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FEATURES OF THE POSTOPERATIVE PERIOD AFTER LAPAROSCOPIC CHOLECYSTECTOMY

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Abstract*. Aim: To study the features of the postoperative period after laparoscopic cholecystectomy in patients with cholelithiasis.*

Materials and methods: 107 patients were included in the study: the first group consisted of 37 patients in whom the domestic drug hemoben was used for the purpose of hemostasis in the gallbladder bed; in the control group there were 56 patients in whom the final hemostasis in the area of the gallbladder bed was achieved using monopolar coagulation; the comparison group included 14 patients for the purpose of hemostasis who used the hemostatic sponge "SPONGOSTAN™ STANDART".

Results: In the observations of the main group, intraoperative complications were not noted, due to the fact that bleeding from the gallbladder bed and the likelihood of thermal damage to surrounding tissues were blocked by the use of hemoben. When treating the gallbladder bed, the quality of the hemostatic effect of hemoben significantly exceeds that of electrocoagulation, so re-treatment of the bed can be excluded.

Conclusions: The use of the drug gemoben significantly reduces the total duration of the surgical intervention, significantly reduces the degree of intraoperative damage and reduces the duration of inpatient treatment by 2 times.

Keywords*: cholelithiasis, laparoscopic cholecystectomy, postoperative period, hemostasis, complications, timing of drainage.*

Introduction. Over the past two decades, both in many countries of the world and in Uzbekistan, the number of patients with diseases of the biliary tract has increased [15]. According to most researchers, up to 20% of women and up to 10% of men suffer from gallstone disease.

Currently, the most widely used and recognized are minimally invasive technologies for the treatment of cholelithiasis, which include laparoscopic cholecystectomy and operations performed from a mini-access [1, 10].

The duration of the postoperative period and the presence/absence of complications in its course are primarily determined not by the volume of surgical impact on the abdominal organs, but by the localization and parameters of the surgical wound [6, 7].

The use of the laparoscopic method of surgery significantly reduces the number of complications, however, they cannot be completely prevented [11, 14]. It should not be overlooked that there are a number of risk factors that increase the likelihood of complications: the patient's age is over 60 years, malignant tumors, cardiovascular pathology, etc. [2, 9].

When performing laparoscopic cholecystectomy, there is a possibility of developing both intraoperative (0,3-0,56%) and postoperative (0,76-3,1%) complications [3, 8].

Intraoperative complications that may accompany laparoscopic cholecystectomy and pose a serious danger: intra-abdominal bleeding from the liver, from perforated vessels of the anterior abdominal wall, bleeding from the cystic artery, vena cava, gallbladder bed. Of these complications, bleeding from the gallbladder bed is recorded in only 1,9% of cases, and is more

typical for acute destructive cholecystitis, and/or in patients with chronic inflammation and cicatricial changes in the posterior wall of the gallbladder [4, 12]. The lack of reliable hemostasis, both in traditional and laparoscopic interventions, is one of the main reasons for conversions in laparoscopic cholecystectomy [13].

Prevention of complications involves: timely and performed operation, its technically correct performance and rational management of the postoperative period. The occurrence of secondary complications can be prevented by a complete preoperative and intraoperative revision of the biliary tract.

Aim. To study the features of the postoperative period after laparoscopic cholecystectomy in patients with cholelithiasis.

Materials and methods. 107 patients were included in the study: the first group consisted of 37 patients in whom the drug Hemoben was used for the purpose of hemostasis in the gallbladder bed; in the control group there were 56 patients in whom the final hemostasis in the area of the gallbladder bed was achieved using monopolar coagulation; the comparison group included 14 patients for the purpose of hemostasis who used the hemostatic sponge "SPONGOSTAN™ STANDART". The studied groups were comparable according to the following criteria: gender, age, severity of the condition, concomitant diseases.

Results. In the main group, bleeding from the gallbladder bed was stopped by applying Hemoben to the entire surface of the gallbladder bed. Patients in the control group during laparoscopic cholecystectomy underwent tissue dissection and coagulation using electrocoagulation according to the standard method.

