

How to Optimize Surgical Treatment of Chronic Anal Fissure Combined With Rectocele In Women

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ABSTRACT

Anal fissure is a common condition in women of all ages. The most common causes are childbirth and constipation. Anal fissure is often diagnosed in women with rectocele. Unsatisfactory results of surgical treatment of chronic anal fissures in patients with rectocele enforce to continue the investigations for the optimal solution of this problem.

The aim of research was to improve the results of surgical treatment of chronic anal fissures in patients with rectocele.

Materials and Methods. In 2015-2019, on the basis of the Surgery Department of Belgorod National Research University and Coloproctology Department of Belgorod St. Joasaph's Hospital, we conducted a comparative assessment of the results of surgical treatment of 74 patients with rectocele and chronic anal fissure, who underwent isolated surgery of anal fissure excision (1st group, n=35) and anal fissure excision, combined with posterior colporrhaphy in the 2nd group (n=39). According to indications for spasm of the internal anal sphincter, in patients of both groups internal lateral sphincterotomy was performed.

Results. Local pain syndrome in the anus area in the first day after the operation in all patients was intensive. Starting from the 2nd day, the pain in the area of the vaginal wound of the patients of the 2nd group almost did not bother them. On 3±1 day of the postoperative period, pain during and after defecation in patients of the 2nd group were less pronounced than in patients of the 1st group. Starting from 4th day, patients of the 2nd group had pain only during and after defecation for 15-25 minutes. In patients of the 1st group, the pain syndrome was more intense and persisted for 5-7 days of the postoperative period. Hyperemia and edema of the mucosa, infiltration of the wound edges and fibrin layers on the wound in patients of the 2nd group were less pronounced and decreased faster. The anal wound bleeding at the end of the first defecation was noted in 18 (46.2%) patients in the 2nd group and stopped in 2-3 days. In the 1st group patients wound bleeding during first defecation was registered in 25 (71.4%) (P=0.855). It persisted in comparison with the 2nd group of patients for an average of 2-3 days longer. Moreover, in 5 patients it was noted on 10-12 days after surgery. The results of cytological examination of smears from the surface of wounds showed more favorable course of the wound process in patients of the 2nd group. By the 3rd day in smears from wounds taken from patients of both groups there is a large number of neutrophils. In the 2nd group of patients, phagocytosis in almost all was complete with an average intensity of 82.5%. In the 1st group of patients, phagocytosis in 36.5% was incomplete. The intensity of phagocytosis was on average 58.3%. On 4-5 days in cytograms of patients of the 2nd group there were signs of repair - the appearance of single-core histiocytic cells: profibroblasts, fibroblasts. On day 6-8 connective tissue cells appear: fibrocytes and epithelial cells. In most patients of group 1 27 (77.1%) granulocytic and macrophagal reactions lasted on average for 3-4 days longer. Cellular signs of wound repair appeared later, on 6th-8thdays after surgery.

Conclusion. Analysis of the results of surgical treatment of anal fissures by its excision and simultaneous pelvic floor plastic surgery showed better results than in patients who had surgery for anal fissure only.

Keywords: anal fissure, rectocele, surgical treatment, wound healing

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INTRODUCTION

Anal fissure is a common condition in women of all ages. It is manifested by a pronounced pain syndrome in the anal area and significantly reduces of patients' quality of life. The etiology of anal fissures is multifactorial. The most common causes are childbirth and constipation. Acute anal fissures are considered within 4-8 weeks from the moment of occurrence and require conservative therapy. If this therapy does not help and the fissure becomes chronic, surgery is usually required. The problem of surgical treatment of such combined pathology as chronic anal fissure and rectocele is actual because of high frequency of its occurrence. Difficulties in defecation negatively affects anal fissure healing and wound healing after excision of anal fissures in patients with rectocele. Unsatisfactory results of surgical treatment of chronic anal fissures in patients with rectocele enforce to continue the investigations for the optimal solution of this problem.

The aim of our research was to improve the results of surgical treatment of chronic anal fissures in patients with rectocele.

MATERIALS AND METHODS

In 2015-2019, on the basis of the Surgery Department of Belgorod National Research University and Coloproctology Department of Belgorod St. Joasaph's Hospital, we conducted a comparative assessment of the results of surgical treatment of 74 patients with rectocele and chronic anal fissure, who underwent isolated surgery of anal fissure excision (1st group, n=35) and anal fissure excision, combined with posterior colporrhaphy in the 2nd group (n=39). According to indications for spasm of the internal anal sphincter, in patients of both groups internal lateral sphincterotomy was performed.

