

RESULTS OF MINIMALLY INVASIVE TREATMENT OF LIMITED FLUID ACCUMULATIONS IN THE ABDOMINAL CAVITY

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Abstract.

One of the most frequent complications after abdominal surgery is limited fluid accumulation. The purpose of the study: to develop a method of minimally invasive treatment of limited fluid accumulations in the abdominal cavity, which helps to accelerate its healing processes. Material and methods of research. The puncture-draining method of treating limited fluid accumulations is carried out by introducing an antiseptic through a drainage tube, for which a puncture of the fluid accumulation is first performed under the control of ultrasound. Research results. The results of the study showed that the proportion of patients with a single puncture that ensured recovery was only 61.4% (35 patients) in the comparison group, while the improved method allowed to increase these values to 88.0% (in 44 out of 50 patients in the main group). Conclusion. The use of the proposed method of minimally invasive treatment of limited fluid accumulations in the abdominal cavity allowed to increase the proportion of good results compared to the traditional method from 68.4% to 92.0%, while the frequency of unsatisfactory results requiring open surgical treatment decreased from 12.3% to 2.0% ($\chi^2=7,771$; $df=2$; $p=0,021$).

Keywords: FarGALS; puncture-draining method; minimally invasive treatment; limited fluid accumulations.

The purpose of the study: to develop a method of minimally invasive treatment of limited fluid accumulations in the abdominal cavity, which helps to accelerate its healing processes.

Material and methods of research. The puncture-draining method of treating limited liquid accumulations is carried out by introducing an antiseptic through a drainage tube, for which a puncture of the liquid accumulation is first performed under the control of ultrasound (the resulting punctate is sent to a bacteriological study to determine the type of pathogen and its sensitivity to antibacterial agents), after that, a two-channel drainage is carried out along the conductor string into the residual cavity for subsequent washing of the residual cavity using the antiseptic agent FarGALS in 50% concentration, for which 50 ml of FarGALS solution is diluted with 50 ml of sterile water

for injection (ratio 1:1), the resulting solution is drip-injected into the residual cavity through drainage at a rate of 15-20 drops per minute for 60 minutes (total volume of 100 ml per wash), such washing is carried out 3 times a day for 2 days, further, two days after the start of washing, vacuum aspiration is installed on the drainage by using a vacuum device of the "Redon" type, the capacity of which creates a vacuum in the residual cavity of 70-100 Kpa and from the same period, the residual cavity is irradiated with laser radiation of the Matrix apparatus using a laser emitting head KL-VLOK-365 (KJI-BJIOK-365), which provides a wavelength 365-400 nm, with a capacity of 3 MW, within 2 minutes for a volume of 1 cm³ using a light guide with radiation at an angle of 90-120° with a frequency of 1 time after 2 days with the desired frequency (on average 2-3 sessions), after which the drainage is removed, and if after removing the vacuum on ultrasound, a recurrence of liquid accumulation is determined, then this procedure is repeated again.

According to this technique, 50 patients were operated on, who made up the main group. The comparison group included 57 patients who underwent standard puncture-drainage intervention. Limited fluid accumulations in the abdominal cavity were the result of the following operations: Related transplantation of the right lobe of the liver – 9; Reconstruction of biliary ducts – 6; pancreatoduodenal resection – 2; Echinococcectomy from the liver – 36; Autopsy, sanitation and drainage of subdiaphragmatic abscesses – 16; Suturing of a perforated ulcer – 5; Gastric resection for complicated peptic ulcer disease -11. There were 5 patients without primary intervention with a developed subdiaphragmatic abscess and 17 patients with limited fluid accumulations against the background of pancreatic necrosis.

Research results. The results of the study showed that the proportion of patients with a single puncture that ensured recovery was only 61.4% (35 patients) in the comparison group, while the improved method allowed to increase these values to 88.0% (in 44 out of 50 patients in the main group). Repeated accumulation that did not require puncture treatment, that is, with subsequent self-healing, was observed in 4 (7.0%) patients in the comparison group and 2 (4.0%) in the main group. Repeated accumulation, requiring only secondary puncture treatment, was in 2 (3.5%) and 2 (4.0%) patients, respectively. Relapse with the need for repeated puncture and drainage developed in 9 (15.8%) of the comparison group and only 1 (2.0%) in the main group. Relapse, which necessitated open surgery with sanitation and drainage of limited fluid accumulations, was noted in 7 (12.3%) and 1 (2.0%) patients.

Conclusion. The use of the proposed method of minimally invasive treatment of limited fluid accumulations in the abdominal cavity allowed to increase the proportion of good results compared to the traditional method from 68.4% to 92.0%, while the frequency of unsatisfactory results requiring open surgical treatment decreased from

12.3% to 2.0% ($\chi^2=7,771$; $df=2$; $p=0,021$). The washing of the residual cavity with FarGALS solution provides an antibacterial and antiseptic effect, and the addition of the procedure with intraluminal laser irradiation contributes both to an additional antiseptic effect and leads to a photodynamic effect of the FarGALS solution, which generally provides enhanced local adhesive properties and repair of the residual cavity.

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