At admission, during treatment and before discharge, all patients underwent a complete blood count. In patients of the main group, there was a decrease in hemoglobin to 112,1±9,5 g/l during the treatment period, an increase in leukocytes relative to the norm to an average of 10,3±7,1*109/l during the treatment period, a decrease in hematocrit to 33,7 ± 0,5%, and an increase in ESR to 21,4 ± 3,8 mm / h. In patients of the control group, there was a decrease in hemoglobin levels to an average of 102,3 ± 15,3 g/l, an increase in leukocytes relative to the norm to an average of 11 ± 3,4 * 109 / l during the treatment period, a decrease in hematocrit to 36,2 ± 3,2%, and an increase in ESR relative to the norm to an average of 26,8±12,9 mm/h. In patients with the use of "SPONGOSTAN™STANDART" there was a decrease in hemoglobin levels to an average of 110,7 ± 7,9 g / l during the treatment period, an increase in leukocytes to an average of 13,5 ± 4,8 * 109 / l, a decrease in hematocrit to 32,5 ± 3,5%, and an increase in ESR to 23,6 ± 6,9 mm / h.

Clinical observation revealed a direct relationship in the postoperative period between the degree of surgical intervention trauma and the activity of a number of enzymes.

Comparative indicators of AST and ALT in patients after laparoscopic cholecystectomy (LC) are shown in Figure 1.

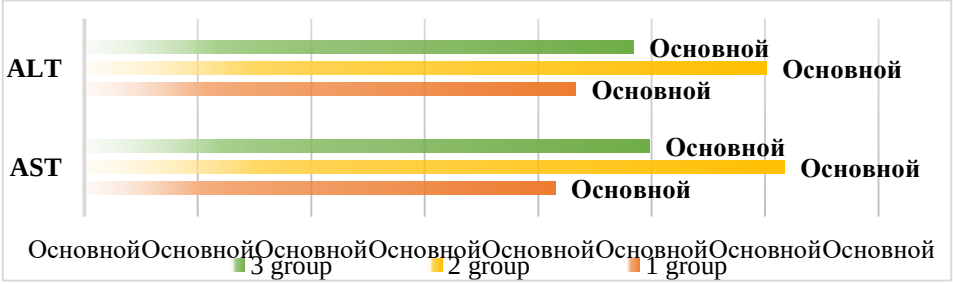

Fig.1. Comparative indicators of AST and ALT in patients after LC

In patients of the main group, there was an increase in the level of bilirubin up to 23±3,3 mmol/l during the treatment period, an increase in direct bilirubin up to 5,8±3,8 mmol/l, and the level of AST and ALT during the treatment period exceeded the norm up to 43,3±2,9 U/l and 41,5±5,9 U/l, respectively. In patients of the control group, there was an increase in blood glucose levels up to 8,7±2,98 mmol/l, an increase in bilirubin levels up to 23±6,75 mmol/l, an increase in direct bilirubin up to 5,9±0,42 mmol/l, also, the level of AST and ALT during the treatment period exceeded the norm to 60,1±6,5 U/l and 61,7±6,5 U/l, respectively. In the results of biochemical blood tests in patients of the comparison group, there was an increase in total bilirubin to 23,5 ± 3,7 mmol / l during the treatment period, as well as an increase in the activity of AST and ALT during the treatment period up to 48,4 ± 2,1 U / l and up to 49,8±2,3 U/l, respectively.

According to the established protocol, in the early postoperative period, we monitored the qualitative and quantitative characteristics of the drainage discharge, and the duration of drainage of the abdominal cavity (subhepatic space) was also recorded. The dependence of the duration of drainage of the subhepatic space on the nature of the drainage discharge after LC is shown in Fig. 1. In 7 out of 37 patients, the subhepatic space was not drained.

