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HALF A CENTURY OF EXPERIENCE IN THE EVOLUTION OF APPROACHES TO THE TREATMENT OF PERITONITIS AND THE SPECIFICS OF THEIR CHANGES

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From 1975 to 2024, 1,352 patients with secondary postoperative peritonitis were operated at the Topchubashov Scientific Center of Surgery: 703 (52 %) had localized peritonitis, 446 (33 %) had diffuse peritonitis, and 203 (15 %) had generalized peritonitis. Microbiological studies were performed in 52 patients (25.6 % of the total number of cases) using samples taken from the parietal and visceral peritoneum and peritoneal exudate. With localized peritonitis, no more than two loops of the small intestine were affected. In diffuse cases, 40–70 % of the loops were affected, while with widespread peritonitis, more than 80 % of the serous surfaces were covered with purulent fibrinous deposits. Sanitation of the abdominal cavity led to the removal of microorganisms from the parietal peritoneum and exudate in 55 % of cases, but from the intestinal serosa – only in 11 %, which is five times less. Postoperative mortality was 0.7 % for localized peritonitis, 5.6 % for diffuse peritonitis, and 96 % for widespread peritonitis. The classification of the severity of peritonitis should include both the degree of purulent inflammation of the abdominal cavity and the proportion of affected loops of the small intestine. When more than 80 % of the loops are affected, the disease is practically incurable, and aggressive surgical approaches such as laparostomy with repeated relaparotomies are unjustified and ethically problematic.

Key words: peritonitis, intestinal insufficiency, treatment methods.

Ісаєв Х.Б., Алієв Ю.Г., Джафарлі Р.Е., Ісаєва А.Н., Мусаяєв Б.В., Мамедова Н.А. **50-РІЧНИЙ ДОСВІД ЕВОЛЮЦІЇ ПІДХОДІВ ДО ЛІКУВАННЯ ПЕРИТОНІТУ** **ТА ОСОБЛИВОСТІ ЇХНІХ ЗМІН**

У період з 1975 по 2024 рік у Науковому центрі хірургії імені академіка М.А. Топчубашова було прооперовано 1352 пацієнти з вторинним післяопераційним перитонітом: у 703 (52 %) – локалізований, у 446 (33 %) – дифузний і у 203 (15 %) – генералізований. Мікробіологічні дослідження було проведено у 52 пацієнтів (25,6 % від загальної кількості випадків) із використанням зразків, взятих із парієтальної та висцеральної очеревини, а також перитонеального ексудату. При локалізованому перитоніті було уражено не більше двох петель тонкої кишки. У дифузних випадках уражалося 40–70 % петель, тоді як при генералізованому перитоніті понад 80 % серозних поверхонь були вкриті гнійно-фібринозними відкладеннями. Санація черевної порожнини призвела до видалення мікроорганізмів із парієтальної очеревини та ексудату в 55 % випадків, але із серозної оболонки кишечника – лише в 11 %, що в 5 разів менше. Післяопераційна летальність становила 0,7 % при локалізованому перитоніті, 5,6 % при розлитому перитоніті та 96 % при поширеному перитоніті. Класифікація тяжкості перитоніту має враховувати як ступінь гнійного запалення черевної порожнини, так і частку уражених петель тонкої кишки. Коли уражено понад 80 % петель, захворювання є практично невиліковним, а агресивні хірургічні підходи, такі як лапаростомія з повторними релапаротоміями, є невиправданими та етично проблематичними.

Ключові слова: перитоніт, кишкова недостатність, методи лікування.

Over recent decades, mortality associated with diffuse peritonitis (DP) has shown no tendency toward reduction and still reaches 30–50 %, while in postoperative peritonitis it ranges from 76 % to 100 % [2, 5, 6, 19].

As diffuse peritonitis progresses, endogenous intoxication syndrome inevitably develops [4, 14].

In acute peritonitis, a significant decrease in the intestinal tissue redox potential (oxidation–reduction potential, ORP) by 48.8–57.2 % has been documented. Maintaining a stable intestinal barrier is crucial for preventing the translocation of potentially harmful substances and pathogens into the internal environment. Disruption of this barrier – referred to as “leaky gut syndrome” – is characterized by the release of bacterial metabolites and endotoxins.

The term “intestinal insufficiency syndrome” implies functional and organic changes in the gastrointestinal tract that lead to impaired digestive processes. Regardless of the source of peritonitis, general pathophysiological mechanisms result in

combined impairment of all functions of the small intestine – motor, evacuatory, digestive, endocrine, and absorptive.

