

## **New Opportunities to Prevent Postoperative Complications in Abdominal Surgery**

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**Abstract:** Prevention of postoperative complications remains one of the urgent problems of modern surgery. Despite the improvement of means and methods of antiseptic, perioperative antibiotic prophylaxis, the number of postoperative purulent complications remains high and reaches 4-17% after middle laparotomy operations. The increase in the number of postoperative complications is associated with the performance of more complex, prolonged operations, the development of transplantology, the increase in the life expectancy of the population and others. Postoperative complications significantly increase the duration of patients' stay in the hospital.

**Keywords:** mannitol, antibiotic solution, sutures.

**Introduction:** The risk of developing postoperative complications depends on various factors related to the patient's condition, microbial contamination of the operating field, the technology of surgery, the nature of the surgical intervention, etc. Depending on the risk of developing postoperative complications, p. Ford and P. Cruise proposed to categorize 4 operational classes. Ford and P. Cruise proposed to divide into 4 operational classes. Antibiotic prophylaxis in the presence of risk factors for an unfavorable course of the postoperative period can significantly reduce the number of postoperative complications in groups of patients who underwent conditionally clean and "contaminated" operations, as well as in groups of patients who underwent clean operations [1].

A. V. According to Bedenkov's data, when analyzing the frequency of postoperative complications in 16 surgical hospitals in Russia, the development of complications in the postoperative period leads to an increase in hospitalization time in emergency operations from 10.5 to 17.4 h, in planned operations from 16.9 to 33.6 h. In the group of patients who underwent abdominal surgery, from 13.6 to 22.8 kg [5]. Increase of hospital stay time on average by 10 days leads to economic damage and increase of costs for treatment of postoperative complications in European countries on average by 2 thousand. Euro per 1 patient.

According to the U.S. Centers for Disease Control, surgical site infections include hospital-acquired infections that occur within 30 days of any hospital surgery and within a year if an implant is used. Because most surgical procedures suture internal organs and tissues of the anterior abdominal wall, almost all surgeries can involve the leaving behind of foreign bodies - implants - that are a source of infection. In the majority of postoperative wound complications only skin and subcutaneous tissue are involved, deep infections account for 27%, infections with internal organ involvement-10%. As a result of early discharge of patients from hospital, the incidence of infections in the area of surgical intervention increases at the postoperative stage[4]

**Purpose of the study:** evaluation of the average soaking consumption of mannitol antibiotic solution per intraoperative polyflament, time, consistency, substance retention in the thread and suture condition

**Materials and methods of the study.:** The present study is based on the results of surgical treatment of 481 (100.0%) patients with various abdominal cavity pathologies treated in the surgical department of Andijan Regional Multidisciplinary Medical Center in 2020-2023. Patients participating in the study were brought by us to the clinic during primary and repeated examinations in accordance with a specially developed questionnaire "protocol of post-diagnostic examination of patients with abdominal diagnosis". Before surgical treatment, the patients' condition was assessed not only visually, but also with the help of additional examinations. The influence of suture materials on the terms and levels of recovery of the functional state of organs and tissues after surgery was studied.

In abdominal surgery, one of the evaluation criteria is a certain degree of exclusion of pathologic conditions in patients according to gender and age. Physical advantage is the impact of suturing on the wound and the factor of premature wound healing. It should be separately noted that the appointment of surgical interventions at late terms (complicated) is caused by anatomical features of RAS, tactical errors and difficulties in treatment. Improper organization of rehabilitation period after surgical intervention or lack of dispensary control can lead to poor results.

Complications after surgery are divided into early and late complications. Separately, these occur directly and indirectly depending on the suture materials. Suture material can indirectly cause the following complications, which include infiltrate, abscess, hematoma, seroma, wound suppuration. Thread-related, that is, directly causing complications are poor sealing, loosening of the suture, suture tearing, and early or late resorption of threads, observed as late complications, is the occurrence of fistulous wound.

Today it is possible to predict these complications in advance. The prognosis is determined by intraoperative percutaneous oxygen administration and thermometry, and in the postoperative period by herbal or radiologic examination.

