

**APPLICATION OF COMBINED LASER IRRADIATION IN POSTOPERATIVE PERIOD IN PATIENTS WITH COMPLICATED LIVER ECHINOCOCCOSIS**

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**ABSTRACT.**

The article presents an analysis of the results of surgical treatment in 102 patients with complicated liver echinococcosis using laser technology in the postoperative period. The patients were divided into 2 groups. I group - 62 (61%) patients with laser technology in the postoperative period. II group - 40 (39 %) patients with the traditional method of treatment. Due to the use of low-energy lasers in the postoperative period for complicated liver echinococcosis, the proportion of complications was reduced by 3-3.5 times, and the duration of inpatient treatment was reduced by 1.5-2 times.

**Key words:** liver echinococcosis, recurrent liver echinococcosis, complications, diagnosis, laser technology, surgical treatment.

Human echinococcosis is a severe parasitic disease and continues to be a serious problem in many countries of the world [1-3]. Most often (44-84%) the disease affects the liver [4, 5].

In the last decade, there has been an increase in the incidence of echinococcosis and an expansion of the geographical boundaries of the disease. The current trend is caused by a number of factors, which primarily include increased population migration, deterioration of the sanitary and epidemiological situation, primarily in regions that are endemic for echinococcosis [6].

According to the literature, South America (Uruguay, Paraguay, Argentina, Chile, and Brazil) is the most common place in terms of incidence, where about 30% of the adult population suffers from echinococcosis in rural areas. The territory of Uzbekistan is also one of the endemic foci of echinococcal disease, where the incidence rate is up to 10 people per 1000 population and does not tend to decrease [3, 7].

Long-term asymptomatic course of the disease leads to untimely referral of patients to a doctor, as a result of which complicated forms of liver echinococcosis are diagnosed, creating tactical and technical difficulties in performing surgical interventions [1, 8].

Thus, according to some data, more than 85% of LE surgeries are performed against the background of its complications [9].

On average, 2/3 of patients are operated on against the background of complications of echinococcosis. At the same time, there are difficulties in diagnosis, as well as disagreements when choosing the method of surgical treatment and elimination of the residual cavity of an echinococcal cyst. The most frequent are chronic complications: suppuration of the parasitic cyst - 18.4-49%, calcification of the fibrous capsule-4.8-18.1%, and dead maternal echinococcal cyst in the stage of early postmortem changes-5.6-9.9% [6]. The frequency of acute complications of echinococcosis, such as breakthrough in the abdominal cavity, varies from 2.7 to 13.6%, breakthrough in the pleural cavity-up to 9.6%, breakthrough in the biliary tract with the development of mechanical jaundice and cholangitis - from 1-6 to 63% [6].

Despite the success of modern medicine, diagnosis and treatment of liver echinococcosis

is often a difficult task. Special difficulties arise when recognizing complicated forms of - infection, which give a diverse clinical picture depending on the nature and duration of complications [10].

The introduction of ultrasound, CT, MRI, and MSCT into clinical practice has significantly improved the diagnosis of echinococcosis, especially in its early forms. Over the past decades, the increase in the number of detected pathologies and, accordingly, operated patients is largely due to advances in the diagnosis of echinococcosis.

Today, in cases of complicated cysts located in hard-to-reach parts of the liver and contraindications to laparoscopic and puncture treatment, or their ineffectiveness, surgeons - usually perform the operation in the traditional way. All of the above leads to the search for other, more effective, minimally invasive methods of surgical treatment, antimicrobial and antiparasitic agents that can make it possible to more safely and adequately treat echinococcal cysts of the liver, including complicated and recurrent ones, regardless of their location and size.

To increase the reliability of antiparasitic treatment, in addition to chemical agents, it is proposed to use physical methods of exposure - "sounding" of the cavity with low-frequency ultrasound, irradiation with various types of lasers (helium-neon, CO<sub>2</sub> lasers), plasma-argon coagulator, pneumo thermocoagulation, steam treatment, and a plasma stream of helium [11, 12, 13, 14, 15].