Loss of the intestinal barrier function allows inflammatory and toxic agents to enter the systemic circulation, causing abdominal sepsis. An elevated level of malondialdehyde (MDA) in blood serum and peritoneal exudate, accompanied by a decrease in urinary MDA excretion in the postoperative period, is considered a prognostically unfavorable sign indicating ongoing endogenous intoxication and a high risk of mortality [3, 19].

The classification of peritonitis is based on the extent of the purulent-inflammatory process within the abdominal cavity [16].

However, intraoperatively it is nearly impossible to accurately define the boundaries of peritoneal inflammation [6, 19].

To assess the severity of the clinical course of peritonitis, several scoring systems have been proposed, including APACHE II, SAPS, MODS, and SOFA [9, 11].

Currently, there are approximately 30 classifications of peritonitis worldwide demonstrating the lack of precise objective criteria for severity assessment, which remains largely dependent on the surgeon's subjective judgment [15].

Universal scoring systems (APACHE II, SOFA, MOF, etc.) are widely used to assess severity in patients with peritonitis. Additionally, specialized scoring methods have been developed for outcome prediction specifically in peritonitis [8]. Among them, the Mannheim Peritonitis Index (MPI) is the most widely used [9]. Despite the introduction of APACHE III and APACHE IV, APACHE II continues to be the most practical and validated system for stratifying risk in intra-abdominal infections [9, 11].

The fundamental principles of peritonitis treatment were developed in the late 20th century by German surgeon M. Kirschner and include:

1. Elimination of the infectious source,
2. Intraoperative sanitation and drainage of the abdominal cavity,
3. Intestinal decompression,
4. Nasointestinal intubation for intestinal paresis,
5. Selection of an adequate method for abdominal closure.

To date, peritonitis management strategies still adhere to Kirschner's concept, supplemented by measures aimed at preventing and correcting postoperative multiple organ dysfunction [13].

A critical component of peritonitis treatment is accurate differentiation between diffuse and widespread forms, as misdiagnosis is common – patients with diffuse peritonitis may be mistakenly classified as having widespread peritonitis.

Currently, three main strategies of surgical management are used:

1. Traditional (closed) method – primary closure of the abdominal wall after the procedure.
2. Staged procedures (semi-open/semi-closed techniques): a) planned relaparotomy, b) relaparotomy on demand.
3. Laparostomy.

Layer-by-layer closure of the laparotomy wound is recommended in the following cases: reactive or toxic phase of peritonitis, mild to moderate severity according to the Mannheim Peritonitis Index, abdominal cavity index below 13 points and absence of risk factors for postoperative peritonitis.

The rate at which diffuse purulent peritonitis develops has a significant impact on treatment outcomes [2, 9]. Positive outcomes depend on effective antibacterial therapy in only 15–20 % of cases, while in 80–85 % of patients, success is determined mainly by the quality of surgical sanitation [8, 17].

Recently, endoscopic re-operations have been considered as an alternative to conventional relaparotomy in diffuse peritonitis, although opinions differ due to potential complications [7, 18].

Despite extensive clinical research into the etiology and pathogenesis of peritonitis, strategies to

control endogenous intoxication and intestinal failure, and implementation of various abdominal cavity sanitation techniques, peritonitis remains an unresolved clinical problem.

The purpose of the study was to determine and evaluate the correlation between the severity of peritonitis according to the generally accepted classification and the volume of small intestinal loops involved in the inflammatory process, as well as to evaluate the impact of intraoperative sanitization on the frequency of detection of microorganisms in the parietal and visceral peritoneum and in peritoneal exudate.

Materials and methods. The analysis covered a 50 – year period (1975–2024) and included 1352 patients who underwent surgical treatment for peritonitis at the Scientific Center of Surgery named after Academician M.A. Topchubashov. Among these, a separate cohort of patients operated on for purulent widespread peritonitis was identified and analyzed in detail: 703 (52 %) were classified as localized peritonitis, 446 (33 %) as diffuse peritonitis, 203 (15 %) as generalized peritonitis.

Statistical analysis of the study results was performed using a personal computer with the SPSS software package, version 22.0 (SPSS Inc.). The Kolmogorov-Smirnov test was applied to assess the normality of data distribution. The Mann-Whitney nonparametric test was used to test statistical hypotheses. Data were presented as median values with interquartile range (25th and 75th percentiles). The Fisher's exact test was employed to identify differences in qualitative variables. Statistical significance of dynamic changes was determined using the Wilcoxon test. A critical level of statistical significance was considered at $p=0.05$ (95 % confidence interval).

The STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines were followed in the preparation of this manuscript. The primary outcomes were the proportion of cases of disseminated peritonitis identified and their stage at diagnosis. Secondary outcomes were the number of noninvasive investigations, surgeries and adverse events related to surgeries, subgroup analysis by referral source, prevention of postoperative complications, and treatment and survival in disseminated peritonitis.

Ethical Review. The study was conducted within the framework of the scientific work plan of the Scientific Center of Surgery (RCS). All patients and their relatives included in the study signed informed consent to participate. The study was approved by the RCS Biomedical Ethics Committee, Protocol No. 92 dated January 18, 1999.

Results of the study. Microbiological studies were conducted in 52 patients (25.6 %) out of 203 (15 %) who underwent surgery for generalized peritonitis. The age of the patients ranged from 27 to 38 years, including 44 men and 8 women. All patients were transferred to the Topchubashov Scientific Surgery Center 3–5 days after undergoing operations in other medical institutions for peritonitis caused by perforated appendicitis. The characteristics of the

inflammatory process and the types of surgical interventions performed during relaparotomy in

patients with generalized peritonitis are presented in Table 1.

Table 1

Characteristics of the inflammatory process and types of surgical interventions performed during relaparotomy in patients with generalized peritonitis (n=52)

Pathological finding	Number of patients (%)	Type of intervention*
		1 (n=41)
Purulent-fibrinous deposits on the diaphragmatic peritoneum	45 (86.5 %)	34 (75.5 %)
Purulent-fibrinous coating and thickening of the greater omentum	45 (86.5 %)	38 (84.4 %)
100 % of small intestinal loops covered with purulent-fibrinous deposits, no reaction	4 (7.7 %)	–
45–50 % of small intestinal loops covered with deposits, reaction to mechanical stimulation present	41 (78.8 %)	36 (87.8 %)
25 % of small intestinal loops covered with deposits, reaction present	7 (13.5 %)	5 (71.4 %)
Postoperative mortality	12 (23 %)	5 (12.2 %)

*Types of surgical intervention: 1 – sanitation, naso-intestinal decompression, drainage, and closure of the laparotomy wound; 2 – sanitation, naso-intestinal decompression, skin suturing for subsequent planned relaparotomy; 3 – sanitation, naso-intestinal decompression, drainage, and laparostomy.

In 45 patients (86.5 %), the inflammatory process involved the greater omentum, with both diaphragmatic peritoneal surfaces covered with purulent deposits. In 4 patients (7.7 %), the serosal surfaces of the entire small and large intestine were covered with purulent-fibrinous deposits; the bowel was dilated, the lumen contained gas and fluid, and peristalsis was absent. In 41 patients (78.8 %), 45–50 % of the serosal surfaces of small intestinal loops were covered with purulent-fibrinous deposits, and a weak muscular response to mechanical stimulation was observed in some loops. In 7 patients (13.5 %), approximately 25 % of the serosal surface of the small intestine loops was free from deposits, and muscular reaction to stimulation was preserved.

In all cases, abdominal sanitation and intestinal decompression were performed. For microbiological analysis, samples were collected from: peritoneal exudate, the surface of the parietal peritoneum, purulent-fibrinous deposits on the intestine. The bacteriological method included: aerobic and anaerobic cultivation, quantitative assessment of aerobic and anaerobic microorganisms, identification

of the isolated microflora, and determination of antibiotic sensitivity. The results of microbiological studies showed that in 29 patients (55.8 %) peritonitis was caused by mixed (aerobic-anaerobic) flora; in 12 patients (23 %) by anaerobic microorganisms only; and in 11 patients (21.2 %) by aerobic flora only. Among anaerobes, *Bacteroides fragilis* predominated (52 %), while among aerobes *Escherichia coli* was most frequent (48 %). In 41 patients (78.8 %), after abdominal drainage, the laparotomy wound was closed. In 7 patients (13.5 %), the method of “programmed relaparotomy” was applied, in which the laparotomy wound was closed with skin sutures. In these 7 patients, repeat relaparotomy was performed: on day 3 in all patients, and additionally on day 6 in 5 of them. In 4 patients (7.7 %), after abdominal sanitation and intestinal decompression, laparostomy was performed. To evaluate the effect of repeated sanitation, in patients who underwent programmed relaparotomy a comparative analysis was carried out on the number of microbial strains identified in samples from all three zones. The results of microbiological studies are presented in Table 2.