Criteria for evaluating intraoperative or percutaneous oxygen. Intraoperative percutaneous oxygen is used first to assess the condition in the tissues. Intraoperative percutaneous pressure determination allows the identification of clear boundaries of ischemic foci and foci of infiltrate even foci. While percutaneous oxygen pressure determination through the skin Skin in postoperative periods, the subcutaneous fat layer can also assess the state of annopeurosis if the patient is thin. The percutaneous oxygen pressure study is one of the important parameters in evaluating the regeneration process and is related to the collateral arrangement of blood vessels underlying regeneration and the mechanism of cross-linking. Today, the introduction of local therapeutic procedures into clinical practice in order to increase the effectiveness of treatment leads to the fact that in some cases there are negative consequences of treatment carried out to enhance the regeneration process. Secondary infiltrates occur. Increasing the oxygen pressure on this monitor allows the infiltrate to be detected at an early stage.

The method of thermometry is one of the criteria for evaluating the state of the surgical field, as is the determination of percutaneous pressure, and we hope that the evaluation criteria we are developing will be the right solution to problematic situations for practicing physicians.

Traditional abdominal surgery treatments that could have a direct impact on the analysis of outcomes included all patients under observation in the evaluation of the positive impact on post-surgical, near and distant outcomes. In the early periods of surgery, local complications may include seroma, suppuration of the surgical field, tearing or rupture of sutures at the wound edges, eventure, infiltrative inflammation of the peritoneum or diagnostic field, superficial and abdominal abscesses, intestinal suture failure, postdiagnostic peritonitis, postdiagnostic bleeding, premature intestinal obstruction. Adhesions. Inflammatory diseases were studied, divided into

two large groups, in which inflammatory processes without pus are: seroma, wound opening, bleeding, intestinal adhesions are painful, and the rest purulent inflammation we included the diseases. We separately mentioned the local condition of the wound as one of the main criteria. Complications arising from the quality of suturing during direct wound closure on a ten-point scale were: suture rupture, anastomosis, and bleeding. He believed that these findings were related to the entry of secondary infection into the wound, inadequate hemostasis, and poor drainage of the submucosal wound. Considering the above, the immediate factor contributing to the complication is the fact that the wound bed is not clean. This creates conditions in which failure to perform an adequate probing procedure in the intraoperative period remains the source of all the above complications.

Analysis of the results of the surgical procedure performed in the traditional way in the postoperative period. Early results were obtained in 241 of 246 patients who underwent surgery, i.e. 97.9%. In the early results study, patients were directly connected with the surgeon who followed up with them on an outpatient basis, and the ligament status was monitored daily. And after the sutures were removed, patients were invited to the outpatient clinic and had dispensary follow-up once a month. The remaining 5 (2.1%) patients had no opportunity to monitor the wound after suturing for various reasons. Long-term results, however, were obtained in 224 (91.1%) of 246 patients who were screened for UTIs in 106 (47.3%) cases and abdominal X-ray in 5 (2.2%) cases. Of the 241 patients with early results, 197 (81.7%) had a positive result and 44 (18.3%) had a negative result.

While one of the main causes of purulent inflammatory process is the entry of infection into the diagnostic area, the second mechanism is seroma. That is, untimely removal of seroma becomes a breeding ground for purulent inflammation.

The main factors considered for seroma formation were:

significantly higher adipose tissue;

a large wound surface;

crushing of healthy tissue during the surgical procedure (multiple incisions, grasping with a grinding instrument, etc.);

excessive use of coagulation;

large thickness of subcutaneous fat (more than 5 cm).

Ultrasound is recommended for early detection of seroma. We also recommend the percutaneous thermometry or percutaneous oximetry method, which is simple and not time-consuming. The main emphasis in surgical practice to pay special attention to seroma is wound suppuration, suture opening, or suture removal. Puncture techniques are often used in the treatment of seroma. Large seromas are accompanied by disturbance of not only local but also general condition, affecting the general condition of the patients. Good results have been observed in the diagnosis of small and medium sized areas by abdominal surgery. Good direct results for small and medium site surgeries were observed in 141 (71.6%) of 197 patients. However, in large scale, the rate was only 58 (29.4%). 44 negative results were observed in 59.1% of large-area surgeries. This can be explained as follows. Large-area surgery can be viewed not only as cavity or parenchymatous organs and tissues as mentioned above, but also as a direct correlation to the thickness of the suture material used, exposure of the tissue, restoration of intestinal peristalsis, and regeneration of the intestinal bladder.

**Conclusions:** The program of preventive measures carried out in the period after abdominal surgery should be based on tactical and technical aspects of the peculiarities of the local condition (localization, area, nature of the defect and degree of functional disorders), in particular, the frequency of unsatisfactory functional results after the use of conventional

polyflaments was  $17.2 \pm 2.1\%$ , cosmetic- $21.8 \pm 1.9\%$ , it depends on the quality of rehabilitation measures after suture material implantation.

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