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Problems of Postoperative Peritonitis and Ways to Solve Them

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ABSTRACT

Background. Despite the improvement of surgical treatment methods, the level of adverse outcomes in postoperative peritonitis remains high, amounting to 18.5-50%.

Material and methods. The results of complex treatment and examination of 59 patients with postoperative peritonitis are analyzed. Clinical, laboratory, instrumental, microbiological and other research methods were carried out.

Results. The high diagnostic efficiency of ultrasound and video laparoscopy necessitates the use of these methods to verify postoperative peritonitis. Therapeutic tactics for postoperative peritonitis should consist of relaparotomy with the obligatory performance of nasointestinal intubation and the provision of conditions for prolonged sanitation of the abdominal cavity. The determination of strict indications for the use of the method of repeated revisions of the abdominal cavity and laparoscopic interventions makes it possible to individualize surgical tactics for postoperative peritonitis. Monitoring of intra-abdominal pressure in the postoperative period is a necessary condition for the control of intra-abdominal hypertension of I-II degree and the prevention of multiple organ failure syndrome caused directly by this factor.

Conclusion. The presence of intraabdominal hypertension of the I-II degree, complicating the course of postoperative peritonitis, testifies in favor of choosing the method of programmed relaparotomy as a variant of prolonged sanitation of the abdominal cavity. The indication for the completion of the method of programmed revisions and sanitation is a set of objective indicators, such as the severity of the patient's condition according to the APACNE II scale, the level of intra-abdominal pressure, and the state of the abdominal organs, expressed by the abdominal cavity index.

Keywords: Postoperative peritonitis, intra-abdominal pressure, relaparotomy

INTRODUCTION

Currently, postoperative peritonitis is the most formidable complication in the postoperative period and accounts for 35-56% of early intra-abdominal complications [1, 34].

The fact that the risk of developing postoperative peritonitis during emergency operations, which are performed most often in daily practice, is significantly higher than the risk of their occurrence after a planned opera-

tion makes it necessary to look for new ways to prevent and treat this pathology [2, 33].

The incidence of complications after emergency surgery reaches 62.3% [3, 32].

The main reason for the unsatisfactory results of treatment of postoperative peritonitis is untimely diagnosis and, as a result, delayed repeated surgical intervention [4, 31].

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Late terms of surgical treatment in most cases are associated with the obliteration of the clinical picture. The same symptoms can be observed in both the normal and pathological course of the postoperative period [5, 30].

The complexity of diagnosing complications is aggravated by the use of analgesic and antibacterial drugs in the early postoperative period, as well as multipurpose intensive care [6, 29].

Often, attempts are made to explain the atypical course of the postoperative period by other reasons unrelated to surgical intervention [7, 28].

The abrasion of the clinical picture of postoperative peritonitis dictates the need for the use of instrumental diagnostic methods, among which the most significant are video laparoscopy and ultrasonography [8, 27].

According to many studies, the effectiveness and diagnostic value of the proposed methods vary significantly [9, 17-26].

A number of authors believe that the indications for video laparoscopy for the diagnosis of postoperative complications have not been determined, while others consider the diagnosis of postoperative complications using laparoscopy to be inappropriate [10].

Given that attempts at conservative treatment of postoperative peritonitis are unsuccessful, relaparotomy remains the only true way to eliminate intra-abdominal postoperative complications [11].

MATERIALS AND METHODS

The results of a study of 59 patients who developed postoperative peritonitis in the postoperative period are analyzed. All patients were treated and examined in the multidisciplinary clinic of the Tashkent Medical Academy for the period 2012-2022. The mean age of patients with developed postoperative peritonitis was 59.6 ± 18.4 years. The majority of patients are represented by men 57.6% (34 patients).

All patients were admitted and operated on an emergency basis. In most cases, postoperative peritonitis developed after operations on the intestines (38 patients), in a smaller number of cases after gastrectomy, suturing of perforated ulcers of the gastrointestinal tract, and operations on the biliary tract.

Among the causes of postoperative peritonitis, the leading place is occupied by the failure of anastomoses and sutures at 38.9%. Widespread peritonitis, the cause of which was an abscess opened into the free abdominal cavity, occurred in 18.7% of cases. Among other causes, are perforation of acute ulcers of the gastroduodenal

zone, iatrogenic trauma, postoperative bile outflow, and intestinal necrosis with perforation.