Table 2

Results of bacteriological studies during the third laparotomy (n=7)

Detected strains	Number of strains					
	Exudate (n=7)		Parietal peritoneum (n=7)		Small intestine serosa (n=7)	
	Day 1	Day 3	Day 1	Day 3	Day 1	Day 3
<i>E. coli</i>	105	17	217	53	207	105
<i>Klebsiella</i> spp.	43	5	59	11	46	36
<i>Citrobacter</i> spp.	28	2	33	5	31	23
<i>Enterobacter</i> spp.	21	2	17	3	15	9

As seen from Table 2, enterobacteria predominated on the peritoneal surface (70 %); Gram-negative flora was identified in 19 % of cases. The dominant microorganisms were *E. coli*, *Klebsiella* spp., *Pseudomonas aeruginosa*, and *Staphylococcus* spp. The frequency of microbial detection in samples followed the order: *E. coli* > *Proteus* spp. > *K. pneumoniae* > *P. aeruginosa* > *A. baumannii* > *Candida* spp. In peritoneal exudate, the number of microorganisms decreased as follows: *E. coli* by 6.18 times, *Klebsiella* spp. by 8.6 times,

Citrobacter spp. by 14 times, and *Enterobacter* spp. by 10 times compared with baseline.

On the parietal peritoneum, the reduction was: *E. coli* – 4.1-fold, *Klebsiella* spp. – 5.36-fold, *Citrobacter* spp. and *Enterobacter* spp. – 6.6-fold.

In samples taken from purulent-fibrinous deposits on the intestinal wall, the reduction of microbial load was much less pronounced compared to the exudate and parietal peritoneum: *E. coli* – only 1.97-fold, *Klebsiella* spp. – 1.27-fold, *Citrobacter* spp. – 1.35-fold, *Enterobacter* spp. – 1.67-fold.

Thus, the data from Table 2 confirm that in generalized peritonitis, abdominal sanitation combined with antibiotic therapy: reduced microbial load on the parietal peritoneum by 4.1–6.6 times, in the exudate by 4.1–8.8 times, but on the intestinal serosa only by 1.27–1.97 times.

Additionally, by the 3rd postoperative day, compared with the parietal peritoneum, the microbial count in exudate was: *E. coli* – 32 % lower, *Klebsiella* spp. and *Citrobacter* spp. – 40 % lower, *Enterobacter* spp. – 66.6 % lower.

At the same time, compared with the parietal peritoneum, on the intestinal wall: *E. coli* occurred 79 % more frequently, *Klebsiella* spp. – 109 % more frequently, *Citrobacter* spp. – 80 % more frequently, *Enterobacter* spp. – 133.3 % more frequently. Therefore, the method of “programmed relaparotomy” led to a significant reduction of bacterial load in the exudate and on the parietal peritoneum but was less effective against microbial colonization of the intestinal serosa.

Bacteriological analyses demonstrated that in generalized peritonitis, abdominal sanitation combined with antibiotic therapy ensured eradication of microflora from the parietal peritoneum and exudate in 55 % of cases, whereas from the intestinal serosa – in only 11 % of cases, that is, five times less frequently. Toxic products of microorganisms multiplying in the outer layers of the intestinal wall destroy neurotransmitter mediators responsible for impulse transmission to the muscular layer of the intestinal wall, leading to atony. The microflora proliferating in the lumen of the atonic intestine subsequently penetrates into the bloodstream, causing bacteremia and toxic sepsis.

In this regard, when determining the severity of peritonitis, it is necessary to take into account both the extent of the purulent-inflammatory process and the degree of intestinal insufficiency.

Surgical management strategy. In localized peritonitis, we removed the source of infection, sanitized the affected area, and placed a single drain. In diffuse peritonitis (DP), after eliminating the source and sanitizing the abdominal cavity, intestinal lavage was performed, with drainage of the abdominal cavity using 2–3 thin drains, followed by closure of the laparotomy wound. From the first postoperative day, enterosorption (intraluminal detoxification) was initiated, followed by stimulation of peristalsis starting from the 2nd–3rd postoperative day. From the 3rd postoperative day, ultrasound examination of the abdominal cavity was performed.

