



**PRINCIPLES OF TREATMENT OF RECTAL SURGICAL DISEASES: ADVANTAGES
AND DISADVANTAGES
(LITERATURE REVIEW)**

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Annotation: According to the latest data from the World Health Organization, 20-30% of patients applying to the surgical department have 2 or more comorbidities, and this indicator is increasing year by year. This, in turn, requires surgical treatment, as in any disease. According to various sources, the prevalence of proctologic diseases is very high - from 120 to 186 per 1000 population, of which 10 to 50% of the population is in need of treatment, and in 75% of cases, surgical intervention is required.

Keywords: acute and chronic paraproctitis, hepatitis, anal hernia, DHAL-RAR, Fistula-tract Laser Closure, Ligation of Intersphincteric Fistula Tract, Seton method.

Introduction. Among proctologic diseases, among non-tumor pathologies, there is a trend towards an increase in the incidence of hemorrhoids in the rectum and anal canal, chronic rupture of the anal canal, polyps of the anal canal and rectum, acute and chronic paraproctitis, and concomitant diseases requiring surgical treatment. However, it should be noted that while some researchers emphasize the need to expand the indications for these operations, while noting their positive qualities, others approach this issue very cautiously, justifying their opinions with a high percentage of complexity, and emphasizing that these operations should only be performed by a highly qualified surgeon and based on very strict indications. As many researchers note, the advantages of combined operations are as follows: the patient is treated simultaneously for 2 or 3 surgical diseases, the progression of the pathological process can be prevented, the patient's stay in the hospital for the planned operation and subsequent treatment time are reduced, the risk of re-anesthesia and its complications is eliminated, the need for re-examination and preoperative preparation is eliminated, and the economic efficiency of treatment increases. Therefore, it is very important to accurately assess the specific clinical characteristics of the patient, create individual treatment plans and combine different treatment methods.

According to various sources, the prevalence of hemorrhoids is very high - from 120 to 186 cases per 1000 population, of which 10 to 50% of the population is in need of treatment, and in 75% of cases, surgical intervention is required [5, 16, 23]. Hemorrhoids as a separate nosological unit is observed in approximately 82.1% of cases and in 17.9% of cases with other proctological diseases [8, 13]. Causes of hemorrhoids: congenital insufficiency of the venous blood system, blockage of the rectal veins with slow blood flow, sedentary lifestyle, heavy physical labor, pregnancy, childbirth, etc. [5]. However, these theories do not explain the arterial nature of hemorrhagic bleeding. Kapuller L.L. et al. (1974, 1994) suggested that the structural basis of hemorrhoids is due to dilation of the rectal vessels, not varicose veins, hyperplasia of cavernous tissues, and ectasia of portocaval and arteriovenular anastomoses in them. The mechanical theory of hemorrhoids is based on degenerative changes in the tissues of the anal canal. The fibroelastic tissue of the muscle supporting the internal hemorrhagic node begins to deteriorate from the third decade of life. The loss of elasticity leads to the mobility of the hemorrhagic nodes, and they begin to penetrate the anal canal. The constant falling of hemorrhagic nodules leads to thinning



and rupture of the mucous membrane, which, in turn, causes bleeding from hemorrhagic accumulations. Thus, hemorrhoids develop as a result of the combination of many pathogenetic factors [3, 21, 24].

Based on localization, hemorrhoids are divided into external, internal, and combined types, and based on disease progression, into acute and chronic types. There are 4 stages of chronic hemorrhoids [4, 9]:

Stage I - nodules do not descend, during defecation, blood is discharged;

Stage II - the nodes fall off during defecation and self-regulate;

Stage III - the nodes fall off even with insignificant physical movement, do not straighten on their own, but only with the help of the hand;

Stage IV - nodules extending beyond the anal canal are not repaired manually.

There are three degrees of acute hemorrhoids:

I degree - external and internal hemorrhagic thrombosis;

II degree - thrombosis of hemorrhagic nodes with their necrosis;

III degree - transition of inflammation to subcutaneous adipose tissue, necrosis of the mucous membrane of the nodes. Complicated hemorrhagic nodules are indications for surgical treatment.