In order to objectively assess the severity of the condition and determine the likelihood of an unfavourable outcome for patients with postoperative peritonitis, the integral rating scale APACNE II was used.

A high diagnostic value of an objective assessment of the condition according to APACNE II was found in the analysis of the clinical picture and its dynamics in patients with postoperative peritonitis, since a significant difference in the indicators on the first day after the initial operation and at the time of relaparotomy was revealed.

Intra-abdominal pressure was assessed in 30 patients diagnosed with postoperative peritonitis, who were treated by repeated revisions and sanitation with nasointestinal intubation.

For multiple monitoring of intra-abdominal pressure in patients in serious condition, a sterile closed system Uno Meter Abdo-Pressure was used. This system includes a urimeter and a measuring part consisting of a graduated tube with a measurement step of 1 mm Hg. Art. and built-in antibacterial filter. The system has the accuracy of monitoring the urinary function of the kidneys and is effective in preventing ascending infection of the urinary tract.

Since the measurement of intra-abdominal pressure was carried out in a severe category of patients, the prevention of urinary tract infection was the main goal of the technique.

RESULTS

Analysis of the clinical picture and features of the course of the postoperative period showed that such classic symptoms of peritonitis as pain, muscle tension of the anterior abdominal wall and the Shchetkin-Blumberg symptom do not occupy a leading position in the manifestation of postoperative peritonitis and are observed in 44.1-59.3% of patients.

Symptoms such as vomiting (81.4%), bloating (70.2%), stool and gas retention (61.0%), which are manifestations of paralytic intestinal obstruction, were much more common. Clinical manifestations of intoxication and disorders of water-electrolyte status (dryness of mucous membranes and skin, tachycardia, hyperthermia) were noted in 81.4% of patients.

It is also difficult to assess the course of the postoperative period, since the primary surgical intervention, in most cases, was performed in conditions of intestinal obstruction and widespread peritonitis, therefore, symp-

toms such as intestinal paresis and endogenous intoxication were legitimate manifestations of the postoperative period.

There were 2 clinical forms of postoperative peritonitis. Sluggish peritonitis, detected in 39 patients, was characterized by an atypical clinical picture, non-severity of local symptoms of peritonitis, and slow development of clinical signs. The leading syndromes were paralytic intestinal obstruction and endogenous intoxication.

Acute postoperative peritonitis was noted in 20 patients and developed as a result of intra-abdominal opening of abscesses, perforation of acute ulcers of the stomach and intestines, failure of sutures of hollow organs and anastomoses. The clinical picture was distinguished by pronounced symptoms of peritoneal irritation.

In the atypical course of the postoperative period, we used instrumental diagnostic methods.

Ultrasound examination of the abdominal cavity was performed in 59 patients with postoperative peritonitis. Postoperative peritonitis was detected in 46 patients, and in 13 cases an echo pattern was detected, which did not allow to exclude or confirm the complication.

The most common pathological signs identified during the study were free fluid in the abdominal cavity - 56.7%, an increase in the diameter of the small intestine >3 cm - 45.7%, lack of peristalsis - 43.2%, thickening of the wall of the small intestine - 37.0%, anechoic contents in the lumen of the intestine - 23.4%, pendulum-like peristalsis - 18.5%.

Diagnostic laparoscopy was performed in 13 cases, in all cases postoperative peritonitis was detected, and its cause was established.

In the course of the study, a comparative analysis of the effectiveness of ultrasonography and video laparoscopy as the main methods for diagnosing postoperative peritonitis was carried out.

An objective assessment of the effectiveness of the ultrasonography method showed a high level of diagnostic specificity (97.8%) and diagnostic sensitivity (95.7%), prognostic value of a negative result (98.2%).

The effectiveness of video laparoscopy was 100%, which is explained by the invasive nature of the technique.

Currently, the question of the need for a second operation in the development of postoperative peritonitis is not in doubt.

The main objectives of surgical intervention for widespread postoperative peritonitis are the elimination of the source of peritonitis, intraoperative sanitation, correction of paralytic intestinal obstruction (intestinal paresis), and

creation of conditions for prolonged sanitation of the abdominal cavity.

The accumulated clinical experience has shown that with widespread postoperative peritonitis, single sanitation of the abdominal cavity, as a rule, does not give an effect, the intra-abdominal infection progresses, which requires the use of prolonged sanitation of the abdominal cavity.

