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MODERN TECHNOLOGIES IN THE SURGICAL TREATMENT OF LIVER ECHINOCOCCOSIS

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Abstract: Minimally invasive methods of treating liver echinococcosis demonstrate positive immediate and long-term results, as a rule, in specialized departments with sufficient experience in performing open radical operations . In this regard, we would like to once again emphasize the importance of taking into account the pathogenetic mechanisms of the natural course of the disease when choosing a surgical method. We are convinced of this by the accumulated knowledge at the Institute of Surgery named after. A.V. Vishnevsky has 35 years of experience in the treatment of primary and residual echinococcosis of the liver, the analysis of which is presented in this publication.

Key words: Minimally invasive technologies, surgical treatment, liver echinococcosis.

Echinococcosis is a disease that develops as a result of penetration into the human body and the development of the larval stage of the tapeworm Echinococcus. Analysis of literature data and current clinical practice indicate an increase in the incidence of liver echinococcosis, expansion of the boundaries of endemic regions and an increase in cases of infection in non-endemic areas [1–7]. Over the past 20 years, there has been an increase in the number of complicated forms of liver echinococcosis, the frequency of which reaches 84.6%. Relapses are observed in 54% of cases [3, 8].

Biology of the parasite**.** The causative agent of echinococcosis is the tapeworm Echinococcus granulosus , which parasitizes carnivores. Echinococcosis is a severe parasitic disease and in its development always goes through the stage of cyst formation. Echinococcosis in humans and animals is the same, and an intermediate host is required for the parasite to fully develop. The intermediate hosts of the parasite are humans and farm animals. Definitive hosts, such as dogs, become infected by eating the entrails of animals with hydatid cysts. The embryonic elements contained in the cyst (protoscolexes and acephalocysts) attach to the wall of the animal's small intestine and grow into adults. Mature segments containing 400-800 oncospheres detach from the abdomen of the protoscolex ; infected dog feces contaminate the grass and soil; eggs enter the intestines of sheep, pigs, camels or humans, or onto the fur of dogs. A person can become infected by petting a dog or eating contaminated vegetables. It is important to understand that the role of meat products is minimal, since both humans and farm animals are intermediate hosts, and heat treatment of meat almost always leads to the death of the parasite. The possibility of infection through meat plays a role only among persons engaged in slaughtering livestock, cutting meat and skins [2, 4, 8]

Purpose of the study

The purpose of the work is to analyze the experience of radical operations for primary and residual echinococcosis of the liver.

To analyze the results of surgical treatment of liver echinococcosis through the optimal choice of liver surgery.

Materials and research methods

On the clinical basis of the of the Fergana Medical Institute of Public Health, which is located in the 1st emergency surgical department of the Fergana branch of the Republican Scientific Center for Emergency Medical Care from 2012 to 2022. 137 patients with liver echinococcosis were operated on. There were 66 women (86.8%), 10 men (13.2%). The average age was (46.5±2.5) years. Primary echinococcosis was detected in 73 (96.1%) patients, secondary - in 3 (3.9%). Single liver cysts were found in 66 (86.8%) patients, multiple – in 10 (13.2%). The size of the cysts averaged 4-5 cm, the maximum reached 18 cm in diameter. The right location was affected more often in 56 (73.7%) patients than the left - 20 (26.3%) cases. In 16 (21.1%) cases, patients were admitted with complicated forms of echinococcosis: cyst suppuration - 13 (17.1%), breakthrough into the free abdominal cavity - 1 (1.3%), breakthrough into the pleural cavity - 1 (1, 3%), breakthrough into the biliary tract - 1 (1.3%).

A physical examination and medical history revealed moderate pain in the right hypochondrium, moderate weakness, intermittent. increased body temperature, skin rash, itching, jaundice. Among the instrumental research methods, chest X-ray, ultrasound, and CT were mandatory. Survey R-graphy of the lungs was used to exclude the combined impression of echinococcus lungs, which was observed in 2 (2.8%) cases. The presence of EC was an indication for surgical treatment. In 20 (26.3%) cases, when EC was localized in the left lobe of the liver, the operation was performed from the upper middle approach. 46 (60.5%) had oblique subcostal approaches according to Kocher or Fedorov. All patients, according to the EC treatment protocol, underwent anti-relapse antiparasitic therapy with albendazole (Vormil). The dose for patients weighing more than 60 kg was 400 mg 2 times a day, and for patients weighing less than 60 kg the drug was prescribed at a rate of 15 mg/kg/day. Before and after surgery, two cycles of 28 days were performed, separated by a 14-day break. Statistical processing of the research results was carried out using the Statistica 5.5 application package from Statsoft (owned by M.I. Pirogov Central Scientific Research Institute of the VNMU, license number AXXR910A374605FA) with calculation of the arithmetic mean of the studied indicator (M), standard error of the mean (m) , relative values (frequency, %). Average statistical indicators are given in the form M±m .

