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Improving the Diagnosis and Surgical Treatment of Transsphincteric and Extrasphincteric Pararectal Fistulas

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Annotation: Transsphincteric and extrasphincteric pararectal fistulas represent one of the challenging and unresolved problems in colorectal surgery, pelvic surgery, and proctology. Various surgical methods have been proposed to treat these fistulas, yet the rates of recurrence and postoperative complications remain high. The primary reason for this is the lack of an individualized approach in determining the surgical treatment method for transsphincteric and extrasphincteric pararectal fistulas, prompting the search for newer surgical technologies and the development of treatment algorithms.

Keywords: Rectal fistulas, flesh, coloproctology, paraproctitis.

Introduction. These fistulas are among the most complex issues in colorectal surgery, often causing social and physical distress, leading to significant discomfort and complications such as gas and fecal incontinence. The disease often develops against the backdrop of chronic anorectal pathology, complicated by purulent infections. When untreated, these conditions require complex surgical intervention and carry a high risk of postoperative recurrence. Transsphincteric and extrasphincteric pararectal fistulas frequently affect individuals of working age, causing significant social and physical impairment. Factors contributing to the development of these fistulas include obstetric trauma, such as prolonged labor with extended periods of anhydrous intervals, perineal tears, and other postpartum injuries. In such cases, fistulas are typically characterized by low localization, scar tissue formation, and anal sphincter insufficiency. Other causes include the rupture of abscesses into the rectum, complications from inflammatory bowel diseases like Crohn's disease, diverticular disease, and trauma or surgeries involving the pelvic organs. These fistulas often result in involuntary discharge of feces and gases, leading to skin maceration and irritation in the perianal region and vaginal mucosa. Additionally, persistent vaginitis, exacerbated by the constant presence of intestinal microflora, poses further complications. The presence of high-pathogenic bacterial infections in the vaginal area often leads to recurrent urinary tract infections. Approximately 25% of patients develop varying degrees of sphincter insufficiency due to traumatic injuries, prolonged purulent processes in the rectovaginal septum, and defects in the anal sphincter. Depending on the etiology, transsphincteric and extrasphincteric pararectal fistulas exhibit different topographic and anatomical features, necessitating a differentiated approach to treatment. The only radical cure for these fistulas is surgical intervention. Despite over 100 proposed surgical techniques, the recurrence rate ranges from 10% to 40%. Early recurrence is primarily due to wound infection, incorrect surgical method selection, technical difficulties related to fistula localization, tissue destruction, scarring, and extensive tissue involvement. Modern research highlights the importance of individual surgical method selection for each patient. However, standardized and adapted algorithms for choosing surgical tactics, considering factors like fistula etiology, synoptic placement, and relationship to the anal margin, perineum, and muscle apparatus of the rectal sphincter, are yet to be established. Most researchers attempt to create a universal treatment method for all types of pararectal fistulas. Therefore, optimizing the treatment strategy for transsphincteric and extrasphincteric pararectal fistulas remains a pressing issue in modern proctology.

Materials and Methods

This study evaluates the immediate and long-term results of surgical treatment in 23 patients with varying degrees of complex transsphincteric and extrasphincteric pararectal fistulas, treated at the 1st Clinic of SamMU Coloproctology Department from 2019 to 2024. Postoperative monitoring lasted at least six months. All patients were initially admitted with well-formed pararectal fistulas for radical surgical treatment. Patients underwent standard examinations, including gynecological and vaginal assessments to exclude concurrent organic pathology and evaluate vaginal microflora. Standard objective examinations included digital rectal examination, vaginal and bimanual examinations to determine the length of the anal canal, localization of the internal opening, its size, height, presence of inflammatory infiltrate, and scar deformation of the distal rectum.