For the diagnosis of anal fissure and pelvic prolapse, the following research methods were used: visual examination, rectum and vagina manual examination, rectoscopy, including straining by Parkes, defectography,

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perineal ultrasound and MRI, ano-rectal functional tests using a multifunctional computer system to study the functional state of the pelvic floor Poligraf ID of Medtronic Company. All these were also used for results assessments after operation. Patients with unsatisfactory anatomical and functional results of rectocele repair were

not included in the data analysis. Patients of both groups did not differ significantly in demographics, sort and severity of co morbidity, degree of rectocele, and anal fissure localization (table 1).

Table 1. Patients' demography status, co morbidity and characteristics of the studied pathology

Parameter. (Anal fissure surgery only)	Group 1 (Rectocele + anal fissure surgery)	Group 2
	n=35	n=39
Mean age (years)	49.7±6.2	48.4±5.9
Body mass index (kg/m ²)	28.3±4.1	29.1±3.5
Mean number of births	2.2±0.7	2.3±0.6
In menopause	29 (82.9%)	30 (76.9%)
Usage of estrogen replacement therapy (among them)	10 (34.5%)	9 (30%)
Concomitant disease:		
Obstructive pulmonary disease	4 (11.4%)	5 (12.8%)
Mellitus	5 (14.3%)	5 (12.8%)
Obesity	8 (22.9%)	10 (25.6%)
Anal fissure location:		
Posterior	14 (40%)	15 (38.5%)
Anterior	15 (42.9%)	17 (43.6%)
Combined	6 (17.1%)	7 (17.9%)
Rectocele stage (POP-Q)		
II degree	12 (34.3%)	16 (41.1%)
III degree	23 (65.7%)	23 (58.9%)

P > 0.05 for all comparing parameters

All patients underwent surgery under peridural anesthesia. In the postoperative period all patients received the same therapy. Narcotic analgesics were used for pain relief during the first day after the operation (Sol. Promedoli 1%-2.0 intramuscularly 3 times per day). For the next 7 days all patients received Ketoprofen at a dose of 150 mg orally 2 times a day. In both groups, the operation of excision of the anal fissure was completed by inserting into the anal canal a narrow gauze tampon soaked in ointment. A water-soluble ointment based on polyethyleneoxide-400 and polyethyleneoxide-1500 and contains 7.5 mg of chloramphenicol and 40 mg of methyluracil in 1 gram was used.

The results of anal fissure surgery were estimated by the severity of the pain syndrome, the process of wound healing, time duration until complete epithelization of anal canal wounds. The intensity of pain syndrome was assessed by patients using a 10-point visual analog scale. This assessment was carried out by them on the 2±1 day after surgery after the first defecation. Subsequently, pain assessment was performed by patients on day 5±1 and 7±1 also after defecation. At the same time, the course of wound healing was monitored. It was carried out by cytological examination of smears-scraping prints from

the wound surface. Long term results of patients' treatment were evaluated on day 50±2 to control complete epithelialization of the wound surface. In the follow-up of 5-6 months, the frequency of relapses of the disease was estimated.

RESULTS

In all patients of both groups in the postoperative period the general condition remained satisfactory. Local pain syndrome in the anus area in the first day after the operation in all patients was intensive. Starting from the 2nd day, the pain in the area of the vaginal wound of the patients of the 2nd group almost did not bother them. On 3±1 day of the postoperative period, pain during and after defecation in patients of the 2nd group were less pronounced than in patients of the 1st group. Starting from 4th day, patients of the 2nd group had pain only during and after defecation for 15-25 minutes. In patients of the 1st group, the pain syndrome was more intense and persisted for 5-7 days of the postoperative period (table 2).