Currently, the most effective method of prolonged sanitation of the abdominal cavity is the method of programmable relaparotomy. This method allows for adequate sanitation of the abdominal cavity with the maximum removal of the bacterial substrate, intraoperative assessment of the dynamics of the infectious process in the abdominal cavity, prediction of its further course and early diagnosis of complications.

The method of repeated revisions and sanations with mandatory nasointestinal intubation was used in 52 patients with postoperative peritonitis. The severity of peritonitis on the MPI scale ranged from 15 to 37 points. The severity of the condition was assessed on the APACNE II scale and amounted to 22.6 ± 4.1 . The optimal time for revision and sanitation of the abdominal cavity is 24-48 hours after the initial operation.

52 patients diagnosed with postoperative peritonitis underwent 130 relaparotomy. The number of audits performed ranged from 1 to 8, with an average of 2.5.

In the course of the study, it was revealed that the method of repeated revisions and sanitation significantly reduces the level of bacterial contamination, reduces endogenous intoxication, and affects the physical condition of patients, assessed by APACNE II.

The most common cause of postoperative peritonitis was the failure of intestinal sutures and anastomoses 38.9% and an abscess "opened" into the abdominal cavity 18.7%.

Surgical tactics for the failure of intestinal sutures consisted of delimiting the site of bacterial contamination from the free abdominal cavity. At the same time, operations were performed to separate the insolvent anastomosis, followed by the formation of an intestinal fistula in 65.2% of cases; delimitation, by tamponing and drainage of the abdominal cavity in 30.4% of patients; resection of the anastomosis with the imposition of a second anastomosis with strengthening of the suture line in 4.4% of cases.

The nature of the operative action in diffuse peritonitis, which developed as a result of the "breakthrough" of the abscess into the free abdominal cavity, consisted of the mandatory wide relaparotomy, the identification of the localization of the abscess walls, the assessment of

tissue viability, adequate sanitation and the choice of the method of completing the operation (tamponing, drainage).

In patients with suspected postoperative peritonitis, intra-abdominal pressure was measured throughout the diagnostic stage according to the algorithm developed by us: before relaparotomy, 2-3 intra-abdominal pressure measurements were performed for 4-5 hours during the diagnostic stage. After surgery, intra-abdominal pressure was monitored every 2 hours for 24-36 hours. If the intra-abdominal pressure figures were less than 12 mm Hg, then the frequency of registration decreased to 4-6 hours during the day. Intra-abdominal pressure control was carried out throughout the treatment period until the last operation.

Monitoring of intra-abdominal pressure before relaparotomy showed that the pressure level in all cases was consistently higher than normal numbers and averaged 19.5 mm Hg, which corresponded to grade 2 intra-abdominal hypertension.

It was revealed that increased intra-abdominal pressure was recorded only before relaparotomy, and subsequently not only did not tend to increase but significantly decreased, which was clinically expressed by a decrease in the phenomena of intestinal paresis, regression of the phenomena of endogenous intoxication. At the time of the next programmable relaparotomy, an increase in intra-abdominal pressure was also not detected, and after the end of the operation, the numbers corresponded to the initial value, in the next day steadily decreasing by an average of 1 mm Hg.

The studies revealed a significant relationship between the level of intra-abdominal pressure and the degree of endogenous intoxication, characterized by an increase in endotoxemia in response to an increase in the level of intra-abdominal pressure.

In none of the cases was it necessary to use decompression techniques for closing the abdominal cavity in order to reduce the level of intra-abdominal pressure, since an increase in intra-abdominal pressure was noted only before relaparotomy, and in the further postoperative period did not exceed 12 mm Hg and was within the normal range.

During the next relaparotomy in patients with postoperative peritonitis, the abdominal cavity index was calculated, which was one of the significant indicators for deciding whether to continue or complete treatment by programmed relaparotomy. A decrease in the abdominal index below the value of 13 points was one of the indicators for the termination of the staged intervention regimen.

The relationship between the values of the abdominal index and the condition of patients according to the APACNE II scale was revealed: at the maximum value of the abdominal index, the severity of the condition according to APACNE II was as high as possible (21-29 points), which explains the high mortality rate in this group of patients (70%).

The obtained values of the main indicators during treatment by the method of programmable revisions and sanitation made it possible to conclude that the higher the indicators of the abdominal index, intra-abdominal pressure and severity of the condition according to APACNE II during relaparotomy, the longer the prolonged sanitation regimen will be carried out.

