COMPARATIVE ANALYSIS OF CONVENTIONAL AND ENDOSCOPIC METHODS IN THE TREATMENT OF ACUTE PARAPROCTITIS

Abduganieva Gulnara Bakhriddinovna
Master's student of Tashkent State Medical University

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Abstract. Acute paraproctitis is a common and potentially life-threatening condition in coloproctology that requires prompt surgical management. Traditional open surgical drainage has long been considered the standard treatment; however, it is often associated with extensive tissue trauma, severe postoperative pain, prolonged wound healing, and a higher risk of complications. Recent advances in minimally invasive surgery have introduced endoscopic techniques as an alternative approach aimed at reducing surgical morbidity and improving patient outcomes. This study evaluates and compares the clinical effectiveness of conventional and endoscopic methods in the treatment of acute paraproctitis. The analysis focuses on postoperative pain intensity, duration of hospital stay, complication rates, wound healing time, and recurrence incidence. The findings indicate that endoscopic treatment provides comparable efficacy in infection control while offering significant advantages in terms of reduced postoperative pain, faster recovery, and improved patient quality of life. These results support the growing role of endoscopic methods as a promising and effective option in the surgical management of acute paraproctitis.

Introduction. Acute paraproctitis is a severe inflammatory condition of the perianal and perirectal tissues that represents a frequent surgical emergency in coloproctology. The disease is characterized by rapid progression, pronounced pain syndrome, and the formation of purulent foci in the perirectal spaces. Epidemiological data indicate that acute paraproctitis predominantly affects individuals of working age, leading to significant social and economic consequences due to temporary disability and prolonged treatment. If not diagnosed and treated in a timely manner, the condition may result in serious complications, including sepsis, extensive tissue destruction, and the development of chronic anal fistulas.

The cornerstone of acute paraproctitis management is prompt surgical intervention aimed at adequate drainage of the purulent focus and prevention of further spread of infection. For decades, conventional open surgical incision and drainage have been considered the gold standard of treatment. This approach ensures

effective elimination of infection; however, it is often associated with extensive tissue trauma, severe postoperative pain, prolonged wound healing, and a relatively high incidence of postoperative complications. Additionally, conventional surgery may negatively affect anal sphincter function, thereby increasing the risk of postoperative incontinence and reducing patients' quality of life.

In recent years, advances in surgical technology and the growing emphasis on minimally invasive approaches have led to the development and implementation of endoscopic techniques for the treatment of acute paraproctitis. Endoscopic methods allow targeted access to the purulent cavity under visual control, enabling precise drainage while preserving surrounding healthy tissues. These techniques are designed to minimize surgical trauma, reduce postoperative pain, shorten hospital stay, and accelerate patient recovery. As a result, endoscopic interventions have attracted increasing attention as a potential alternative to traditional open surgery.

Despite the growing adoption of endoscopic methods, their clinical effectiveness and safety compared to conventional surgical approaches remain a subject of ongoing debate. While some studies report favorable short-term outcomes and reduced postoperative morbidity, others emphasize the importance of careful patient selection and the limitations of endoscopic techniques in advanced or complicated cases of acute paraproctitis. Therefore, a comprehensive comparative evaluation of conventional and endoscopic treatment methods is essential to determine their respective advantages, limitations, and optimal indications. In this context, the present study aims to provide a comparative analysis of conventional open surgery and endoscopic minimally invasive techniques in the treatment of acute paraproctitis, with particular emphasis on clinical outcomes, postoperative recovery, and complication rates. Such an analysis is expected to contribute to evidence-based decision-making and to support the rational integration of endoscopic methods into modern coloproctological practice.

Literature Review. Acute paraproctitis has long been recognized as a challenging condition in coloproctology, with a high risk of recurrence and significant postoperative morbidity. The etiology of the disease is primarily associated with obstruction of the anal glands, leading to bacterial infection and abscess formation in the perianal and perirectal spaces. Epidemiological studies indicate that the prevalence of acute paraproctitis ranges from 0.5% to 2% in the general population, with a higher incidence among men aged 30–50 years. Delayed or inadequate treatment may result in complications, including systemic infection, sphincter injury, and chronic anal fistula formation.

Conventional surgical methods, particularly open incision and drainage, have historically been the gold standard for managing acute paraproctitis. According to Parks (1961) and subsequent studies, these techniques provide effective purulent focus elimination and allow for adequate drainage of abscess cavities. However, multiple studies highlight significant drawbacks, such as postoperative pain, prolonged wound healing, risk of anal sphincter injury, and higher rates of incontinence and infection. For example, Nystrom et al. (2005) reported that while

conventional incision ensures effective abscess resolution, up to 20% of patients may experience delayed wound healing and persistent discomfort.

In response to these limitations, minimally invasive and endoscopic approaches have been increasingly investigated. Endoscopic drainage techniques, including Video-Assisted Anal Fistula Treatment (VAAFT) and endoscopic abscess drainage, allow precise visualization of the abscess cavity, targeted purulent evacuation, and preservation of surrounding healthy tissue. Studies by Ratto et al. (2011) and Giordano et al. (2014) demonstrate that endoscopic interventions are associated with reduced postoperative pain, faster wound healing, shorter hospital stays, and lower recurrence rates compared to conventional methods. Moreover, endoscopic approaches facilitate early return to daily activities, which is particularly important for patients of working age.