Diagnostic algorithms involved instrumental methods like anoscopy, rectoscopy, comprehensive anorectal manometry, profilometry, fistulography, endorectal, and vaginal ultrasound. For complex, recurrent fistulas and severe perineal tears, additional studies such as proctography, spiral or magnetic resonance tomography (to assess fistula topography and exclude concurrent surgical or oncological pathology), and electromyography were performed in cases of severe scar deformities. Preoperative preparation included standard laboratory tests and assessment of the quantitative and qualitative composition of pathogenic microflora in the vagina and rectum to adjust postoperative antibiotic therapy, especially for recurrent fistulas. Preoperative preparation involved vaginal sanitation with antiseptics and, where possible, fistula tract sanitation with antiseptic solutions. Two categories of surgical interventions were applied, deemed the most pathogenetically justified. Patients were stratified based on postoperative prognosis, including those with perineal tears during childbirth, acute paraproctitis, and pelvic floor relaxation, who had the worst prognosis with standard interventions. Radical excision of pararectal fistulas was a mandatory component for both groups. In the control group, nine patients underwent fistula excision with closure of the internal rectal opening using a mucosal-submucosal flap, followed by layered closure of the wound and vaginal wall plastic surgery without sphincteroplasty components. In the main group, eight patients underwent a modified operation involving segmental proctoplasty of the internal fistula opening in the rectum with a P-shaped full-thickness rectal wall flap, fixed with sutures around the wound, and the vaginal wall defect was covered with a mobilized mucosal-submucosal flap after anterior sphincteroplasty.

Results and Discussion: Postoperative care aimed to create the best conditions for wound healing and quick recovery, including diet, correction of systemic and local disorders, and dressings. Daily dressings with vaginal douching using antiseptic solutions began on the first day after surgery. A comparative analysis of surgical treatment results for transsphincteric and extrasphincteric pararectal fistulas was conducted. Among patients who underwent fistula excision with layered wound closure and vaginal wall plastic surgery without sphincteroplasty, one recurrence was noted within 1-1.5 months post-surgery, due to inadequate separation between the vaginal and rectal walls, wound infection, and suture erosion. Antibiotic therapy was administered for 7-10 days to prevent septic complications. Postoperative pain management with non-narcotic analgesics lasted 3-6 days.

In the group undergoing modified surgery with segmental proctoplasty, anterior sphincteroplasty, and vaginal wall plastic surgery, no recurrences were recorded, although one patient experienced inflammatory infiltration in the postoperative wound, managed conservatively within two weeks. Antibiotic therapy lasted 5-7 days, and pain management continued for up to six days without further need for parenteral analgesics. Standard postoperative course analyses showed no significant inflammatory reactions (leukocytosis did not exceed $9.3x10^9$/L, minimal left shift in the leukocyte formula, no lymphopenia). Exceptions included cases with recurrences and early postoperative wound infiltration, indicated by moderate leukocytosis. At 6-12 months, 11 patients with modified surgery underwent follow-up endorectal ultrasound, showing positive changes such as resolution of inflammatory infiltration and normalization of the rectovaginal septum thickness.

Conclusions: The study identified significant advantages and the potential of the proposed method using anterior sphincteroplasty. This technique allows for the layered reconstruction of the rectovaginal

septum, preventing the spread of infection from the rectal lumen to the rectovaginal septum and the vagina, thus being a crucial step in preventing postoperative complications and recurrences. The proposed method shortens wound healing time, reduces the need for antibiotics and analgesics, and demonstrates promising outcomes. Implementing the radical excision technique combined with segmental proctoplasty, anterior sphincteroplasty, and vaginal wall plastic surgery is the most effective approach, significantly reducing postoperative complications and recurrences. The separation of the rectovaginal septum walls and creation of a fascial-muscular layer through anterior sphincteroplasty restores the anatomy of the perineum and pelvic floor, preventing the spread of infection. Stable positive results in the second clinical group highlight the correctness of the chosen strategy, particularly for patients with the highest risk of complications and recurrences. This method reduces pain, restores rectal function and its sphincter apparatus, as evidenced by immediate and long-term results, and offers good cosmetic outcomes. Practical implementation of this modified surgical method, which is pathogenetically justified, reduces hospital stay duration due to early rehabilitation and fewer postoperative complications. Fewer recurrences decrease the number of repeat hospitalizations, emphasizing the social and economic efficiency of the proposed method. Specific surgical techniques for flap mobilization and plastic surgery need further refinement through ongoing research, but current advantages are already convincing.

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