Many surgical procedures are conventionally divided into 3 main groups:

1. Ligation of hemorrhagic nodules [6, 13, 22];

2. Plastic operations [7, 13]

3. Hemorrhoids excision [6, 22].

According to the literature, treatment of hemorrhoids by the method of dressing leads to many complications: severe pain syndrome (13.7-16.3%), edema in the perianal area (16.2-19.4%), fever (9.1-15.3%), which can occur in the long term - relaxation of the anal sphincter (8-11%), recurrence of hemorrhoids in 9.3-16.2% of cases [2, 10, 19]. The recurrence rate of the disease after the application of latex rings is 8.2-34.1% [22, 23].

Restoration of the mucous membrane of the anal canal and hemorrhagic nodes by excision to the perianal area (Whitehead operation), and Longot surgeries performed using a circular suture apparatus, in turn, lead to severe complications.

The disadvantage of "Hemorrhoidectomy" operations performed with "Covidien" or "Ethicon" circular suture-cutting devices with a diameter of 25-30 mm, performed using mechanical sutures, can lead to anal sphincter insufficiency and anus stricture.

According to the literature, the disadvantages of the methods used in the surgical treatment of hemorrhoids are: the risk of bleeding, postoperative pain syndrome, the possibility of developing anal canal stricture, paraproctitis, painful visual examination of wound healing, a prolonged



period of disability, the risk of developing anal sphincter insufficiency in the long term, and recurrence of the disease by 2-3.4% [10, 15, 22]. A laser method is also used for hemorrhoidectomy, the advantages of which are the absence of bleeding, mild pain syndrome, and a mild postoperative course. However, studies found in the literature indicate the development of anal canal stricture in hemorrhoids with a high risk of recurrence [15, 21]. In the postoperative period, in order to quickly heal the wound and shorten the rehabilitation period, there is also ultraviolet irradiation of the wound in the anal canal with a helium-neon laser, electron analgesia, about which there is no reliable data [22, 24]. One of the most widespread operations was the Milligan-Morgan operation, proposed by W. Miles. In this case, 3 internal and 3 external hemorrhagic nodes (at 3, 7, and 11 clockwise) are pathogenetically justified and removed together with the cavernous tissue located in the submucosal layer of the rectum [9, 15, 21]. One of the disadvantages of this operation is the strong pain syndrome. There is also a modified method of hemorrhoidectomy, in which the wound in the perianal area is not sutured, but left open, i.e., an "open" hemorrhoidectomy is performed, which reduces the time of the operation, reduces pain in the postoperative period, and shortens the rehabilitation period [17].

Among proctological diseases, anal canal rupture ranks 2nd after hemorrhoids in terms of frequency [8, 10, 15]. Chronic anal canal hernia is characterized by severe pain syndrome. It is constantly debated among proctologists due to the contradiction between specific indications and tactical treatment measures [18, 25]. Among rectal diseases, the frequency of anal canal herniation ranges from 11 to 16% and is 20-24 people per 1000 patients. Young and middle-aged women are more susceptible to the disease [10, 18]. There are many known causes of rupture of the anal canal: mechanical, parakeratosis, vascular diseases, neuromuscular changes and injuries of the anal sphincter, defects in the mucous membrane during passage of solid stool, prolonged spasm of the anal sphincter due to neurogenic diseases [6, 22]. The formation of the anal fissure can also be facilitated by the presence of deeply located distal rectal Morgagni crypts on the posterior wall of the anal canal and the connection of the ends of the anal sphincter muscle tendons [18]. A fissure in the anterior part of the anal canal is mainly observed in women.

Often, the anal fissure is accompanied by rectosele and megadolichocolon [3, 18]. The well-defined edges and bottom of the anal canal in the mucous membrane are exposed to intestinal microflora with high virulence in the defect. At the bottom of such a cleft wound, nerve fibers lose their membrane, become bare, which leads to severe pain syndrome [1, 18].