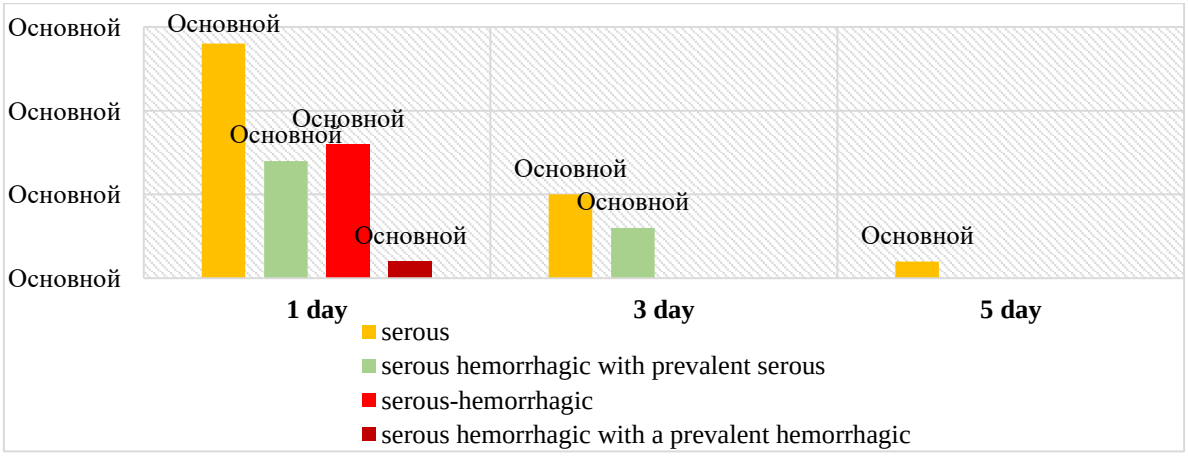

Fig. 1. The nature of the drainage discharge and the duration of drainage in the main group

Taking into account the volume and nature of the subhepatic space discharged from the drainage, we removed the drains on the second day in 22 cases (Fig. 1). The volume of discharge from the drainage on the 1st day was about 20 ml, on the 2nd day it was about 15 ml, and on the 3rd day 5 ml. On the 3rd day, only in 5 cases the nature of the discharge was serous, and in 3 cases it was serous-hemorrhagic with a predominance of serous. Given this, after ultrasound control of the subhepatic space, the drainage tubes were removed. Only in 1 case, due to the relatively large amount of discharge in the first 3 days after cholecystectomy, the drainage was removed on the 5th day. In the main group, the time of drainage of the gallbladder bed was 1,4±1 days.

The dependence of the duration of drainage after LC (control group) of the subhepatic space on the characteristics of the drainage discharge is shown in Fig. 2.

In the control group of patients, discharges from the drainage tubes on the first day after surgery in 37 (64,3%) cases were serous-hemorrhagic and serous-hemorrhagic with a predominance of hemorrhagic nature. On day 2, in 17 (30,4%) patients, a serous hemorrhagic effusion stood out from the drainage tube, and serous hemorrhagic effusion with a predominance of hemorrhagic decreased to 3. Only in 1 case, the drainage tube was removed on day 7 due to profuse serous discharge in within 6 days. The volume of discharge from the drainage on the 1st day was about 31,2 ml, on the 2nd day it was about 18,2 ml, and on the 3rd day 11,5 ml. In one case, relaparoscopy was performed, coagulation of the gallbladder bed due to ongoing bleeding.

In the control group of clinical observations, the time of drainage of the gallbladder bed was 2,8±0,8 days

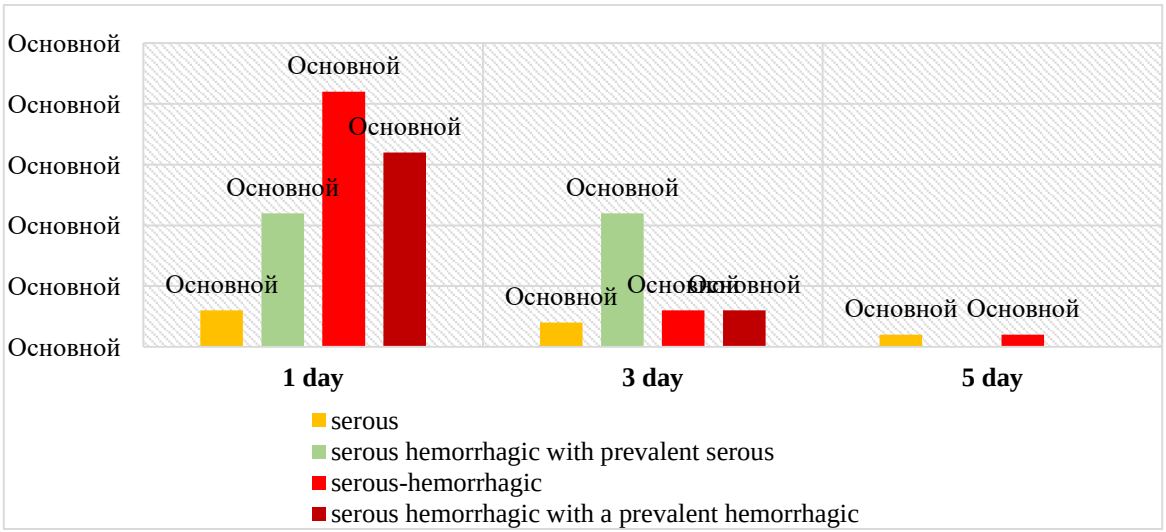

Fig. 2. The nature of the drainage discharge and the duration of drainage in the control group

The dependence of the duration of drainage of the subhepatic space on the nature of the drainage discharge in the comparison group after LC is shown in Fig. 3.

