OPTIMIZING SURGICAL METHODS FOR THE TREATMENT OF ANAL FISSURES

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Abstract: An anal fissure is a common condition among coloproctological disorders; in its chronic form, it causes severe pain, bleeding during defecation, and a diminished quality of life. For patients who do not respond to conservative treatment, the appropriate selection of a surgical approach is crucial for ensuring healing, preventing recurrence, and preserving the function of the anal sphincter. Based on a review of the literature and our own experience spanning several decades, we conclude that addressing anal sphincter spasm is the primary consideration when performing surgery for a chronic anal fissure. Consequently, for patients with significant sphincter spasm, we employed fissurectomy combined with sphincterotomy, while for those without such spasm, we utilized fissurectomy in conjunction with a specialized anal dilator. In a study involving 90 patients, wound healing was achieved within 20–30 days; anal incontinence occurred in 2 patients (2.2%), and a recurrence of the condition was observed in 1 patient (1.1%).

Keywords: anal fissure, fissurectomy, sphincterotomy, ultrasonic scalpel, specialized anal dilator

Аннотация: Анальная трещина — распространенное колопроктологическое заболевание. При хроническом течении она сопровождается выраженным болевым синдромом, кровотечениями во время дефекации и снижением качества жизни. Для пациентов, у которых консервативное лечение не дает эффекта, ключевым фактором успешного выздоровления, предотвращения рецидивов и сохранения функции анального сфинктера является правильный выбор хирургического метода. На основании анализа литературы и собственного многолетнего опыта мы пришли к выводу, что при хирургическом лечении хронической анальной трещины первостепенное внимание следует уделять устранению спазма анального сфинктера. В связи с этим у пациентов с выраженным спазмом сфинктера мы применяли фиссурэктомию в сочетании со сфинктеротомией, а у пациентов без спазма — фиссурэктомию в сочетании с использованием специального анального дилататора. В исследовании, охватившем 90 пациентов, заживление ран происходило в сроки от 20 до 30 дней; недержание кала было отмечено у 2 пациентов (2,2%), а рецидив заболевания — у 1 пациента (1,1%).

Ключевые слова: анальная трещина, фиссурэктомия, сфинктеротомия, ультразвуковой скальпель, специальный анальный дилататор

Anal fissure is one of the most common colorectal diseases, characterized by severe pain during and after defecation, bleeding, and a significant reduction in patients' quality of life. Constipation, trauma to the anal canal mucosa caused by hard stool, internal anal sphincter hypertonia, and impaired local blood supply play important roles in the development of this condition. Acute anal fissures may heal with conservative treatment in some patients; however, progression to a chronic form and disease recurrence make the selection of an appropriate treatment strategy more challenging.

In 2014, Mapel D.W., Schum M., and Von Worley A. analyzed data from 1,243 patients diagnosed with anal fissure. The study reported an annual incidence rate of 1.1 cases per 1,000 person-years, corresponding to approximately 0.11%. The incidence was higher among individuals aged 25–34 years, reaching approximately 1.8 cases per 1,000 person-years. Women accounted for 58% of the patients, while men represented 42%; 12% of the cases were recorded among children and adolescents aged 6–17 years. The authors also found that chronic constipation was more prevalent among patients with anal fissures: constipation was reported in 14.2% of patients with anal fissures compared with 3.6% in the control group [1].

In the clinical practice guidelines published in 2023 by Jennifer S. Davids and colleagues on behalf of the American Society of Colon and Rectal Surgeons (ASCRS), anal fissure was identified as a common anorectal disorder. However, the authors emphasized that reliable epidemiological data regarding its population-wide prevalence remain limited. The guidelines indicate that most anal fissures are located in the posterior midline, although some occur in the anterior midline. Lateral or multiple fissures may indicate underlying secondary conditions, including Crohn's disease, tuberculosis, certain infections, and other pathological processes, which should be excluded during diagnostic evaluation [2].

An international expert position paper on the management of chronic primary anal fissure, published in 2011 by D.F. Altomare and colleagues, also highlighted the lack of sufficient data regarding the precise prevalence of this condition in the general population [3].

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One of the major challenges in the treatment of anal fissures is selecting the most appropriate surgical technique when conservative treatment fails in patients with chronic disease. Although lateral internal sphincterotomy is considered one of the most effective surgical procedures, it may be associated with an increased risk of impaired continence, including the inability to control flatus or feces, in certain patients. Therefore, sphincter tone, baseline continence status, previous anorectal surgical procedures, and the risk of sphincter injury must be taken into consideration. The 2023 guidelines of the ASCRS and the Italian Society of Colorectal Surgery (SIUCP) emphasize that appropriate patient selection and consideration of alternative sphincter-preserving procedures are essential components of an individualized treatment strategy [2, 4].