**Objective:** to improve the results of treatment in patients with complicated liver echinococcosis by combining laser technologies in the postoperative period.

**Material and method:** The Department of Abdominal Surgery of the Khorezm Regional Multidisciplinary Medical Center analyzed the results of surgical treatment of complicated liver echinococcosis in 102 patients using combined laser technologies. There were 35 (34%) males and 67 (66%) females. The patients were divided into 2 groups. I group - 62 (61 %) patients with laser technology in the postoperative period. II group - 40 (39 %) patients with the traditional method. Complications associated with the death of the parasite in the form of suppuration of the cyst were noted in 67 (66 %) patients, partial or complete calcification of the fibrous capsule of the parasite in 19 (17%), breakthrough of cyst elements into the free abdominal cavity in 5 (5 %), into the pleural cavity in 4 (4%), into the common bile duct in 6 (6 %), in the gallbladder in 1(0.9%).

Patients with complicated primary echinococcosis were 85 (83%), with recurrent -17 (17 %). In the recurrent group, patients underwent from 1 to 4 surgical interventions.

The main contingent of patients with complicated liver echinococcosis was represented by people of the most able-bodied age, from 20 to 70 years.

Complicated parasitic cysts were located mainly in the right lobe of the liver, in 87 (85 %), in the left lobe in 10 (10%), damage to both lobes was detected in 5 (5%) patients.

In complicated forms of liver echinococcus, a semi-closed method was used in all patients, after reducing the volume of the cavity by capitonage along the Delbe and invagination of the cyst edges.

Ultrasound examination of the abdominal organs was performed in all patients in the postoperative period as the main method for determining the localization, depth, size of complicated parasitic cysts of the liver, the condition of large vessels and bile ducts of the liver.

**Results and discussion:** In I group, drainage laser irradiation of the residual liver cavity was performed using two lumen silicone tubes in the postoperative period. Through drainage laser irradiation of the residual liver cavity, starting from the first days of the postoperative

period, was carried out using special glass fiber light guides based on the AFL-1, AFDL-1 apparatus (power of 10-15 MW, length of 0.63 microns) laser therapy sessions were performed daily for the first 2 to 5 minutes, the next 6-10 days for 10 minutes. Endobiliary laser irradiation was performed in 4 patients with purulent cholangitis caused by a breakthrough of an echinococcal cyst into the bile ducts with compression of the biliary tract by an echinococcal cyst.

All patients regularly underwent dynamic monitoring of the residual cavity (RC) condition by ultrasound, the residual cavity was preserved, but after providing rehabilitation of the RC with antiseptics Decasan, Furatsilin, and laser for 30 days, the RC decreased. After stopping the discharge from the drainage tube, reducing the RC to 1.0 cm in diameter, the drainage tubes are removed. Later, they were prescribed antibacterial, general strengthening therapy. In general, the time frame for the complete elimination of RC corresponded to approximately  $40.5 \pm 15.5$  days. The average hospital stay was 15 days.

In addition, in the postoperative period, 42 (41%) patients used a semiconductor laser "Uzor" (frequency of 8 Hz irradiation 120 seconds) to relieve pain.

Of the total number of postoperative complications after radical surgical interventions in patients II group operated in the traditional way, bile discharge was noted in 5 patients, in the form of the presence of bile fistulas in the RC with bile discharge, which in all cases were eliminated independently without additional medical measures, in terms of  $32.5 \pm 5.5$  days.

In 5 patients with suppuration of the residual cavity from this category of patients, percutaneous drainage of the RC was performed under the control of ultrasound, followed by their sanitation with antiseptics. The RC was liquidated.

Of the general complications, 2 had cardiovascular complications, 1 had pulmonary complications, and there were no deaths.

Evaluation of long-term results in 42 (41%) patients after 1-3 years. Satisfactory results were observed in all patients. There were no complaints indicating a relapse of the disease.

**Conclusion:** The use of low-energy lasers in the postoperative period for complicated liver echinococcosis creates conditions for faster healing of residual cavities, closing fistulas, reducing the specific weight of complications by 3-3.5 times, which will reduce the time of inpatient treatment by 1.5-2 times.

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