Among 446 patients with DP, intra-abdominal fluid was detected by ultrasound in 17 (21.52 %). Relaparotomy was performed in 7 (41.2 %) of these cases, and laparoscopic sanitation in 10 (58.8 %). In generalized peritonitis, the treatment strategy did not differ from that applied in diffuse peritonitis. Thus, among 203 patients with generalized peritonitis, despite the use of all methods described in the literature, including: planned relaparotomy – 108 patients (53.2 %), laparostomy – 48 patients (23.65 %), endoscopic sanitation + correction of

intra-abdominal pressure – 47 patients (23.15 %), we were able to save only 8 patients (4 %), all aged between 22 and 25 years, postoperative mortality in localized peritonitis was 0.7 % (5 patients), in diffuse peritonitis – 5.6 % (30 patients), in generalized peritonitis – 96 % (195 patients). Thus, the treatment outcome in true generalized peritonitis did not exceed 4 % of cases.

Discussion. In the 1970s, the Topchubashov Scientific Center for Surgery used peritoneal lavage through tubes left in the abdominal cavity (peritoneal dialysis) for diffuse and generalized peritonitis. This method has also been used by other authors [12]. However, autopsies of deceased patients at our center showed that the tubes were isolated from the abdominal cavity, forming narrow channels; in some cases, fluid accumulated between the intestinal loops and could not be removed. Like other clinicians [1], we began to use one of the most burdensome methods of treating patients with widespread peritonitis – the method of “programmed laparostomy”, which we later abandoned. We have seen that laparostomy is most often associated with severe complications (events and intestinal fistulas), as well as increases the risk of multiple organ failure. As a result of the study of different sanitizing media when performing programmatic abdominal sanitation in acute diffuse purulent peritonitis, the authors concluded that the use of seemingly different sanitizing media did not affect the main morphometric parameters of the studied peritoneal biopsies after abdominal sanitation. This confirms the theory of “mechanical cleansing” of the abdominal cavity, and the sanitation of the abdominal cavity does not depend on the qualitative composition of the sanitizing medium [1]. Ultimately, realizing the non-physiological nature and ineffectiveness of this method, in recent years we (as well as former supporters of laparostomy) have resorted to it only in 23 % of cases. At the end of the last century, numerous publications and dissertations appeared on the role of intra-abdominal pressure (IAP) in the clinical course of peritonitis. The authors of these studies argued that normalization of IBD can ensure successful treatment of common peritonitis [10]. For more than half a century of experience in the field of peritonitis treatment, we at the center have tested most of the existing methods of abdominal rehabilitation in patients with advanced peritonitis, and none of them has yielded satisfactory results. The tactics of treating diffuse forms of purulent peritonitis have been constantly improved since the 80s of the XX century. Then, for the first time, information appeared about the staged lavage of the abdominal cavity, which consisted in the method of repeated, planned abdominal rehabilitation for peritonitis. Over time, this technique has been modified and changed its names. Elective relaparotomy, planned relaparotomy, rehabilitation relaparotomy, staged abdominal rehabilitation, programmatic abdominal rehabilitation, guided laparostomy, etc. – all these techniques are different in names and surgical nuances of execution, but are essentially very similar. Their main idea is to re-sanitize the abdominal cavity

in case of excessive contamination. To date, there is no single point of view in the terminology of both the laparostomy method itself and the methodology of its application. «Etappen – Lavage», «Left – open abdomen», «Open abdomen», «damage control», programmed laparostomy, controlled laparostomy, peritoneostomy are incomplete terminological arsenal used in modern surgical literature. The problem of a large number of terms denoting, in fact, the same method of treatment, causes certain inconveniences in practical work. A retrospective analysis of our half-century of experience in the treatment of peritonitis suggests that the practical classification of peritonitis can be presented as follows: with localized peritonitis, no more than two intestinal loops are involved in the inflammatory

process; with diffuse peritonitis, 40–70 % of the loops of the small intestine are covered with purulent fibrinous deposits, while in some loops the muscular contraction of the intestinal wall is still preserved; with widespread peritonitis, more than 80 % of the serous surfaces of the loops of the small intestine are covered with purulent-fibrinous deposits, and no reaction to irritation is observed. If more than 70 % of intestinal loops are involved in the inflammatory process, our experience shows that such a patient is incurable. The use of “overly aggressive” surgical methods (laparostomy, frequent relaparotomy) is unjustified and inhumane. Survival can be expected only in those patients who are in an intermediate stage between diffuse and generalized peritonitis, and their number does not exceed 3–4 %.

