



# Banana Clip: Advancing Hemorrhoid Ligation Beyond Rubber Bands

Navneet Arora<sup>1</sup>  Ranjeet Kumar<sup>1</sup>

<sup>1</sup>Department of Pharmacy Practice, ISF College of Pharmacy, Moga, Punjab, India

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Address for correspondence Ranjeet Kumar, PhD, ISF College of Pharmacy, Moga, Punjab, India  
(e-mail: ranjeetkumar2784@gmail.com).

Hemorrhoids, commonly referred to as piles, affect approximately 4.5% of the Western population, with a higher prevalence among those aged 45 to 65. By the age of 50, nearly half of individuals experience hemorrhoid-related symptoms, posing a significant medical challenge. Defining symptomatic hemorrhoids can be complex due to the varied symptoms that can be erroneously attributed to this condition.<sup>1</sup> This complexity is further compounded by the existence of other anorectal conditions with similar presentations, such as fissures, skin tags, abscesses, inflammatory bowel diseases, and anorectal neoplasms. These conditions can obscure the clinical picture, making diagnosis and treatment a daunting task. Hemorrhoids typically manifest as painless rectal bleeding during or after defecation, accompanied by itching, soiling, prolapse, swelling, and discomfort in the perianal area. Repeated bleeding can lead to iron-deficiency anemia, and in rare cases, severe bleeding may necessitate urgent hospitalization and blood transfusion. Intriguingly, emerging data suggests a curious association between a higher socioeconomic status and an elevated risk of developing hemorrhoids. This link is influenced by various factors, including conditions that increase intra-abdominal pressure, such as pregnancy and straining during bowel movements. Additionally, issues compromising the structural integrity of supporting tissues can contribute to symptomatic hemorrhoids. These multifaceted dynamics underscore the substantial impact of hemorrhoidal disease on an individual's overall quality of life. Despite the challenges of hemorrhoids, recent scientific investigations have yielded promising insights. Emerging treatments, including minimally invasive procedures and dietary modifications, offer newfound hope for those grappling with this common yet often underestimated condition. This journey of discovery not only enhances our understanding of hemorrhoidal pathophysiology

but also holds the potential for effective management, ultimately alleviating patient suffering. Endoscopic hemorrhoidal ligation, a generally safe and effective treatment for grade 1 to 3 hemorrhoids, comes with low complication rates. Minor issues include painful thrombosed prolapsed hemorrhoids, band slippage, mild rectal bleeding, and chronic ulcers. However, rare, life-threatening complications such as massive hemorrhage and pelvic sepsis can occur, especially when nonsteroidal anti-inflammatory drugs (NSAIDs) like aspirin are used post-procedure.<sup>2</sup> This highlights the importance of caution when considering NSAID usage after endoscopic hemorrhoidal ligation. In a prospective study by **Bat L et al.**<sup>3</sup> involving 512 patients who underwent hemorrhoidal band ligation over seven years, complications were analyzed. Thirteen patients (2.5 percent) were hospitalized due to various issues, including massive rectal bleeding, urinary retention, pain, and fever. An additional twenty-four patients (4.6 percent) experienced minor complications such as painful thrombosed hemorrhoids and band-related mucosal ulcers. Despite recent concerns raised by other reports, this study has suggested that rubber band ligation is an effective and generally safe method for treating symptomatic second-degree and third-degree hemorrhoids. It highlights the importance of effectively managing complications in the overall success of the procedure. The “Banana clip” (BC) represents a significant advancement in hemorrhoidal pile ligation, surpassing traditional methods like rubber band ligation (RBL). BC's selectivity in targeting the internal hemorrhoidal pile while preserving perianal skin and anoderm translates to reduced postoperative pain, a lower risk of stricture and anal deformity, and quicker patient recovery. BC's curvilinear design minimizes the risk of rectal stenosis, even after ligating three hemorrhoids in a single session. Unlike the O-ring-shaped rubber bands used

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in RBL, BC constricts hemorrhoidal tissue longitudinally along the anorectal axis, preventing stenosis and lifting redundant anoderm and perianal skin. Derived from the ligature technique, BC encircles hemorrhoidal tissue with a biocompatible, non-absorbable clip, inducing ischemic necrosis with minimal collateral damage. Clinical studies affirm BC's efficacy in reducing post-operative discomfort and enhancing patient outcomes. **Kang et al.**<sup>4</sup> comparative study solidifies BC's position as the superior option for hemorrhoidal treatment. Their scientific analysis clearly demonstrates that BC offers patients a more comfortable and efficient solution with a reduced risk of complications, significantly improving their quality of life during the recovery process. Another study by **Yu, Jiazi et al.**<sup>5</sup> involving 274 patients compared modified and conventional RBL for hemorrhoid treatment. Modified RBL showed fewer postoperative DB cases (0 vs. 5) and lower recurrence rates (5.4% vs. 13.6%) within three months, suggesting potential benefits in reducing complications. While modified rubber band ligation shows promise, banana clip ligation remains superior in hemorrhoidal treatment due to efficacy and lower complications. In conclusion, hemorrhoids are a prevalent medical concern with a complex clinical presentation. Understanding the multifaceted nature of this condition and embracing emerging treatment options offer a promising path toward improving the lives of those affected. Endoscopic hemorrhoidal ligation, while generally safe and effective, requires caution regarding post-operative NSAID use.<sup>5</sup> The "Banana clip" stands as a groundbreaking advancement, offering superior benefits over traditional methods, ensuring quicker recovery and improved patient outcomes. Kang et al.'s study underscores BC's status as a revolutionary solution in the field of hemorrhoidal care, reshaping the landscape of treatment options for the benefit of patients and surgeons alike. Further extensive investigations are anticipated to validate these findings, as the BANANA-Clip gains recognition as a pioneering approach for hemorrhoidal pile ligation. This emerging technique warrants comprehensive exploration to establish its efficacy and safety in clinical practice.

#### Authors Contributions

Navneet Arora is the major contributor to the writing, literature, and drafting of the manuscript; Mr. Ranjeet Kumar is the major contributor to editing and drafting the manuscript, all authors read and approved the final manuscript.

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Not applicable

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#### Conflict of Interest

The authors have declared that no competing interests exist.

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