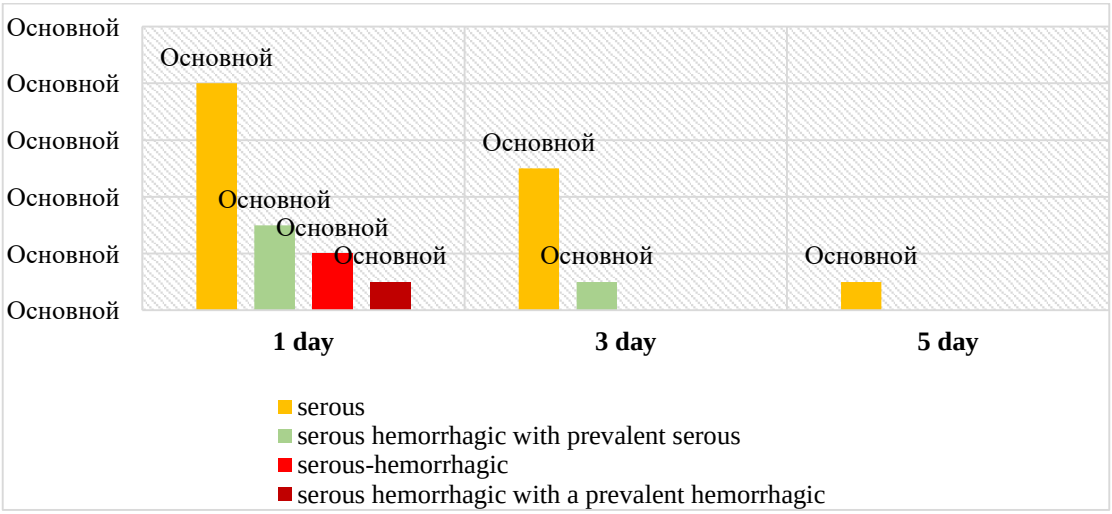

Fig. 3. The nature of the drainage discharge and the duration of drainage in the comparison group

As follows from Figure 3, in the comparison group, discharge from the drainage tubes on the first day after surgery in 8 (57,1%) cases had serous, in 3 (21,4%) cases had serous-hemorrhagic with a predominance of serous, in 2 (14,3%) cases had serous-hemorrhagic, and in 1 (7,1%) case serous-hemorrhagic with a predominance of hemorrhagic nature, given the volume and nature of the subhepatic space separated from the drainage, the drainage was not removed. On the 3rd day, 1 (5,3%) patient had a serous-hemorrhagic effusion from the drainage tube. Given this, after ultrasound control of the subhepatic space, the drainage tubes were removed. Only in 1 case, due to the relatively large volume of discharge, the drainage tube was removed on the 5th day in the first 4 days after the operation. The volume of discharge from the drainage on the 1st day averaged 25 ml, on the 2nd day it averaged 18 ml, and on the 3rd day 8 ml. The terms of drainage of the gallbladder bed in the comparison group were 2,4±0,85 days.

The nature and number of postoperative complications in the study groups are presented in Table 1.

Table 1

The nature and frequency of postoperative complications after LC

Complications	I group (n=37)		II group (n=56)		III group (n=14)	
	abs.	%	abs.	%	abs.	%
General (non-specific):	5	13,5	10	17,9	2	14,3
Hyperthermia	3	8,1	8	14,3	2	14,3
Pneumonia	1	2,7	1	1,8	-	-
Urinary infection systems	1	2,7	1	1,8	-	-
Local (specific):	1	2,7	4	7,1	1	7,1
Inflammation of the post operative wound	1	2,7	2	3,6	1	7,1
Intra-abdominal bleeding	-	-	1	1,8	-	-
Bile leakage	-	-	1	1,8	-	-
Total	6	16,2	14	25	3	21,4

* The frequency of postoperative complications between the study groups is statistically significant ($p<0.001$)