Based on the results obtained, we came to the conclusion that the decision to complete the method of programmed revisions and sanitation should be made on the basis of three indicators: with an abdominal index of less than 13 points, a patient's condition according to APACNE II of less than 12 points and with an intra-abdominal pressure level below 12 mm Hg.

As a result of the application of the method of programmed revisions and sanitation in 52 patients with postoperative peritonitis, the mortality rate was 30.8% (16 patients). Among the reasons are the progression of peritonitis and increasing endogenous intoxication in 2 patients, decompensation of concomitant therapeutic pathology in 6 patients, and multiple organ failure in 8 patients (therapeutic measures in these cases led to the resolution of the intra-abdominal infectious process, which is confirmed by autopsy data).

The duration of inpatient treatment ranged from 9 to 127 days, with an average of 35.98 ± 15.6 beds/days.

Laparoscopic sanitation of the abdominal cavity in postoperative peritonitis is possible with a low level of bacterial contamination. A necessary condition that determines the likelihood of using laparoscopic treatment technology is the possibility of eliminating the source of peritonitis by endosurgical procedures.

Therapeutic laparoscopy for postoperative peritonitis was performed in 7 patients. In 4 patients, peritonitis was caused by biliary discharge, in 3 patients - perforation of acute ulcers of the gastroduodenal zone. The severity of postoperative peritonitis according to MRI was 16.6 ± 2.05 (with a minimum value of 11 and a maximum of 27). The severity of the condition according to APACNE II corresponded to 17.7 ± 1.24 . A single sanitation was performed in 5 patients, and a double sanitization was performed in 2 patients. The duration of inpatient treatment was 23 ± 2.3 beds/days. In all cases, the outcome was the recovery of patients.

The overall mortality rate for postoperative peritonitis in 59 patients was 27.1%.

DISCUSSION

In recent years, the concept of intra-abdominal hypertension developing in patients with postoperative peritonitis has been formed. There is no doubt about the relationship between the development of multiple organ failure syndrome and the level of intra-abdominal hypertension [12].

It has been established that intra-abdominal hypertension occurs in every second patient with acute surgical pathology [13].

It should be noted that in the absence of control and adequate treatment of increased intra-abdominal pressure, intra-abdominal hypertension syndrome may develop, in which the mortality rate in patients with postoperative peritonitis increases sharply and reaches 68% [14].

Currently, the most effective way to control intra-abdominal hypertension is the use of decompressive methods of closing the abdominal cavity [15].

However, long-term observations have revealed serious shortcomings of these methods, manifested in the ineffectiveness of control of intraabdominal hypertension and in the occurrence of a number of serious complications [16].

The main condition for timely diagnosis of postoperative peritonitis in the early stages is the use of an integrated approach, the main component of which is the use of a diagnostic algorithm using instrumental research methods.

The use of decompressive techniques as a treatment option for intra-abdominal hypertension in conditions of postoperative peritonitis is limited by frequent complications and is not a single universal form of intra-abdominal pressure control.

CONCLUSION

The efficiency of diagnosing postoperative peritonitis by ultrasound is 94-95%. Video laparoscopy is a method that allows 100% detection of postoperative peritonitis and a differentiated path of further surgical tactics. When postoperative peritonitis is diagnosed during video laparoscopy, it is necessary to assess the degree of bacterial contamination. In the case of a low degree of bacterial contamination, laparoscopic treatment is legitimate, the presence of visual signs of high bacterial contamination is an absolute indication for relaparotomy.

The use of the method of programmed revisions and sanitation with the mandatory use of nasointestinal intubation in patients with postoperative peritonitis complicated by intraabdominal hypertension of the first degree does not lead to an increase in intra-abdominal pressure in the postoperative period and does not require the use of decompressive methods of closing the abdominal cavity. The decision on the possibility of terminating repeated revisions and sanitation of the abdominal cavity should be based on the results of three indicators: the severity of the condition on the APACNE II scale not exceeding 12 points, the level of intra-abdominal pressure below 12 mm Hg and the abdominal index of less than 13 points.

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OPERATSIYADAN SUNGI PERITONIT MUAMMOLARI VA ULARNI HAL QILISH YO'LLARI

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Toshkent tibbiyot akademiyasi

АБСТРАКТ

Dolzarbligi. Xirurgik davolash usullari yaxshilanganiga qaramay, operatsiyadan keyingi peritonitda noxush natijalar darajasi yuqoriligicha qolmoqda va bu 18,5-50% ni tashkil etadi.