Research results and discussion

The choice of surgical method and access was determined individually and depended on the location, depth and size of the EC. For the convenience of surgery and manipulation when localizing cysts in the right lobe of the liver, we always crossed the coronary and round ligaments and, taking the latter clamp, could pull the liver into the wound. In order to prevent intraoperative contamination of the scolex parasite, the surgical field was covered with three to four tampons soaked in betadine . Pericystectomy was performed in 52 (68.4%) patients, in 8 (10.5%) patients resection of liver segments with EC was performed, in 4 (5.3%) - cyst opening with removal of contents and treatment of its cavity. Laparoscopic echinococectomy was used in 12 (15.8%) patients. In 18 (23.7%) cases, fusion of the cyst with neighboring organs was observed: stomach, gallbladder, diaphragm, omentum. When they were separated, there was a threat of violating the integrity of the cyst capsule and contamination with scolex. abdominal organs In these cases, puncture of the cyst, evacuation of its contents, cystotomy and removal of the chitinous membrane with daughter and grandson blisters were performed.

In 8 (10.5%) patients with multi-chamber EC, the contents were not removed by puncture due to obstruction of the needle lumen with fragments of the chitinous membrane. In these cases, it was necessary to perform a cystotomy and treat the internal surface at a high time total welding electrocoagulator EK-300M " Svarmed ". In 16 (21.1%) patients, after evacuation of the cyst

contents, perforating bile ducts were revealed that opened into its lumen. If a bile duct was present, a yellow spot usually appeared on the pulled out napkin. The same method can be used to determine the effectiveness of eliminating bile duct perforation. The further course of the surgical intervention depended on the individual characteristics of the cyst. It was possible to complete the operation without the formation of a residual cavity in the liver by performing a subtotal pericystectomy . Large venous branches approaching the cyst were sutured and ligated. thread or clipped . In 4 (5.3%) cases with deep EC, where there was a risk of profuse bleeding and damage to large bile ducts, complete removal of the fibrous capsule was not performed. In these cases, the capsule was excised as much as possible. and for the purpose of hemostasis, the defect was treated with a welding electrocoagulator EK-300M “Svar Med”. In these cases, a follow-up examination was performed using CT. When removing single ECs, blood loss did not exceed 200.0–300.0 ml. When numerous ECs were removed (two patients had as many as 5 ECs), including from hard-to-reach places (VII and VIII segments of the liver), blood loss in others reached up to 2.5 liters of blood.

Laparoscopic echinococcectomy was performed with localization of EC in II, III, IV, V, VI. No, it was used for disseminated echinococcosis of the liver and for localization of EC in I, VII. and in segments VIII. The use of laparoscopic hepatic surgical interventions for liver echinococcosis made it possible to reduce intraoperative blood loss by 9 times ($p = 0.0001$); duration of the operation - from (3.5±0.3) to (1.5±0.1) hours (2 times) ($p>0.05$), hospital stay - from (10±2.0) to (3±1.0) days (3.3 times) ($p=0.002$); relapses occurred in 2 (2.6%) cases with laparotomy access. In the postoperative period, bleeding was observed in 1 (1.3%) patient, which was stopped using a welding electrocoagulator EK-300M " Svarmed " and additional stitching of the wound surface of the liver. The use of this method made it possible to reduce blood loss. from (2200.0±210.0) to (250.0±50.0) ml, minor bile leakage was noted only in 7 (9.2%) patients. In 6 (7.9%) patients, right lateral exudative pleurisy was noted, which resolved conservatively. We had no relapses of the disease after radical surgical interventions (pericystectomy , resection of a segment with a cyst). Relapse after palliative operations was noted in 2 patients (2.63%). We had no lethal consequences after performing these interventions.

Thus, the clinical course of echinococcosis was asymptomatic for a long time, as a result of which 16 (21.1%) patients were hospitalized with complicated forms of echinococcosis (cyst suppuration, breakthrough into the free abdominal cavity, breakthrough into the pleural cavity, breakthrough into the biliary tract); in 18 patients (23.7%) there was fusion of the cyst with neighboring organs (stomach, gall bladder, diaphragm, omentum); in 16 (21.1%) bile fistulas opened into the EC lumen. It was these patients who, upon admission, had complaints of pain in the right hypochondrium, periodic increase in body temperature, skin rash, itching, and jaundice. In the diagnosis of EC, the main thing was ultrasound and CT, which were performed to identify daughter and grandchild cysts and determine the extent of the operation; MRI studies were used in patients with complicated EC. It was these 52 (68.4%) patients who managed to perform pericystectomy , where, thanks to the use of the EK-300M “ Svarmed ” welding electrocoagulator , it was possible to radically select the EC capsule, achieve stable hemostasis and prevent bile leakage . 12 (15.8%) patients with uncomplicated forms of EC managed to undergo laparoscopic echinococectomy without damage to the capsule.

Conclusions.

1. Echinococcectomy with complete excision of the fibrous capsule of the liver - pericystectomy , is a radical and effective operation in relation to complete recovery and does not cause relapse of the disease.

2. The use of the welding electric cagulator EK-300M " Svarmed " during thermal sanitation of the walls of the residual cavity after echinococectomy reduced blood loss from (2200.0±210.0) ml to (250.0±50.0) ml (p=0.0001), and the number of relapses - from 2.8 to 0, 0% and practically avoid bile leaks .

3. Laparoscopic It is advisable to use echinococectomy when clearly visible (II–VI) liver segments are available. With laparoscopic echinococectomy managed to reduce intraoperative blood loss by 9 times (p=0.0001); the duration of the operation is 2 times (p>0.05), the hospital stay is reduced by 3.3 times (p = 0.002).

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