As can be seen from Table 1, in the main group, postoperative complications occurred in 6 (16,2%) patients. Complications were observed in 14 (25%) patients in the control group. Of the entire range of specific complications, only 1 (1,8%) patient had bleeding from the gallbladder bed, relaparoscopy and coagulation of the gallbladder bed were performed. 4 hours after the completion of laparoscopic cholecystectomy, in 1 (1,8%) case, bile leakage up to 10 ml was noted. Laparotomy was not performed, from the 2nd day after the operation there was a decrease in the flow of bile in the dynamics of observation, which finally stopped on the 4th day after laparoscopic cholecystectomy. Various complications were observed in 3 patients (21,4%) of the comparison group. In 1 (7,1%) patient, inflammation of the postoperative wound was noted. In 2 (14,3%) cases, hyperthermia was noted in the postoperative period.

The duration of intraoperative hemostasis in the main group was 2,3±0,49 minutes. The volume of intraoperative blood loss in the main group averaged 65±13 ml. The duration of surgery in patients of the main group ranged from 55 to 80 minutes, on average 61,2±4,8 minutes. The time of intraoperative hemostasis in the control group was 4,2±0,47 minutes. The volume of intraoperative blood loss in the control group averaged 105±16 ml. The duration of the operation using electrosurgical equipment, on average, was 72,8±14,8 minutes. The duration of surgery in patients of the comparison group ranged from 60 to 90 minutes, on average 63,6±9,3 minutes. The time of intraoperative hemostasis in the comparison group was 3,1±0,51 minutes. The volume of intraoperative blood loss in the comparison group averaged 78±18 ml.

Hyperthermia in patients of the main group on the 1st day of the postoperative period was 37,1±0,6 ºC, on the 2nd day the temperature returned to normal, amounting to 36,7±0,51 ºC. Hyperthermia in patients of the control group on the 1st day of the postoperative period was 37,8±0,45 ºC, on the 2nd day 37,5±0,32 ºC, on the 3rd day it was 36,8±0,35 ºC, on the 4th day 36,7±0,32 ºC and on the 5th day 36,6±0,06 ºC. Hyperthermia in patients of the comparison group on the 1st day of the postoperative period was 37,5±0,41ºC, on the 2nd day 36,8±0,43 ºC, on the 3rd day the temperature returned to normal, amounting to 36,6±0,05ºC.

In the observations of the main group, intraoperative complications were not noted, due to the fact that bleeding from the gallbladder bed and the likelihood of thermal damage to surrounding

tissues were blocked by the use of Hemoben. When treating the gallbladder bed, the quality of the hemostatic effect of Hemoben significantly exceeds that of electrocoagulation, so re-treatment of the bed can be excluded [5]. It should be noted that in the main group in the presence of active bleeding from small arterioles in 5 (13,5%) cases, we were forced to use local thermocoagulation. It should be noted that in the main group of patients in blood tests, leukocytes returned to normal on the 2nd-3rd day, body temperature on the 2nd day. In the main group of patients, the removal of sutures from the postoperative wound was carried out on days 8-9 in a polyclinic. The average duration of postoperative bed-days was 2,6±0,55 days. In the control group of patients in blood tests, leukocytes returned to normal on days 4-5, and body temperature on days 3-4. The removal of sutures from the postoperative wound was carried out on the 7-8th day in a polyclinic. The average duration of postoperative bed-days was 3,4±1,2 days. In the comparison group, in patients in blood tests, leukocytes returned to normal on days 3-4, body temperature on days 2-3. The removal of sutures from the postoperative wound was carried out for 4-5 days in a polyclinic. The average duration of postoperative bed-days was 2,8±0,43 days.

Conclusions. The use of Hemoben during laparoscopic cholecystectomy affects the course of the postoperative period: changes in the activity of liver enzymes (ALT, AST) decrease, which subsequently reduces the duration of inpatient treatment by 2 times.

Performing laparoscopic cholecystectomy in the control group was complicated by the fact that the coagulated tissue "burnt" on the working surface of the electrosurgical apparatus, which in turn contributed to a decrease in the power of the coagulator, which ultimately led to an increase in the duration of the operation. Stopping capillary-parenchymal bleeding when using the drug Hemoben occurs due to the rapid formation of a thrombus of sufficient density in the wound, which prevents the resumption of bleeding and the penetration of a secondary infection.

The use of the drug Hemoben significantly reduces the total duration of surgery, significantly reduces the degree of intraoperative damage to the adjacent liver parenchyma and the degree of manifestations of contact cytolysis in the early postoperative period.

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