Table 2. Dynamics of pain syndrome severity in points in patients of the 1st and 2nd groups for the duration of observation

Time of observation (day)	Group 1 (Anal fissure surgery only)	Group 2 (Rectocele + anal fissure surgery)	The significance of differences (P)
	n=35	n=39	
1	7.8±1.2	8.1±1.9	P=0.894
3±1	6.9±1.5	5.3±1.5	P=0.453
5±1	5.1±1.3	4.2±1.6	P=0.664
7±1	3.4±1.6	2.2±1.3	P=0.562

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Clinical criteria of the healing process of the wounds in the anal canal convincingly demonstrate the advantages of combined surgical treatment (table 3). Hyperemia and edema of the mucosa, infiltration of the wound edges and fibrin layers on the wound in patients of the 2nd group were less pronounced and decreased faster. The anal wound bleeding at the end of the first defecation was

noted in 18 (46.2%) patients in the 2nd group and stopped in 2-3 days. In the 1st group patients wound bleeding during first defecation was registered in 25 (71.4%) (P=0.855). It persisted in comparison with the 2nd group of patients for an average of 2-3 days longer. Moreover, in 5 patients it was noted on 10-12 days after surgery.

Table 3. Frequency and types of local complications in the anal wounds in postoperative period in patients of the 1st and 2nd groups

Clinical criteria (Anal fissure surgery only) anal fissure surgery) n=35	Group 1 (Rectocele + n=39	Group 2 differences (P)	The significance of
Hyperemia and edema of the anal wound edges	29 (82.9%)	21 (53.8%)	P=0.277
Hyperemia and edema of the perianal area	15 (42.9%)	3 (7.7%)	P=0.007
Fibrinous layer on the wound	27 (77.1%)	12 (30.8%)	P=0.030
Anal wound bleeding at the end of defecation (7 th day)	28 (80%)	9 (23.1%)	P=0.004

The results of cytological studies showed that all patients of the 1st and 2nd groups had almost no differences in cytograms on the 1-2 day after surgery. By the 3rd day in smears from wounds taken from patients of both groups there is a large number of neutrophils. In the 2nd group

of patients, phagocytosis in almost all was complete with an average intensity of 82.5%. In the 1st group of patients, phagocytosis in 36.5% was incomplete. The intensity of phagocytosis was on average 58.3% (figure 1a, 1b).

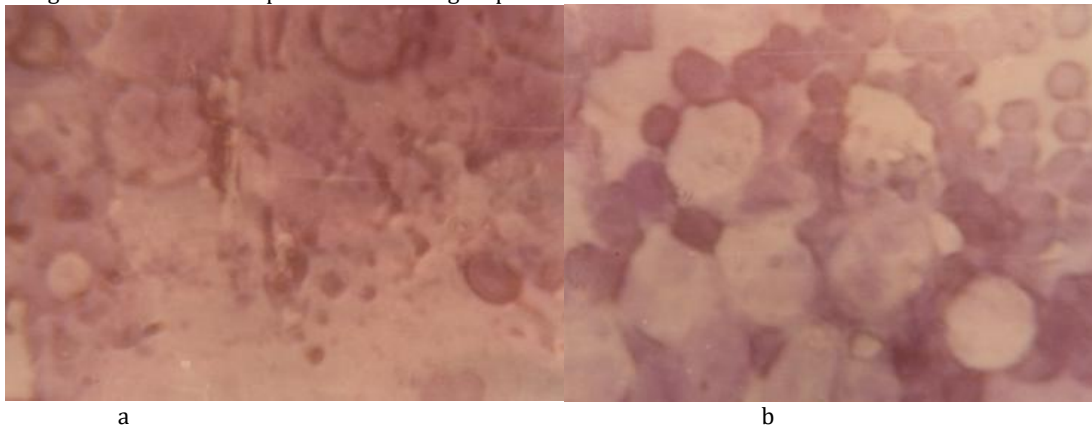


Figure 1. Cytograms of scrapings from the walls of wounds after excision of anal fissures on the 3rd day after surgery: a – 1st group, b – 2nd group

On 4-5 days in cytograms of patients of the 2nd group there were signs of repair - the appearance of single-core histiocytic cells: profibroblasts, fibroblasts. The number of leukocytes, including phagocytic cells, gradually decreased. The presence of a relatively large number of

microorganisms in some cytograms against the background of a favorable course of the wound process was regarded as a transient contamination during the act of defecation (figure 2a, 2b).