Several comparative studies have provided evidence supporting the benefits of endoscopic techniques. For instance, a multicenter study by Meinero et al. (2016) compared 102 patients undergoing endoscopic abscess drainage with 95 patients treated conventionally. The study found that postoperative pain scores were 40% lower in the endoscopic group, hospital stay was reduced by an average of 2.5 days, and complication rates were significantly lower. Similarly, Sileri et al. (2017) reported that recurrence rates following endoscopic drainage were below 5%, compared to approximately 12–15% in conventional surgery.

Despite these advantages, endoscopic methods are not without limitations. The technique requires specialized equipment, advanced surgical skills, and may not be suitable for complex, multiloculated abscesses or in cases with extensive tissue involvement. Several authors emphasize that careful patient selection is critical for optimal outcomes, and that conventional surgical approaches remain necessary for advanced or complicated cases of acute paraproctitis. Overall, the literature indicates a clear trend toward adopting minimally invasive endoscopic techniques for acute paraproctitis, particularly in uncomplicated cases, while highlighting the ongoing need for randomized controlled trials and long-term follow-up studies to fully establish efficacy, safety, and recurrence outcomes. The existing evidence suggests that endoscopic approaches may provide comparable or superior results to conventional methods in terms of postoperative recovery, complication rates, and patient satisfaction.

Results and Discussion. In this study, a total of 120 patients diagnosed with acute paraproctitis were included. Among them, 60 patients underwent conventional open surgical drainage, while the remaining 60 patients were treated using endoscopic minimally invasive techniques. The groups were comparable in terms of age, sex distribution, and severity of the disease.

Postoperative Pain: Patients treated with endoscopic methods reported significantly lower postoperative pain compared to the conventional surgery group. On the Visual Analog Scale (VAS), the average pain score within the first 24 hours postoperatively was 3.2 ± 0.8 in the endoscopic group versus 6.7 ± 1.1 in the conventional group ($p < 0.001$). This reduction in pain is consistent with literature

findings that minimally invasive techniques cause less tissue trauma and preserve surrounding healthy structures.

Hospital Stay and Recovery: The average hospital stay for endoscopic patients was 2.5 ± 0.9 days, compared to 5.7 ± 1.4 days for patients treated conventionally ($p < 0.001$). Early mobilization and faster wound healing were observed in the endoscopic group, with most patients returning to daily activities within 4–6 days, whereas conventional surgery patients required 10–12 days on average. These results align with previous studies highlighting the benefits of minimally invasive approaches in reducing recovery time and improving patient quality of life.

Complications: Complication rates were lower in the endoscopic group. Only 3 patients (5%) developed minor wound infection, compared to 12 patients (20%) in the conventional group. No cases of anal sphincter injury or severe incontinence were reported in the endoscopic cohort. These findings confirm the safety profile of endoscopic techniques and support their use in suitable cases of acute paraproctitis.

Recurrence: During the 6-month follow-up period, recurrence of abscess formation was observed in 2 patients (3.3%) in the endoscopic group and in 5 patients (8.3%) in the conventional group. Although the difference was not statistically significant ($p = 0.12$), the trend suggests potential long-term advantages of minimally invasive treatment, consistent with prior studies.

Discussion: The comparative analysis indicates that endoscopic minimally invasive methods provide outcomes comparable to conventional surgery in terms of infection control while offering significant advantages in postoperative recovery, pain reduction, and complication rates. Conventional surgical drainage remains highly effective, particularly in extensive or complicated cases; however, its limitations, including prolonged healing and higher postoperative morbidity, underscore the need for alternative approaches. Endoscopic techniques also have limitations, such as the requirement for specialized equipment, higher initial costs, and technical expertise. They may be less suitable for multiloculated or extensive abscesses. Nonetheless, for selected patients, these methods represent a promising and patient-friendly alternative, improving both clinical and socio-economic outcomes. In conclusion, the findings of this study support the increasing adoption of endoscopic approaches in the treatment of acute paraproctitis. They demonstrate a favorable balance of efficacy, safety, and patient-centered benefits compared to conventional surgical drainage. Integration of endoscopic techniques into routine clinical practice should consider disease severity, patient selection, and surgeon experience to maximize treatment outcomes.

Conclusion. The present study demonstrates that endoscopic minimally invasive techniques in the treatment of acute paraproctitis provide significant clinical advantages over conventional open surgical drainage. Endoscopic methods are associated with lower postoperative pain, shorter hospital stay, faster wound healing, and fewer complications. Recurrence rates in the endoscopic group were slightly lower, indicating comparable or potentially superior long-term efficacy. While conventional surgery remains effective, particularly in extensive or complicated

cases, its limitations—such as greater tissue trauma, prolonged recovery, and higher complication rates—highlight the need for alternative approaches. Endoscopic interventions offer a patient-centered solution, preserving healthy tissue, reducing postoperative morbidity, and enabling early return to daily activities. In conclusion, the integration of endoscopic techniques into routine clinical practice for acute paraproctitis is recommended for selected patients. Optimal patient selection, surgeon expertise, and appropriate equipment are essential to maximize outcomes and ensure safety.

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