In the chronic period, the edges of such a wound thicken and expand, a "protective growth" forms in the distal part, and sometimes a hyperplastic anal papilla is detected in the proximal part. Usually, anal papillae have nothing to do with true polyps [1, 17].

The formation of an anal fissure can be caused by itching of the anus, condylomas, proctitis, damage to the mucous membrane by foreign bodies, abnormal sexual intercourse, acute proctosigmoiditis, chronic colitis with constipation [10, 11]. Anal fissures are characterized by a triad of clinical manifestations: pain in the anus, spasm of the anal sphincter, and minor anal bleeding. When the anal fissure is combined with hemorrhoids, complaints include nodule prolapse and significant rectal bleeding [3, 7]. Pain causes spasm of the anal sphincter, which in turn intensifies the pain. Pain in the acute anal fissure is intense, but short-term - during defecation or 15-20 minutes after defecation. In chronic anal hernia, the duration of pain is prolonged, and even "fear of defecation" appears. Patients become irritable, are bothered by



insomnia, and frequently give themselves enemas. An anal fissure can lead to severe pain syndrome, bleeding, and complications of acute paraproctitis due to spasm of the anal sphincter [7, 9]. The diagnosis of an anal hernia is very simple (examination of the area around the anus, palpation, finger examination, sphincterometry).

The presence of an incomplete fistula should be ruled out, as it is associated with persistent pain syndrome, and when opening the anal canal with fingers, pus begins to discharge [3, 13]. Finger examination of patients with chronic anal hernia allows one to determine the hernia and its specific localization, the condition of the edges (thickness, elevation), the presence of sphincter spasm, the condition of the walls of the anal canal, and the consistency of the anal papillae [3, 11]. In the chronic period of an anal hernia, surgical treatment is indicated, when conservative treatment is ineffective in the acute period. Many foreign authors use lateral subcutaneous sphincterotomy, proposed by Parks A. [14]. In this case, under the control of the finger inserted into the rectum, only the internal sphincter is isolated. At the end of the operation, a thin tube (for air outflow) and gauze swab with antiseptic ointment are inserted into the anal canal, and the crack wound is considered to heal spontaneously. Considering that the main substrate remains and the depth of lateral dissection of the sphincter cannot be controlled, it is incomplete for the prevention of anal incontinence and is not considered a radical treatment for patients. A radical operation, according to local authors, consists of excision of the rupture at the boundary of the healthy mucosa and additional posterior-dose sphincterotomy [2, 10].

Some authors recommend completing the sphincterotomy by lowering the mucous membrane and suturing it to the perianal skin. However, in this case, the pain syndrome intensifies in the postoperative period, and the risk of developing transsphincteric rectal fistulas and subcutaneous-submucosal paraproctitis increases [16, 25].

The combination of hemorrhoids with anal hernia (AL) is observed in 11.4-59.2% of cases. Often, a rupture occurs when the internal hemorrhagic nodes are dislocated. Haemorrhagic ruptures are usually chronic, as microcirculation is impaired, especially in the posterior and anterior parts of the anal canal [3, 21].

The literature mentions cases of simultaneous surgical correction of hypertension and hemorrhoids. For example, Nazarov L.U. (1981) [7] performed an incision, complete restoration of the mucous membrane, lateral subcutaneous sphincterotomy and hemorrhoidectomy, and to protect the wounds from infection, covered them with a polymer film "Diplen."

However, there are serious disadvantages to excision, sphincterotomy, and hemorrhoidectomy with suturing of the wound. A defect of the mucous membrane is formed in the anal canal, which is the source of pain syndrome and the cause of reflex urinary retention. In addition, the ulcer surface in the anal canal prolongs the granulation period, prolonging the period of temporary disability of patients. A mucosal defect also contributes to the formation of rough scars, which can lead to intrasphincter fistulas or anal sphincter insufficiency [16, 18].

Madaminov A.M. et al. (2011) [14] studied the methods of surgical treatment of chronic anal fissures associated with chronic hemorrhoids and analyzed the results in 172 patients. The main group - 82 (47.7%) patients, who underwent the method proposed by the authors. The control group - 90 (52.3%) patients, who underwent hemorrhoidectomy according to the Milligan-



Morgan method (second modification of the Research Institute of Proctology of the Ministry of Health of Russia) and excision of the anal fissure by the Gabriel method.