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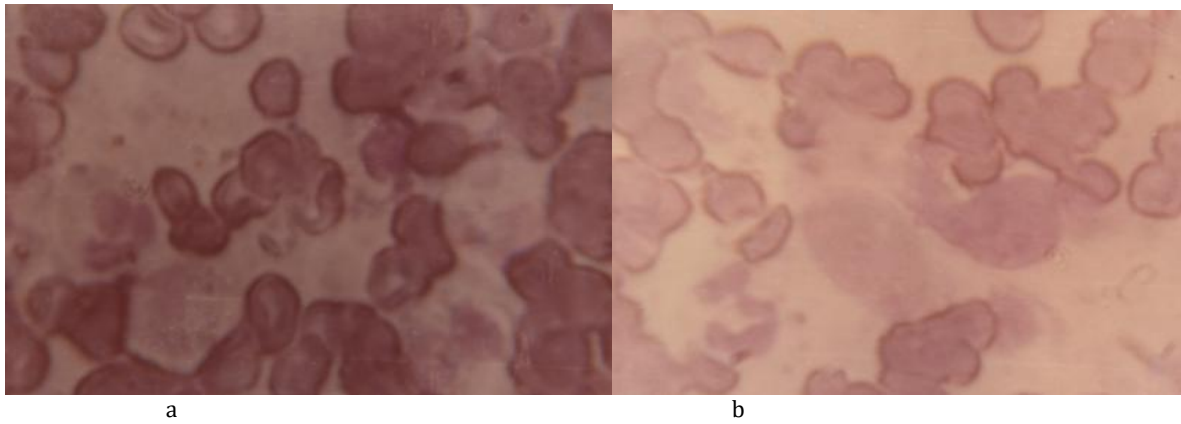


Figure 2. Cytograms of scrapings from the walls of wounds after excision of anal fissures on the 5th day after surgery: a – 1st group, b – 2nd group

On day 6-8 the number of leukocytes decreases even more. Mature connective tissue cells appear: fibrocytes and epithelial cells. In most patients of group 1 27 (77.1%) granulocytic and macrophagal reactions lasted on

average for 3-4 days longer. Cellular signs of wound repair appeared later, on 6th-8th days after surgery (figure 3a, 3b).

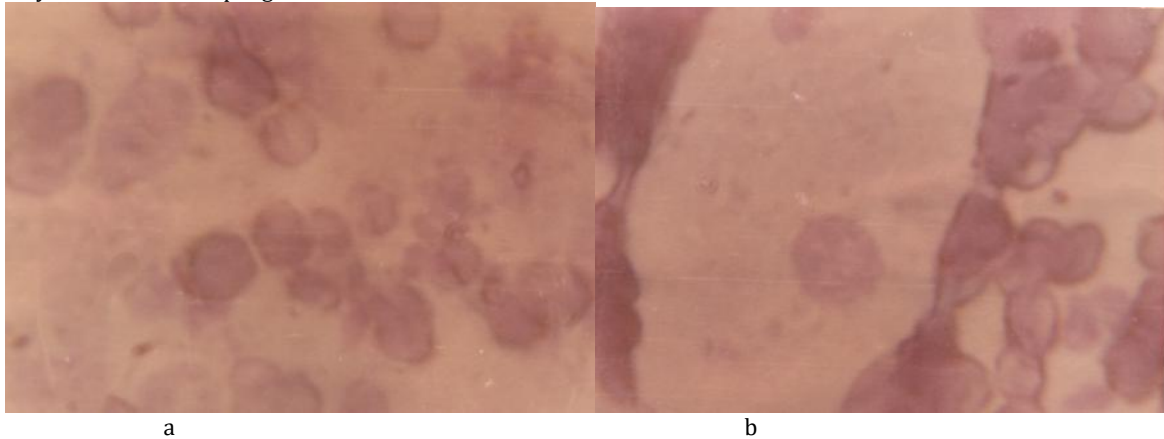


Figure 3. Cytograms of scrapings from the walls of wounds after excision of anal fissures on the 3rd day after surgery: a – 1st group, b – 2nd group

Evaluation of the results of treatment of wounds within 50±2 days after excision of anal fissures showed that in group 2, complete epithelization occurred in 35 (89.7%) patients. Whereas in group 1, complete epithelization was observed only in 25 (71.4%) patients (P=0.619). In the

follow-up of 5-6 months, the frequency of relapses of the disease in the 1st group of patients was noted in 6 (17.1%), while in the 2nd group of patients it was noted in 2 (5.1%) (P=0.027).