Material va usullar. Operatsiyadan sungi peritonit bilan og'rikan 59 nafar bemorni kompleks davolash va tekshirish natijalari tahlil qilinadi. Klinik, laboratoriya, instrumental, mikrobiologik va boshqa tadqiqot usullari amalga oshirildi.

Natijalar. Ultratovush va video laparoskopiyaning yuqori diagnostik samaradorligi operatsiyadan keyingi peritonitni tekshirish uchun ushbu usullardan foydalanishni talab qiladi. Operatsiyadan keyingi peritonitni davolash taktikasi nazointestinal intubatsiyaning majburiy ishlashi va qorin bo'shlig'ini uzoq vaqt sanatsiya qilish uchun sharoitlarni ta'minlash bilan relaparotomiyadan iborat bo'lishi kerak. Qorin bo'shlig'ini takroriy qayta ko'rib chiqish va laparoskopik aralashuvlar usulini qo'llash uchun qat'iy ko'rsatkichlarning belgilanishi operatsiyadan keyingi peritonit uchun jarrohlik taktikasini individuallashtirish imkonini beradi. Operatsiyadan keyingi davrda qorin bo'shlig'i ichki bosimini nazorat qilish I-II daraja qorin bo'shlig'idagi gipertenziyani nazorat qilish va bu omil tufayli bevosita yuzaga keladigan ko'p a'zolar etishmovchiligi sindromining oldini olish uchun zarur shart hisoblanadi.

Xulosa. I-II darajaning intraabdominal gipertenzivasi mavjudligi, operatsiyadan keyingi peritonitning kechishini murakkablashtiradi, qorin bo'shlig'ining uzoq muddatli sanatsiyasi varianti sifatida dasturlashtirilgan relaparotomiya usulini tanlash tarafdoridir. Dasturlashtirilgan reviziya va sanatsiya usulining tugallanishining ko'rsatkichi – bemorning APACNE II shkalasi bo'yicha holatining og'irligi, qorin ichki bosimi darajasi, qorin bo'shlig'i a'zolarining holati kabi ob'ektiv ko'rsatkichlar to'plamidir.

Tayanch iboralar: Operatsiyadan keyingi peritonit, qorin ichki bosimi, relaparotomiya

ПРОБЛЕМЫ ПОСЛЕОПЕРАЦИОННЫХ ПЕРИТОНИТОВ И ПУТИ ИХ РЕШЕНИЯ

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АБСТРАКТ

Актуальность. Несмотря на совершенствование методов хирургического лечения, уровень неблагоприятных исходов при послеоперационных перитонитах остается высоким, составляя 18,5-50 %.

Материал и методы. Анализу подвергаются результаты комплексного лечения и обследования 59 больных с послеоперационным перитонитом. Проводились клинические, лабораторные, инструментальные, микробиологические и другие методы исследования.

Результаты. Высокая диагностическая эффективность ультразвукового исследования и видеолaparоскопии обуславливает необходимость применения этих методов для верификации послеоперационного перитонита. Лечебная тактика при послеоперационном перитоните должна складываться из релaparотомии с обязательным выполнением назоинтестинальной интубации и обеспечением условий для пролонгированной санации брюшной полости. Определение строгих показаний для использования метода повторных ревизий брюшной полости и лапароскопических вмешательств позволяет индивидуализировать хирургическую тактику при послеоперационном перитоните. Мониторинг внутрибрюшного давления в послеоперационном периоде является необходимым условием контроля интраабдоминальной гипертензии I-II степени и профилактики синдрома полиорганной недостаточности, вызываемом непосредственно этим фактором.

Заключение. Наличие интраабдоминальной гипертензии I-II степени, осложняющее течение послеоперационного перитонита, свидетельствует в пользу выбора метода программируемых релaparотомии как варианта пролонгированной санации брюшной полости. Показанием для завершения метода программируемых ревизий и санаций является совокупность объективных показателей, таких как тяжесть состояния больного по шкале APACNE II, уровень внутрибрюшного давления, и состояние органов брюшной полости, выражаемого индексом брюшной полости.

Ключевые слова: Послеоперационный перитонит, внутрибрюшное давление, релaparотомии