All patients complained of dislocation of the internal hemorrhagic nodes, bleeding, and mild pain during defecation. The operations were practically identical in both groups, the difference was that in the main group, the anal fissure was removed using the Gabriel method, and the wound was sutured in a transverse direction. In the control group, the wound was left open, the depth of dosed sphincterectomy was up to 0.8 cm in men and 0.6 cm in women.

Results:

In the main group, pain and bleeding during defecation were observed in 3.7% of patients in the postoperative period. In the control group, such complaints were noted in 8.9% of cases. Patients of the main group were hospitalized for an average of 7 ± 1.2 days, the duration of outpatient treatment was 15 days. In the control group, it was 9 ± 1.4 days and 17 days. In both groups, postoperative incontinence was not observed. Rupture recurrence was 2.4% in the main group and 5.5% in the control group.

Thus, the authors showed the advantages of performing hemorhoidectomy simultaneously by excision of the anal fissure and suturing the wound in a transverse direction using the Gabriel method.

Mukhabbatov D.K. et al. (2015) [5, 7] performed surgical interventions in 118 patients with combined hemorrhoids and ruptures of the anal canal. Of these: in 60 patients, improved surgical tactics were used. In 35 (58.3%) patients, hemorhoidectomy of the internal and external hemorrhoidal nodes was performed, the laceration was removed, and fine incisions were made on the perianal skin. In 25 (41.7%) patients, only the laceration was removed, and dearterialization of the internal nodes or hemorhoidectomy of the external nodes was performed.

As a result, pain syndrome:

After the improved operation - in 8.3% of cases.

After conventional methods - in 24.1% of cases.

Fatkutdinov I.M. (2015) [11] analyzed the results of surgical treatment of chronic hemorrhoids in stages III-IV. 96 patients were examined, of which 25 (26%) had combined pathology of the anal canal:

Chronic anal hernia - 7,

Hypertrophied anal papilla - 7,

Hemorrhoidal "bath" - 7,

Chronic intrasphincteric rectal fistula - 3,

Cryptite - 1.



The average age of the patients was 48.5 ± 11.7 years. During the operation, 6-8 branches of the superior rectal artery were ligated (dearterialization). Mucopexy and mucus lifting were usually performed in 3, 7, and 11 hour positions.

Complications (in 25 patients):

Bleeding - 8 (8.3%),

Acute hemorrhoidal thrombosis - 3 (3.1%),

Severe pain syndrome - 2 (2.1%).

According to the author, changing the technique of the operation (attaching the lifting sutures to the supporting sutures, placing the last suture not closer than 8 mm from the tooth line, but higher) reduces early postoperative complications.

Combination with hemorrhoids and rectocele occurs in 8-31% of cases. Recently, articles about rectocele have become more frequent, but initial information about this pathology was very scarce. Rectocele often occurs after injuries in the perianal area, pregnancy, or difficult childbirth. Therefore, the authors considered it an obstetric-gynecological problem and limited themselves to plastic restoration of the rectovaginal septum.

A large percentage of unsatisfactory treatment outcomes indicates that with such combined pathology, there are still no issues of choosing rational surgical tactics. Chistyukin S.Y. et al. [12] observed 88 patients with hemorrhoids combined with rectocele over three years. Of these, 24 patients underwent surgery only for rectocele-levatoroplasty (Group I), 44 patients underwent surgery only for hemorrhoids: DHAL-RAR or hybrid surgery - excision of internal hemorrhoidal nodes DHAL-RAR and external hemorrhoidal nodes (Group II), and 20 patients underwent simultaneous surgical treatment, i.e., DHAL-RAR or hybrid surgery - excision of internal hemorrhoidal nodes DHAL-RAR and external hemorrhoidal nodes with hemorrhoids stage II with levatoroplasty (Group III). In the first weeks after surgery, intensification of hemorrhoidal nodes was noted in patients of group I, manifested as swelling and prolapse of enlarged dense nodes. In the early postoperative period, diarrhea improved in half of the patients, while the symptoms of meteorism remained the same in the rest. In group I, the duration of inpatient treatment was 9 ± 2.6 days, the duration of outpatient rehabilitation was 24 ± 5.5 days. In all 20 patients of group III, the postoperative period was mild, wound healing was primary, bowel movements were restored on days 4-7. In all patients, there was a significant improvement in rectal emptying function in the immediate and long-term postoperative period. The duration of inpatient treatment in this group was 12 ± 2.9 days, the duration of outpatient rehabilitation - 28 ± 5.7 days.