Scientific approaches to the surgical treatment of anal fissures have evolved over time, shifting from conventional sphincterotomy techniques toward individualized surgical procedures aimed at preserving sphincter function and minimizing operative trauma.

In 2011, Richard L. Nelson and colleagues published a Cochrane systematic review analyzing surgical techniques used in the treatment of anal fissures. The authors reported no significant difference in effectiveness between open and closed partial lateral internal sphincterotomy. They also emphasized that uncontrolled manual anal dilatation should be avoided.

In 2012, Alaa Magdy and colleagues conducted a randomized clinical study comparing three surgical approaches for chronic anal fissure: conventional lateral internal sphincterotomy, V–Y anoplasty, and limited sphincterotomy combined with V–Y anoplasty. The authors reported a higher healing rate, together with lower recurrence and postoperative continence impairment rates, in the combined procedure group. These findings highlight the importance of selecting surgical techniques according to individual patient characteristics.

In 2018, Shaheel Mohammad Sahebally and colleagues published a systematic review and meta-analysis comparing anocutaneous advancement flap with lateral internal sphincterotomy in the treatment of anal fissure. The study evaluated the effectiveness of the advancement flap technique and the risk of postoperative continence impairment in comparison with sphincterotomy. This research represents an important source for considering sphincter-preserving surgical procedures, particularly in patients at increased risk of continence disorders.

In 2017, R.L. Nelson and colleagues published a systematic review and meta-analysis evaluating different treatment approaches for anal fissures, including conservative, pharmacological, and surgical methods. The study focused on comparing the effectiveness and safety of various treatment strategies and emphasized the importance of making clinical decisions based on available scientific evidence.

The 2018 systematic review by Shaheel Mohammad Sahebally and colleagues specifically addressed the comparison of anocutaneous advancement flap and lateral internal sphincterotomy. Its clinical significance lies in the fact that, in addition to wound healing, preservation of fecal continence is considered an important outcome measure following surgical treatment.

In 2022, James Z. Jin and colleagues published a systematic review and network meta-analysis comparing different treatment modalities for anal fissure. The study comprehensively evaluated the outcomes of various interventions, including both surgical and non-surgical approaches. This research represents an important contribution to the comprehensive assessment of available evidence regarding the management of anal fissures.

In 2023, Jennifer S. Davids and colleagues published the clinical practice guidelines of the American Society of Colon and Rectal Surgeons (ASCRS) for the management of anal fissures. According to these guidelines, lateral internal sphincterotomy is an effective treatment option for carefully selected patients with chronic anal fissures who have failed conservative treatment and are at low risk of postoperative continence impairment. In patients with existing sphincter damage or baseline continence disorders, a more cautious approach and consideration of alternative surgical techniques are recommended.

In 2023, Antonio Brillantino and colleagues developed the clinical practice guidelines of the Italian Society of Colorectal Surgery (SIUCP). The authors recommended an individualized approach based on clinical presentation, anal sphincter pressure, and the risk of continence impairment. The indications for lateral internal sphincterotomy, fissurectomy, and anocutaneous advancement flap procedures in patients with chronic anal fissures were also discussed separately.

In 2023, Katie L. R. Cross and colleagues published updated guidelines of the Association of Coloproctology of Great Britain and Ireland (ACPGBI) for the management of anal fissures. These guidelines reviewed conservative treatment, topical medications, botulinum toxin injections, and surgical interventions based on available scientific evidence. The authors emphasized the importance of balancing the risks of recurrence and postoperative continence impairment when determining the extent of surgical intervention.

In 2023, Zelalem Asefa and Atalel Fentahun Awedew published a systematic review and meta-analysis comparing open and closed lateral internal sphincterotomy. The authors analyzed data from eight randomized controlled trials involving a total of 1,035 patients. The overall postoperative healing rate was reported to be 90.2%, the recurrence rate was 3.7%, and the rate of continence impairment was 8.9%.

Overall, the literature review demonstrates that lateral internal sphincterotomy remains an effective surgical method for the treatment of chronic anal fissures. Nevertheless, the selection of sphincter-preserving procedures, such as fissurectomy and anocutaneous advancement flap, remains particularly relevant in patients at increased risk of postoperative continence impairment. Optimizing surgical techniques requires stratification of patients according to their baseline clinical condition, assessment of treatment outcomes using standardized criteria, and long-term postoperative follow-up.

