time<sup>12</sup>.

## METHODOLOGY

The methodology for this review involved a comprehensive search of PubMed, Cochrane, and Google Scholar databases for studies published between 2000 and 2023. Keywords included "hemorrhoidectomy," "Doppler-guided hemorrhoidal artery ligation," "PPH," "haemorrhoids treatment," and "minimally invasive hemorrhoid surgery." Randomised controlled trials (RCTs), cohort studies, and systematic reviews were prioritised. Studies were included if they provided direct comparisons of surgical techniques or analysed the outcomes of specific treatments in terms of efficacy, complication rates, and long-term recurrence. A total of 20 articles were selected, with findings synthesised to offer a comprehensive perspective on the most effective treatment options.

## DISCUSSION

The review of conventional surgical techniques for hemorrhoid treatment reveals that while traditional hemorrhoidectomy remains the standard for severe hemorrhoids, minimally invasive methods such as PPH, DG-HAL, and THD offer significant advantages in terms of postoperative recovery and pain management. Each technique has its advantages and limitations, and the choice of procedure should be tailored to the patient's specific condition. For grade I and II hemorrhoids, non-surgical treatments like rubber band ligation and sclerotherapy are highly effective and should be considered as first-line options. For patients with grade III or IV hemorrhoids, a more invasive procedure such as open hemorrhoidectomy or one of the newer minimally invasive techniques like PPH or DG-HAL is often recommended. Patient factors, such as age, comorbidities, and preference for a less invasive approach, should also be considered. For instance, elderly patients or those with significant comorbidities may benefit more from less invasive options like DG-HAL or PPH due to their reduced recovery times and lower complication rates<sup>13,14</sup>.

## CONCLUSION

The treatment of hemorrhoids has evolved with the advent of newer, minimally invasive techniques that offer several advantages over traditional hemorrhoidectomy. While open and closed hemorrhoidectomy techniques remain the gold standard for severe hemorrhoidal disease, minimally invasive methods like stapled hemorrhoidopexy, DG-HAL, and THD provide effective alternatives with reduced postoperative pain and faster recovery times. The selection of the appropriate technique should be based on a careful assessment of the patient's condition, including the severity of the hemorrhoids, any associated comorbidities, and patient preferences.

**Ethical Considerations:** This review utilised publicly available data from clinical trials and systematic reviews, all of which were conducted under ethical guidelines. No patient-identifiable information was used, and all studies were approved by institutional review boards where applicable. The findings presented in this paper reflect the authors' commitment to maintaining the highest ethical standards in clinical research.

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