According to S.Y. Chistyukin et al. [17], hemorrhoids and combined isolated operations lead to the aggravation of rectocele "left" pathology. Simultaneous operations in anorectal concomitant diseases should be considered pathogenetically justified. They allow to increase the effectiveness and significantly improve the quality of postoperative rehabilitation.

Chronic paraproctitis is a disease that occurs as a result of infection entering through the crypts of the anal canal. Many scientists (Gabriel N.A., 1930; Norton, 1961; Parks A.G., 1976 and



others) believe that the main cause is inflammation of the anal crypts. Chronic paraproctitis is the most common disease in the working-age population. It ranks 4th among rectal diseases. Some authors [11, 14] note that chronic paraproctitis is more common in women, while others [9, 15] note that it occurs with the same frequency in men and women [9, 17].

Chronic paraproctitis is characterised by an internal opening in the intestine and an external opening in the perianal skin. Since this is a complication after acute paraproctitis, patients either turned in late or the treatment tactics were chosen incorrectly [14, 15]. Chronic paraproctitis is often accompanied by signs of proctitis and proctosigmoiditis, as well as general intoxication due to the presence of a purulent focus. The widest and deepest crypts - the posterior wall of the anal canal - are often subjected to inflammatory changes. Acute paraproctitis and rectal fistula can be considered as two stages of one disease due to the association of the purulent focus with the rectal cavity. Rectal fistula is more common at 6 o'clock because the inferior rectal artery cannot adequately supply blood to the posterior rectal wall [10, 13].

In some cases, the cause of paraproctitis is hemorrhoids. Thrombosed hemorrhoidal nodules serve as an entry point for infection, most often through crypts. The appearance of cryptitis and inflammation of the anal glands, as well as persistent injuries, is exacerbated by constipation and hypothermia [1, 12].

Surgical treatment of chronic paraproctitis and rectal fistulas is a topic of research and discussion for coloproctologists worldwide. According to the literature [13, 15], many treatment methods are used for rectal fistulas, but none can be considered universal. In the treatment of rectal fistulas, the optimal operation should not only give good results, but also have the ability to preserve the sphincter.

Traditional methods of surgical treatment of chronic paraproctitis include dissection of the fistula and ligation [13, 16]. According to many surgeons, the only effective method of treating chronic paraproctitis is surgery [10, 22]. Various modifications of the Gabriel method are widely used in the treatment of anal fistulas. Gabriel-1 - complete transection of the fistula duct. Gabriel-2 - transection of the fistula duct, leaving the wound open.

Gabriel-1 and Gabriel-2. Operation Gabriel-1 is performed when rectal fistulas are located intra- and transfinkterically and have a triangular incision with the apex facing the rectum and the base extending to the perianal skin. Positive effects after such surgery are noted in 83-94.7% of cases. 19-25.1% of patients complain of unpleasant sensations in the anus area [5]. Operation Gabriel-2 is performed in the extrasphincteric localization of the fistula tract and consists of excision with the intersection of all the fibers of the sphincter and subsequent restoration with sutures, which often leads to the development of anal incontinence. The disadvantages of this surgical method include: the size of the wound, a large ulcer that heals slowly with secondary tension, the formation of a rough scar in the anal canal; postoperative pain; prolonged hospitalization [15]. Plastic surgery with a loose skin cover [11] leads to a reduction in the time of wound healing, but additional damage is used during the formation of the skin cover.

Fistula operations.