Based on the above findings, optimizing surgical approaches to the treatment of anal fissures and developing individualized surgical strategies aimed at preserving anal

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sphincter function, in addition to improving wound healing and reducing recurrence rates, represent important priorities in modern colorectal surgery. The results of such research may contribute to the selection of the most appropriate surgical technique according to the clinical and functional characteristics of each patient and ultimately improve treatment outcomes.

Objective of the Study. To analyze modern surgical approaches to the treatment of chronic anal fissures and to substantiate the principles of an individualized approach aimed at improving treatment outcomes.

Materials and Methods.

This study analyzed national and international scientific literature on anal fissures, clinical practice guidelines, and the findings of recent colorectal surgical studies. Based on the literature review and our several decades of clinical experience, we consider the assessment of anal sphincter spasm to be the primary factor in selecting the surgical approach for chronic anal fissures. Accordingly, fissurectomy combined with sphincterotomy was performed in patients with pronounced sphincter spasm, whereas fissurectomy combined with the use of a specialized anal dilator was performed in patients without sphincter spasm.

The clinical course and treatment outcomes were evaluated in 90 patients with chronic anal fissures treated at the Department of Coloproctology of the Tashkent National Medical Center. The patients were divided into two groups:

- Group 1: 56 patients with chronic anal fissures accompanied by anal sphincter spasm.
- Group 2: 34 patients with chronic anal fissures without anal sphincter spasm.

The patients' ages ranged from 20 to 50 years.

Patients in Group 1 underwent fissurectomy combined with lateral internal sphincterotomy, whereas patients in Group 2 underwent fissurectomy combined with the use of a specialized anal dilator. An electrocautery device and an ultrasonic scalpel were used to perform fissurectomy and sphincterotomy. The specialized anal dilator had a conical design and was maintained in the anal canal for 5–6 minutes in patients without anal sphincter spasm, followed by fissurectomy.

During the postoperative period, the surgical wound was irrigated two to three times daily with 3% hydrogen peroxide solution, followed by the application of dressings containing Levomekol ointment. Antibacterial therapy was also administered.

Patients were monitored in the inpatient setting for two days and subsequently underwent outpatient follow-up for two months. Methods of data analysis, comparison, and generalization were used in the study.

Results and Discussion

Treatment outcomes were evaluated based on wound healing, anal incontinence, and recurrence rates ($p < 0.05$):

Evaluation of treatment outcomes	Group 1 (56)	Group 2 (34)	All patients (90)
Wound healing (days)	25-30 days	20-25 days	20-30 days
Anal incontinence	2 (3,6%)	-	2 (2,2%)
Recurrence of the disease	1 (1,8%)	-	1 (1,1%)

According to the study findings, in Group 1, which included 56 patients who underwent fissurectomy combined with lateral internal sphincterotomy, the postoperative wound healing period ranged from 25 to 30 days. Anal incontinence was observed in 2 patients (3.6%), while disease recurrence occurred in 1 patient (1.8%).

In Group 2, comprising 34 patients who underwent fissurectomy combined with the use of a specialized anal dilator, wound healing took 20–25 days. No cases of anal incontinence or disease recurrence were recorded in this group.

Overall, among the 90 patients included in the study, anal incontinence was observed in 2 patients (2.2%), while disease recurrence was recorded in 1 patient (1.1%). The absence of postoperative complications in Group 2 suggests that a sphincter-preserving treatment approach may be promising in patients without anal sphincter spasm.

Conclusion.

The functional status of the anal sphincter plays an important role in selecting the surgical approach for chronic anal fissures. In patients with anal sphincter spasm, fissurectomy combined with lateral internal sphincterotomy was performed, whereas in patients without sphincter spasm, fissurectomy combined with the use of a specialized anal dilator was employed.

The obtained results demonstrate that selecting an individualized surgical strategy for chronic anal fissures, particularly taking the presence or absence of anal sphincter spasm into account, is important for reducing postoperative functional complications.

Assessment of anal sphincter tone and baseline continence status is essential when selecting the appropriate surgical technique in combination with fissurectomy and may contribute to improving treatment outcomes.

Therefore, individualization of surgical treatment for chronic anal fissures according to the functional status of the anal sphincter is considered an appropriate approach.

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