Conclusions

1. In the etiopathogenesis of generalized peritonitis, in addition to purulent intoxication of the abdominal cavity, a key role is played by damage to the neural plexuses of the intestinal wall by inflammatory toxins.
2. The classification of peritonitis severity should be based both on the extent of the purulent-inflammatory process in the abdominal cavity and on the degree of involvement of intestinal loops in the inflammatory process.
3. When more than 80 % of intestinal loops are involved, the patient is incurable, and the application of “excessively aggressive” surgical methods (laparostomy with frequent relaparotomies) is unjustified and inhumane.
4. Surgical treatment of generalized peritonitis provides a chance of “recovery” in no more than 4 % of cases.

Prospects for further research. The high mortality rate in peritonitis requires constant improvement of technologies and the development of alternative treatment approaches.

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CLINICAL CHARACTERISTICS OF PATIENTS WITH COLONIC FISTULAS AND COMPARATIVE ANALYSIS OF THE EFFECTIVENESS OF RADIOLOGICAL EXAMINATION METHODS

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Intestinal fistulas are clinically challenging because complex tracts and associated inflammatory complications may be difficult to characterize before treatment. This retrospective clinical-radiological study included 94 patients with fistulas and compared non-contrast with contrast-enhanced computed tomography while also examining clinical and radiological associations. Fistulas were detected in 67 patients (71.3 %) by non-contrast computed tomography and in 87 (92.5 %) by contrast-enhanced computed tomography ($p < 0.001$). Contrast enhancement was associated with higher sensitivity (92.5 % vs 71.3 %), specificity (88.2 % vs 64.7 %), positive predictive value (94.3 % vs 79.1 %), negative predictive value (83.7 % vs 54.5 %), accuracy (90.4 % vs 69.2 %), and area under the receiver operating characteristic curve (0.91 vs 0.71). Significant correlations were found between fistula length and abscess size, intestinal wall thickness and fistula diameter, and Crohn's disease and fistula severity. Contrast-enhanced computed tomography therefore provides more informative pre-treatment assessment of intestinal fistulas and their complications.

Key words: intestinal fistula, computed tomography, contrast enhancement, diagnostic accuracy, abscess, Crohn's disease.

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КЛІНІЧНА ХАРАКТЕРИСТИКА ПАЦІЄНТІВ З КИШКОВИМИ СВИЩАМИ І ПОРІВНЯЛЬНИЙ АНАЛІЗ ЕФЕКТИВНОСТІ РАДІОЛОГІЧНИХ МЕТОДІВ ДОСЛІДЖЕННЯ

Кишкові свищі становлять складну клінічну проблему, оскільки хід свища та супутні запальні ускладнення не завжди вдається повноцінно оцінити до початку лікування. До ретроспективного клініко-рентгенологічного дослідження включено 94 пацієнтів зі свищами; проведено порівняння безконтрастної та контрастно-підсиленої комп'ютерної томографії, а також аналіз клініко-рентгенологічних взаємозв'язків. Під час безконтрастної комп'ютерної томографії свищі виявлено у 67 пацієнтів (71,3 %), під час контрастно-підсиленої — у 87 (92,5 %; $p < 0,001$). Контрастування забезпечувало вищі показники чутливості (92,5 % проти 71,3 %), специфічності (88,2 % проти 64,7 %), позитивної та негативної прогностичної цінності, загальної точності та площі під ROC-кривою (0,91 проти 0,71). Виявлено значущі кореляції між довжиною свища та розміром абсцесу, товщиною кишкової стінки та діаметром свища, а також між хворобою Крона та тяжкістю свища. Контрастно-підсилена комп'ютерна томографія забезпечує більш інформативну передопераційну оцінку свищів та їхніх ускладнень.

Ключові слова: кишкова нориця, комп'ютерна томографія, контрастування, діагностична точність, абсцес, хвороба Крона.

An anal fistula is an abnormal tunnel connecting the anal canal to the perianal skin and characterized mainly by recurrent, throbbing pain along with pus, swelling, and itching. It is indeed more common in men, with reported ratios often showing males are twice as likely to be affected, and incidence peaks

between the ages of 20 and 40. The treatment of rectovaginal fistulas (RVFs) remains one of the most difficult and unresolved problems in coloproctology or pose a major coloproctological challenge largely, due to the high recurrence rates, complex etiologies, and persistent inflammation [5, 14].