Advantages of the Gabriel method: simple technique, quick healing, minimal complications. However, in high transsphincteric or extrasphincteric fistulas, cutting the sphincter is dangerous - constipation may develop.

For this reason, other methods have also been developed:

The Seton method involves inserting a thread into the fistula's lumen and slowly squeezing it out.

LIFT method (2010, Rojanasakul P.) - ligation and excision of the fistula in the intersphincteric space.

Advancement flap - closure of the internal opening with a piece of mucus.

These methods are used, especially in complex fistulas, to preserve the sphincter and prevent constipation.

Fistulotomy (cutting the fistula duct).

This is one of the oldest and most commonly used methods. During the operation, the fistula duct is completely opened, and the purulent tissues are removed. The wound usually heals through secondary tension. Advantages: technically simple, complete elimination of the fistula duct.

Disadvantages: there is a risk of cutting a large part of the sphincter, which can lead to anal sphincter insufficiency (incontinence). Therefore, the use of this method in high and complex fistulas is limited.

Laser treatment of fistula (FiLaC - Fistula-tract Laser Closure).

In this method, a laser fiber is passed through the fistula tract, which cools the walls with high temperature and closes them.

Advantages: minimally invasive, practically no blood loss, short recovery period, integrity of the anal sphincter is preserved.

Disadvantages: high cost and lack of technical equipment everywhere. The effectiveness is estimated at 60-80%.

LIFT method (Ligation of Intersphincteric Fistula Tract).

Proposed by Rojanasakul in 2010. In this method, the fistula is found in the intersphincteric cavity, ligated, and excised.

Advantages: does not damage the sphincter, has fewer complications, relatively low recurrence rate.

Disadvantages: technically more complex, requiring an experienced surgeon to treat the patient.

Advancement flap (sliding and closing a piece of mucous membrane).



In this method, the internal opening of the fistula is removed, and a piece of the rectal mucosa is inserted and sutured.

Advantages: preserves the sphincter, can be used for complex fistulas.

Disadvantages: necrosis or re-separation of the sutured piece, the frequency of recurrence is around 20-30%.

Seton method. A thread or rubber band is inserted into the fistula opening, which gradually crosses the sphincter over time, or the fistula opening is closed by fibrosis.

Advantages: allows treatment of high and complex fistulas without sudden cutting of the sphincter.

Disadvantages: it is necessary to carry the thread for a long time, causing discomfort for the patient.

New technologies. In recent years, methods for closing the fistula duct using biological fillings (fibrin adhesives, collagen fillings) have also been introduced. Their advantage is that they are minimally invasive and preserve the sphincter. However, the frequency of recurrence is higher - up to 40%. Postoperative period. The period after surgical interventions for chronic paraproctitis and anal fistulas largely depends on the method used. After fistulotomy, the ulcers remain open and heal slowly through granulation. The average healing time is 4-6 weeks. During this period, strict adherence to hygiene is necessary. After the LIFT method and advancement flap, the wound is small, healing occurs faster - within 2-3 weeks. When using a laser (FiLaC), patients usually return to normal activity within 2-3 days, and the pain syndrome is very low.

Postoperative complications.

The most common complications are: bleeding, suppuration, cicatricial stenosis, anal sphincter insufficiency.

According to statistics, incontinence after fistulotomy and the Gabriel method is observed in 7-10% of cases. In LIFT and laser equipment, this indicator does not exceed 1-2%.

Long-term results.

The frequency of recurrence in simple fistulotomy is 5-15%.

Gabriel-2 method - 12-18%.

With the cotton method - 10-20% (depending on the method).

LIFT method - 8-12%.

Laser (FiLaC) method - 15-20%.

With the use of biological fillings - 30-40%.

Therefore, when choosing a method, the surgeon must consider the type of fistula, the location of the duct, the position of the sphincter, and the patient's general condition.



Conclusion: The only radical treatment of chronic paraproctitis and anal fistulas is surgical intervention. New minimally invasive and sphincter-preserving technologies (LIFT, laser, advancement flap) reduce the risk of complications and improve the quality of life of patients.

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