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Features of the Postoperative Period in Patients with Acute Appendicitis Depending on the Methods of Surgical Treatment

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Abstract The aim of the study was to identify the features of the course of the postoperative period in patients with destructive forms of acute appendicitis operated on by classical access and laparoscopy. To achieve this goal, in 82 patients with destructive forms of appendicitis admitted to the Samarkand branch of the Republican Research center of emergency medicine in 2021, a comparative analysis of the course of the early postoperative period was carried out. Of these, 41 patients underwent a video-laparoscopic method of treatment and 41 patients underwent an appendectomy using the traditional open method. It has been established that laparoscopic intervention in acute appendicitis is a highly effective method, having the advantages of minimally invasive surgery and quite safe, accompanied by a favorable postoperative period.

Keywords Appendicitis, Treatment, Laparoscopy, Postoperative period

1. Introduction

Acute appendicitis is the most common surgical disease of the abdominal organs. Destructive forms of acute appendicitis remain an urgent problem of emergency abdominal surgery, due to the rapid development of the inflammatory process in the appendix, atypical clinical manifestations and the difficulty of diagnosis. The percentage of postoperative complications does not decrease either, especially formidable of them are the development of sepsis and multiple organ failure [1].

The current stage of development of surgery is characterized by the widespread introduction of various minimally invasive endosurgical technologies into the daily practice of treating patients with emergency pathology. The use of endoscopic surgery in surgical practice is promising and expedient, since it radically improves treatment and improves the quality of life of patients [2].

In the treatment of appendicitis, laparoscopy and laparotomy have their own indications and contraindications. The question remains: when is it necessary to switch from laparoscopy to an “open” approach, how justified is it, and will it not worsen the course of the underlying disease? [3].

Some endosurgical techniques, primarily laparoscopic appendectomy, have become quite widespread in surgical practice, having proven their effectiveness, however, by far not all authors recognize laparoscopic appendectomy as the unconditional method of choice in the treatment of patients with destructive appendicitis and appendicular peritonitis [4].

Objective: To analyze the features of the course of the postoperative period in patients with destructive forms of acute appendicitis operated on by classical access and laparoscopy.

2. Material and Methods

A comparative analysis of the course of the early postoperative period was carried out in 82 patients with destructive forms of appendicitis admitted to the Samarkand branch of the Republican Research center of emergency medicine in from January to December 2021. Patients, depending on the method of surgical treatment, were divided into two equal groups. Both groups were comparable in terms of the number of patients, age and gender, and, therefore, it was possible to compare both groups and obtain statistically significant data.

The first group consisted of 41 patients who underwent a video laparoscopic method of treatment, the second group also included 41 patients, appendectomy in this group was performed by the traditional open method.

All patients underwent a general clinical study of blood, urine, determined the blood group and Rh factor, prothrombin index, blood clotting and bleeding duration using unified methods. With atypical clinical signs of the disease, biochemical blood tests were performed.

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Figure 1. Wong-Baker scale

In all patients with doubtful clinical signs, ultrasound of the abdominal organs, kidneys and urinary system was performed. Ultrasound examinations were carried out on an expert-class ultrasonic device manufactured by Shenzhen Mindray BioMedical (China) model DC-40 full HD, release date 2019 ST7-02000031T, using a 3-10 MHz convex probe, a 4-16 MHz linear probe, and a volumetric probe 1 -8 MHz.

To assess the peculiarities of the course of the postoperative period in patients, the following indicators were compared: the severity of the pain syndrome, the need and duration of the use of painkillers, body temperature, the time of activation of the patient in the early postoperative period, as well as the length of stay in the hospital after surgery.

Assessing the severity of pain syndrome in patients is a difficult but extremely important task, since treatment tactics depend on it. The severity of pain in the early postoperative period was determined using the Wong-Baker 2008 pain intensity assessment system (Figure 1).

The Wong-Baker faces pain rating scale includes pictures of faces - a smiling face, which means no pain (0 points out of 5), a grimace of a crying face, which means the most intense pain (5 points out of 5). five). The Wong-Baker scale also has a close relationship with the indicators of the visual analogue scale and the facial pain scale. The average score was calculated.