DISCUSSION

An anal fissure is a small tear in the thin, moist tissue (mucosa) that lines the anus. Anal fissures are a common pathology that is localized in the area of the anal canal [1, 2, 3, 4]. From 6% to 15% of visits to the coloproctologist are for patients with this pathology [5]. The appearance of an anal fissure is most often caused by trauma of anal canal during defecation. It may be caused by solid feces when passing through [6, 7]. Most often, in 90% of cases, anal fissures, both in men and women, are localized along the posterior midline of the anus [7, 8, 9]. This is due to the configuration of the muscles surrounding the anus. This muscle complex, called the external and internal anal sphincters, underlies the pelvic floor and supports the anal canal. These muscles are oval in shape, have good lateral support, and weak in the back. Therefore, anal fissures most often occur from behind. Women also have weak support of the anterior part of the anal canal due to the presence of a vagina. Therefore, in 10% of cases, women have anterior fissures, and in men they are noted only in 1% [10]. In the groups of patients, we studied, anterior anal fissure was more common, in 42-44%. We explain this fact by the greater weakness of muscle and

connective tissue in the rectovaginal septum in patients with rectocele.

The main pathogenetic mechanism that turns an acute fissure into a chronic one consider to be internal sphincter spasm, which leads to disruption of blood supply to anoderm and the appearance of a nonhealing ulcer of anoderm. Physiological studies of the anal canal in patients with anal fissures show that the muscles surrounding the anal canal are spasmed, and the pressure in the anal canal exceeds its normal values [8, 11].

Separately, we should focus on anal fissures that occur after childbirth. They are formed as a result of trauma to the tissues of the fetus during the passage of the birth canal and occur mainly on the anterior midline of the anus. Also, they do not show an increased tone of the internal anal sphincter. Therefore, sphincterotomy is not indicated for surgical treatment [12]. In our opinion, the combination of anal fissures with rectocele in these patients is often noted [13].

There is evidence that in patients with anal fissures, the rectoanal inhibitory reflex is followed by an abnormal increase in puborectal muscle contraction. On the one hand, this explains the sphincter spasm and pain

experienced by patients with anal fissure during defecation [1]. On the other hand, it leads to increased symptoms of obstructive defecation in the presence of pelvic floor prolapsed [14].

In normal when fecal masses reach the rectum before defecation, the internal anal sphincter automatically relaxes to allow them to pass. In patients with anal fissure, the internal anal sphincter is in a spasmodic state. In addition, after the sphincter finally relaxes to allow the intestinal contents to evacuate outwards, instead of returning to its original resting level, the internal anal sphincter contracts even more within a few seconds. It is believed that high resting pressure and "excessive" contraction of the internal anal sphincter after defecation push the edges of the fissure and prevent it from healing [14].

Insufficient blood supply to the anal canal can also cause poor healing of anal fissures. As a result of spasm of the internal anal sphincter, the blood vessels of the anal canal may be compressed and its blood supply may be disrupted [15, 16, 17, 18].

Our research has shown that anal fissures are often found in women with rectocele, which is manifested by difficult defecation [19]. Obstructive defecation prevents anal fissure from healing. We consider that spasm of the anal sphincter in women with rectocele creates even more difficulties during defecation and leads to the progression of rectocele [14]. On the other hand, the weakness of the anatomical support of the anal canal, as mentioned above, is more pronounced in rectocele women [20]. This is confirmed by the fact that fissures in women with rectocele are harder to treat conservatively. On the other hand, in our previous studies, it was shown that simultaneously produced pelvic floor plastic helps to optimize the course of the postoperative period after hemorrhoidectomy [13, 19]. Considering all the factors, we assumed that it would be correct to perform combined surgical treatment for patients with anal fissure and rectocele.

So, like the most other authors, we in our practice use the following algorithm for treating anal fissures, even if they are combined with rectocele and obstructive defecation [2, 12, 21, 22, 23, 24, 25]. At the initial stage, we prescribe lactulose to normalize defecation and topical medicine with lidocaine or benzocaine for pain relief. With increased tone of the anal sphincter, we assign ointments with nitroglycerin or nifedipine. If conservative treatment is ineffective, we perform complex surgical treatment, which consists of posterior colporaphy and excision of the anal fissure. According to the indication, we supplement it with an internal lateral sphincterotomy.

CONCLUSION

Analysis of the results of surgical treatment of anal fissures by its excision and simultaneous pelvic floor plastic surgery showed better results than in patients who had surgery for anal fissure only. Our studies have shown that pain associated with defecation in patients after combined surgical treatment is less pronounced, and wounds heal in a shorter time. In patients after combined incision of anal fissures and reconstruction of the pelvic floor recurrence of fissures are observed more rarely.

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