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Improving Methods for Surgical Treatment of Extra-Sphinteric and Highly Transfinteric Licors of The Rectal Intestine

Khujabaev S.T.[1], Mukhtarov R.I.[2], Dusiyarov M.M.[3]
[1,2,3]Samarkand State Medical University

Abstract: The study included 119 patients with high transsphincteric and extra-sphincteric pararectal fistulas operated on in the coloproctology department of the SamSMU clinic. The use of the new surgical method allows for a 10% reduction in the intensity of pain syndrome in patients at rest and a 20% reduction in the frequency of postoperative complications after defecation, compared to the operation of lowering the rectal segment with subsequent fixation of the patch in the nearest observation period, and reduces the incidence of anal incontinence by 5.7% after 3 months and by 8.4% after 1 year after surgery compared to the traditional method. The use of the new surgical intervention method compared to the operation of lowering the rectal segment with subsequent fixation of the patch allows for a 10.3% reduction in disease recurrence after 1 year and a 12.4% reduction after 3 years.

Keywords: Rectal Fistulas, Complex Forms, Surgical Treatment

Introduction

Complex forms of chronic paraproctitis include transsphincteral fistulas penetrating the deep portion of the external anal sphincter, transsphincteral anterior fistulas in women, horseshoe-shaped, repeatedly recurring fistulas accompanied by anal sphincter insufficiency, and all extra-sphincteral pararectal fistulas. Complex forms of chronic paraproctitis account for 30-45% of the total number; their treatment is a serious surgical one [1,2, 3].

After surgical intervention for chronic paraproctitis, the risk of disease recurrence ranges from 4.7 to 53. This is due to the difficulty of detecting the internal orifice of the fistula, scarring and inflammatory changes in the parotid and rectal tissues, the presence of hidden additional fistula branches and purulent protrusions, and the specifics of the applied method and surgical technique. After surgeries, the degree of anal incontinence reaches up to 83%. This is due to the fact that a radical operation to eliminate the fistula and its internal opening is impossible without affecting the fibers of the anal sphincter [4]. All of this indicates the relevance of this problem and necessitates the search for new methods for the surgical treatment of patients with complex forms of pararectal fistulas.

Rectal fistulas (anal canal fistulas) are among the most pressing and complex issues in modern coloproctology. According to global statistics, the prevalence of this disease is 1.6–2.2 cases per 10,000 population in developed countries, with rectal fistulas ranking 5–8th in the structure of proctological diseases. In Russia, more than 45,000 new cases are diagnosed annually, which determines the high social and economic significance of the problem.

Extrasphincterous and high transphincterous fistulas of the rectum are among the most complex forms of this pathology in terms of treatment tactics. The frequency of extrasphincteral fistulas ranges from 10 to 25% among all anal fistulas, while high transphincteral fistulas range from 15 to 35%. It is these categories of patients that pose the greatest diagnostic and therapeutic difficulties, as they require specialized surgical approaches and often lead to the development of severe complications - fecal and gas incontinence[5,6,7].

Purpose of the Study

Develop and implement a new method for the surgical treatment of patients with complex pararectal fistulas.

Relevance of the Research Topic

Pararectal fistulas are a common disease that accounts for 20-40% of all diseases of the rectum. Up to 15% of patients hospitalized in coloproctology departments have this pathology. One of the causes of pararectal fistula formation is the untimely and/or non-radical treatment of patients with acute paraproctitis.

Materials and Methods

The study included 119 patients with high transsphincteric and extra-sphincteric pararectal fistulas operated on in the coloproctology department of the SamSMU clinic. As a surgical treatment method, 55 patients in the control group underwent the lowering of a segment of the rectum and all its layers, followed by lump fixation and suturing of the perineal wound using the method of the State Scientific Center of Coloproctology of the Russian Federation. The

main group included 64 patients who underwent modified surgical treatment for transsphincterous and extra-sphincterous fistulas of the rectum. The average age of patients in the main and control groups was 42±12.94 and 41±12.8 years, respectively (Student's t-test = 0.087, p>0.05). The majority of patients were in two age groups: from 20 to 39 and from 40 to 59 years, with 83 (69.7%) men and 36 (30.3%) women. The majority of patients noted the appearance of the first symptoms of chronic paraproctitis between the ages of 1 and 5 years—75 (63.1%) such patients. The duration of the disease was up to 1 year in 21 (17.6%) patients, and more than 5 years were observed in 19 (15.9%) patients. The disease history rarest reached 20 years, which was recorded in 4 patients (3.4%).