The study was conducted 24 hours later, on days 2 and 3 after surgery.

3. Results and Discussions

In the first group of 41 patients intraoperatively phlegmonous form of appendicitis was diagnosed in 14, gangrenous also in 14 and gangrenous-perforative form was detected in 13 patients.

The age and sex composition of patients in group 1 is presented in Table 1.

In the second group, phlegmonous form of appendicitis was found in 18 patients, gangrenous also in 12, and gangrenous-perforative form was detected in 11 patients. The age and sex composition of patients in group 2 is presented in table 2.

Table 1. Clinical and statistical characteristics of patients of the 1st group

	20-40 y		40-60 y		All
	male	female	male	female	
Phlegmonous	4	3	3	4	14
Gangrenous	2	5	4	3	14
Gangrenous-perforative	3	3	5	2	13
All	9	11	12	9	41

Table 2. Clinical and statistical characteristics of patients of the 2nd group

	20-40 y		40-60 y		All
	Male	female	male	female	
Phlegmonous	5	4	4	5	18
Gangrenous	2	4	3	3	12
Gangrenous-perforative	3	3	3	2	11
All	10	11	10	10	41

The tables show that patients in both groups are comparable to each other in the frequency of various forms of acute appendicitis.

In the study of pain syndrome according to the Wong-Baker scale, the average score in patients of group 1 24 hours after surgery was 4.3, on day 2 - 3.67, and on day 3 the average score was 2.67. In patients of group 2, who underwent laparoscopic treatment, the pain syndrome was the least pronounced and the average score on the scale was 2.8, 2.2 and 1.2, respectively, the time intervals of the examination in the immediate postoperative period (Figure 2).

Due to the presence of a pronounced pain syndrome, patients of group 1 were anesthetized with non-narcotic analgesics 3 times a day by intramuscular or intravenous administration. Patients of the 2nd group, since the pain syndrome was insignificant, anesthesia was carried out 1-2 times a day.

Indicators of body temperature in the immediate postoperative period in patients with destructive forms of appendicitis, depending on the method of treatment, also had different values.

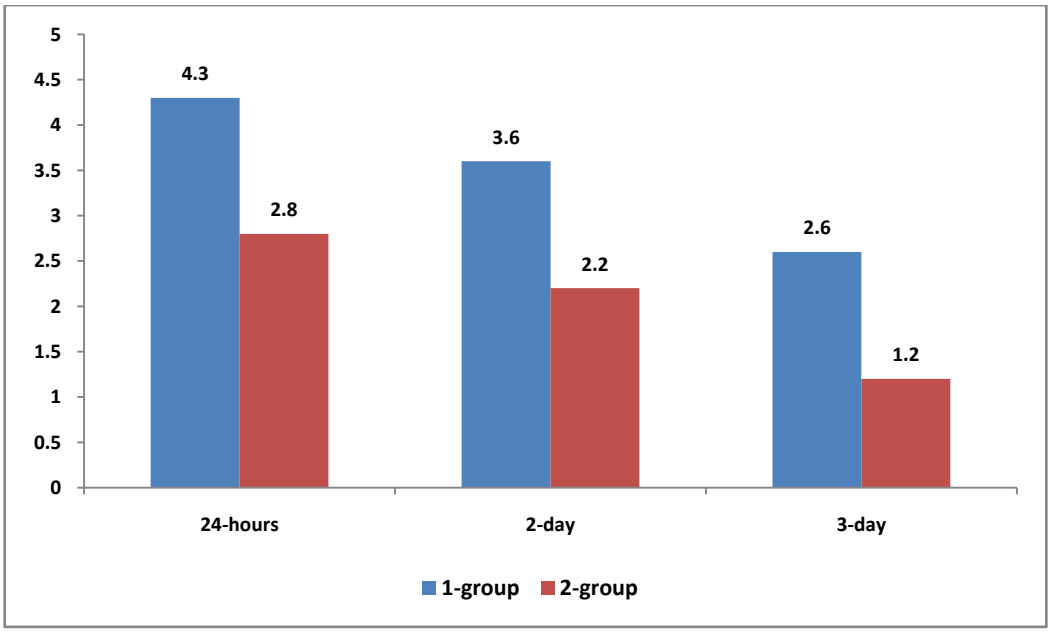

Figure 2. The average score on the Wong-Baker scale in patients in the immediate postoperative period