Results and Discussion

In the anamnesis, spontaneously opened acute paraproctitis was present in 32 (26.9%) patients. The remaining 87 (73.1%) patients had previously undergone surgical treatment—opening acute paraproctitis under local or general anesthesia. To determine the clinical form of fistulas, we utilized the paraproctitis classification developed at the Research Institute of Coloproctology of the Ministry of Health of the Russian Federation (2020). Of the 119 patients, 83 (69.7%) were patients with high transsphincteral and 36 (30.3%) with extra-sphincteral fistulas of the rectum.

A modified method of surgical treatment for patients with complex pararectal fistulas. All patients underwent spinal anesthesia. Cerebral dura mater puncture was performed at one of the L3-L4, L4-L5, and L5-S1 levels while the patient was lying or sitting. 1-2 ml of a 0.5% marcaine solution or 2-3 ml of a 2% lidokaine solution were used. Exposure time – 5 min. The upper level of sensory block is L2-L3. The operation was performed in the patient's lithotomic position. After treating the surgical field and rectum, the fistula duct was stained by injecting 1% alcohol solution of diamond green with 3% hydrogen peroxide solution in a 2:1 ratio into the external opening of the fistula[8,9,10]. The criterion for the patency of the fistula tract was the passage of contrast through the internal fistula orifice. Monopolar coagulation was used to excise the pararectal fistula with an external fistula opening directly to the rectal wall. The identified fistula duct was intersected near the muscular wall of the rectum. Subsequently, the culture was scraped with a Folkman spoon and treated with a 5% alcohol solution of iodine. In the area of the internal fistula, hydropreparation was performed by injecting 20–30 ml of a 0.25% novokaine solution or a 0.9% sodium chloride solution into the submucosal space of the rectum. An arc-shaped incision of the perianal skin was made 2-3 mm below the transitional skin-anal line with a length of 1-1.5 cm, separating the mucous-submucosal layer of the rectum according to the location of the internal opening of the fistula and 1 cm above the fistula with its intersection (Figure 3). The separated patch has the shape of an equilateral triangle with a base length of 1–1.5 cm and a vertex angle of 20°; an internal fistula opening should be located 1 cm from its vertex (Figure 1, 2).

Figure 1. Separation of a mucous-submucosal lump from the rectum in patient D., 35 years old, diagnosed with: Chronic paraproctitis, complete transsphincteric pararectal fistula.

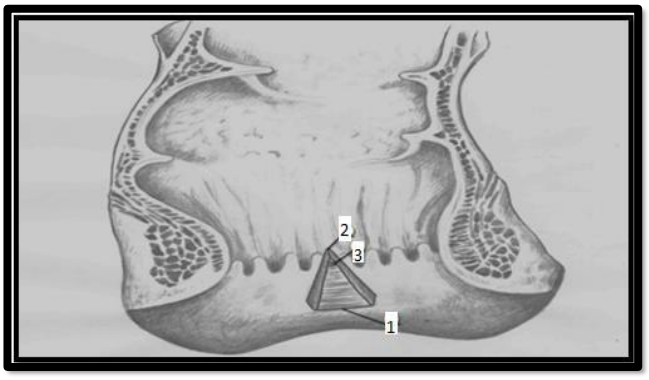

Figure 2. Schematic representation of the anal canal and the lower ampullary part of the rectum. 1. The base of an isosceles triangle; 2. The vertex of an isosceles triangle; 3. localization of the internal fistula orifice.

The separated mucosal-submucosal flap was also cut in the form of an equilateral triangle within its mobilization boundaries, so that the vertex of the triangle was 0.5 cm above the internal fistula opening. Thus, along with the cut

piece, we performed the removal of the internal fistula orifice and the cicatricial changes of the mucous membrane around it. The internal fistula orifice was sutured in the muscular layer of the rectum with a double-row node suture using synthetic dissolving material 3-0 (Figure 3, 4).

Figure 3. Stitching of the muscular layer of the rectum with an internal fistula opening in patient D., 35 years old, diagnosed with: Chronic paraproctitis, complete transsphincter pararectal fistula.