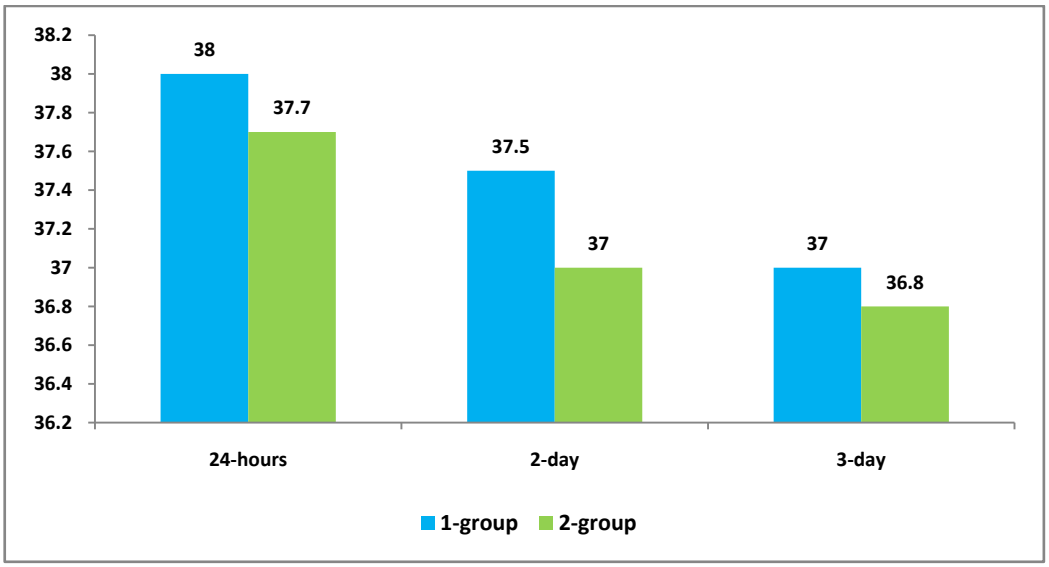

Figure 3. Indicators of body temperature in patients of groups 1 and 2

So, in patients of the 1st group, who underwent open (traditional) methods of appendectomy 24 hours later and on the 2nd day after the operation, there was an increase in temperature to febrile values. Only on the 3rd day after the operation, the body temperature of the patients decreased to subfebrile figures.

In the presented graph, it can be noted that in patients of the 2nd group who underwent laparoscopic appendectomy in the immediate postoperative period, there was practically no increase in body temperature.

In group 1, with the aim of early activation of patients, bed rest was canceled 24-48 hours after the operation, when the body temperature returned to normal and the intensity of pain in the area of the postoperative wound decreased. The length of stay in the hospital, from the end of the operation to discharge, patients of this group varied from 5 to 8 days, on average 6.5±0.7 bed-days.

In patients of the 2nd group, 24 hours after the operation, the abolition of bed rest was recommended, but as a rule, patients in this category were active and got up 12-16 hours after the operation. The length of stay in the hospital, from the end of the operation to discharge, for patients of this group varied from 3 to 5 days, on average 3.6±0.6 bed-days.

4. Conclusions

Thus, based on the advantages of endo-laparoscopic technologies in the diagnosis and treatment of major urgent diseases of the abdominal cavity, in recent years, 63% of the total number of emergency operations for destructive forms of appendicitis were performed by the laparoscopic method. Laparoscopic intervention for acute appendicitis is highly

effective, has the advantages of minimally invasive surgery and is quite safe, accompanied by a favorable postoperative period. An endoimaging approach for the treatment of acute appendicitis based on laparoscopic appendectomy should be offered as an alternative to open surgery.

Conflict of Interest

The authors declare that there is no conflict of interest.

Funding Source

The was conducted without sponsorship.

Ethics Approval

The research was approved by the Ethics Committee of the Samarkand state medical university and conducted in accordance with the ethical standards set out in the Helsinki Declaration. All patients received informational consent to conduct the study.

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