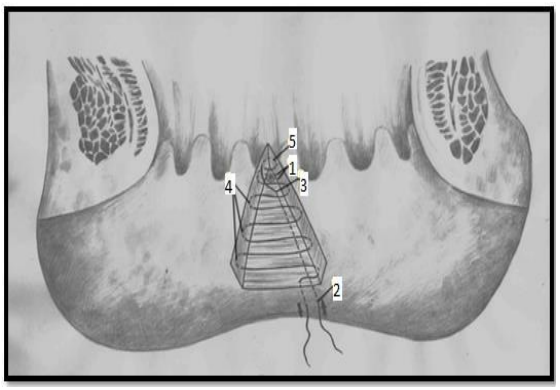

Figure 4. Schematic representation of continuous joint formation. 1. - sutured internal fistula opening; 2. - the place where the seam formation begins; 3. - Puncture site in the wound below the sutured internal fistula opening; 4. - formation of a continuous suture behind the submucosal layer of the rectum; 5. is the vertex of an isosceles triangle;

To evaluate the function of the sphincter in the near future, sphincterometry was performed during a follow-up examination 3 months after the start of observation. Also, during this examination, patients' complaints related to anal incontinence were analyzed[11,12,13].

Clinical complaints corresponding to anal sphincter insufficiency were identified in 1 patient (1.6%) in the main group and in 4 patients (7.3%) in the control group.

Using the Cleveland scale of fecal incontinence, the following data were obtained: 0.25±0.44 points in the main group and 1.15±1.8 points in the control group.

Three months after the surgery, 2 relapses of the disease were identified in patients of the main group (3.1%). Among the patients in the control group, 6 cases of disease recurrence (10.9%) were identified.

These cases were identified in patients with anal canal suture failure or necrosis of the displaced patch in the postoperative period.

One year after the start of observation, 106 patients (88.1%) appeared for a follow-up examination. Of these, 58 patients were in the main group (54.7%) and 48 patients in the control group (45.3%).

Three years after the start of observation, 41 patients (34.5%) appeared for a follow-up examination. Of these, 21 patients were in the main group and 17 patients in the control group.

When collecting medical history, clinical complaints corresponding to anal sphincter insufficiency were also identified in 1 patient (1.7%) in the main group and in 5 patients (9.1%) in the control group.

Using the Cleveland scale of fecal incontinence, the following data were obtained: 0.25±0.44 points in the main group and 1.27±1.9 points in the control group.

Within 1 year after the surgery, 5 relapses of the disease (7.8%) were significantly identified in patients of the main group. Among the patients in the control group, 10 cases of disease recurrence (18.1%) were identified. These recurrence cases were primarily identified in patients with postoperative complications in the form of anal canal wound suture failure or necrosis of a displaced rectal lump. Based on the results of control examinations during the observation period, the patients were divided into 3 groups. We considered the absence of recurrence and postoperative complications to be a good result. This was recorded in 54 (84.4%) patients of the main group and 36 (65.4%) patients of the control group[14,15].

In 4 (6.3%) patients of the main group and 7 (12.7%) patients of the control group, postoperative complications without disease recurrence were observed, which we assessed as a satisfactory result.

The recurrence of the disease was identified in 6 (9.4%) patients of the main group and 12 (21.8%) patients of the control group, indicating an unsatisfactory result of the patients' treatment.

Conclusion

1. The developed method of surgical treatment for patients with complex pararectal fistulas consists of excising the fistula duct and eliminating its internal fistula opening by lowering and fixing the rectal mucosa with a continuous suture, which allows for proctoplasty without mobilizing the mucous-submucosal flap.
2. Indications for the use of the new surgical treatment method are complex pararectal fistulas, cicatricial changes in the area of the internal fistula orifice, and anterior localization of the fistula duct in women. Contraindications for the use of the developed treatment method include pararectal fistulas caused by inflammatory intestinal diseases (Crohn's disease), recurrence of pararectal fistulas after proctoplasty or ligature treatment.
3. The application of the new surgical method reduces the intensity of pain syndrome in patients at rest by 10%, and after defecation by 20%, and reduces the frequency of postoperative complications by 16.8% compared to the operation of lowering the rectal segment with subsequent fixation of the patch in the nearest observation period, and reduces the incidence of anal incontinence by 5.7% after 3 months and by 8.4% after 1 year after surgery compared to the traditional method.
4. The use of a new surgical intervention method compared to the operation of lowering the rectal segment with subsequent fixation of the patch allows for a 10.3% reduction in disease recurrences after 1 year and a 12.4% reduction after 3 years.

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