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TRADITIONAL SURGICAL INTERVENTIONS FOR LIVER ECHINOCOCCOSIS AND RISK FACTORS FOR DISEASE RECURRENCE

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Annotation. Recurrence of liver echinococcosis is due to the influence of many factors, the degree of influence of some of which may be offset by the influence of other factors. An effective measure to prevent relapse of liver echinococcosis after surgical treatment, subject to the principles of aparasitic and antiparasitic, is anti-relapse therapy with Albendazole.
Key words: liver echinococcosis, cyst, relapse, prevention.

Introduction. Cystic echinococcosis, which is one of the most serious zoonotic infections, remains an urgent health problem in many countries of the world [1,2,3,4,5,6,7,8]. Currently, extensive experience has been accumulated in various aspects of the problems of diagnosis and treatment of the disease. However, in general, the problem of relapse of echinococcosis remains unresolved and relevant.

In most developed countries, cases of echinococcosis are kept to a minimum and are reported only in migrants. However, in some countries (Israel, Central Asia, Eastern Europe, Russia) there is a tendency towards an increase in incidence among indigenous people [1,2]. In particular, in Kazakhstan, in the period from 1988 to 1995, less than 1.4 per 100,000 inhabitants were operated on for cystic echinococcosis, while in 2000 the figure increased to 5.9 [3,4] and remains high level at present. In this regard, the problem of echinococcosis has not lost its importance.

The history of the development of surgery for echinococcosis goes back thousands of years, however, the concept of diagnosis and treatment of the disease changes from year to year [1]. Key changes are associated with the introduction of ultrasound, CT, MRI, minimally invasive technology into clinical practice, as well as the development of pharmacology.

Although cysts are most often localized in the liver (50-65%) and lungs (20-30%), multi-organ localization is observed in 15-20% of cases [3,9,10,11,12,13,14,15], which requires a comprehensive diagnosis of the disease, including the use of various imaging methods. Several decades may pass from the moment of invasion to the development of clinical symptoms. In this regard, at present, liver echinococcosis is often an incidental finding during ultrasound, CT, and MRI. There are no clinical symptoms specific to echinococcosis, which makes early diagnosis of the disease and its relapse difficult

Cysts of hepatic localization are complicated in 5-40% of cases ([2,16,17,18,19]. In particular, the breakthrough of an echinococcal cyst into the abdominal cavity is a very dangerous complication in terms of the subsequent development of many recurrent cysts from the effusion of germinal elements. In 10% of cases, cyst breakthrough is accompanied by an anaphylactic reaction [1,3].

Cystobiliary fistulas, which may be the result of a hidden breakthrough of a cyst into the bile ducts, are observed, according to some data, in 90% of patients with liver echinococcosis [2]. Suppuration of an hydatid cyst is one of the most common complications; according to various sources, it is

observed in 5–40% of patients [1]. There are various methods of treating cystic echinococcosis of the liver. The most mastered and widespread in clinical practice is the surgical method performed through laparotomy access. At the same time, minimally invasive treatment methods, such as laparoscopic and percutaneous puncture, have a number of advantages: low trauma, fewer complications, low cost and short duration of hospital treatment [1,20,21,22].At the same time, the main limiting factor for the further development of minimally invasive technologies in echinococcosis surgery is the unresolved problem of disease relapse. All methods of surgical treatment of echinococcosis have certain disadvantages and are also associated with various postoperative complications. Radical operations are more labor-intensive, associated with a higher operational risk, but, at the same time, are accompanied by a low risk of relapse [1,2]. Less radical methods, on the contrary, are easier to perform, are associated with low mortality, but have a higher likelihood of relapse and the development of complications from residual cavities [1,2].

The main complications of surgical treatment of liver echinococcosis are bleeding, cholangitis, sepsis and the formation of biliary fistulas. Perioperative mortality varies from 0.5% to 4% (Arif S.H. et al., 2008), regardless of [2,23,24,25] from the forms of damage. In some publications, the mortality rate reaches 23.5%, and the rate of various complications of surgical treatment reaches 12-63% [1,20,21,22]. Recurrence of echinococcosis, as a rule, is associated either with non-radical removal of the germinal elements of the operated cyst, or with the further development of previously undetected cysts (Akhmedov I.G., 2016). The relapse rate, according to various sources, ranges from 2% to 25% (Musaev G.Kh., 2017). Breakthrough of liver cysts into the abdominal cavity, according to various sources, is observed in 1-16% of cases [1].

Purpose of the study to improve the results of prevention, diagnosis and early complex treatment of recurrent echinococcal liver cysts.

Materials and methods. The clinical part of the work is based on an analysis of the diagnosis and treatment of 78 patients with liver echinococcosis who were under our supervision from 2021-2022, of which 46 patients underwent laparoscopic echinococcectomy, 22 patients underwent traditional laparotomy surgery, and 16 underwent various options for percutaneous puncture treatment. The criterion for including a patient in the sample was a clinical diagnosis of liver echinococcosis, confirmed by ultrasound, CT or MRI data. The criteria for excluding patients from the sample were the patient's refusal to participate in the study, refusal of surgical intervention (if indicated), as well as the presence of contraindications to drug treatment or refusal of it when planning a minimally invasive intervention. The sample also did not include patients aged less than 10 years and more than 75 years. The criterion for exiting the study and excluding the patient from the sample was the lack of confirmation of the parasitic nature of the cyst during the intervention.

Results and discussions. The majority of patients included in the study were of active working age. Among the patients there were 313 men, women – 465. The average age was 35.3□17.1 years (median – 33 years, quartiles – 22 and 47 years).

Cysts in operated patients ranged in size from 4.8 cm to 18.0 cm, median – 10 (8; 12) cm, and were in different phases of development. Multiple echinococcosis was found in 126 (17.8%) patients. Carrying out comprehensive preoperative preparation, a reasonable compromise between radical and organ-preserving operations when choosing surgical tactics, as well as comprehensive measures to prevent phlebothrombosis and thromboembolism made it possible to minimize perioperative mortality. Three patients died after surgical treatment of liver echinococcosis.

Nonspecific complications, such as suppuration of the surgical wound, local peritonitis, exacerbation of chronic diseases of the kidneys and urinary tract, lungs, heart and other organs and systems developed in 76 (9.8%) patients, often in combination with specific complications (suppuration of the residual cavity , formation of external biliary fistula, development of cholangitis).

The study of long-term results was carried out by inviting patients for examination. Echinococcosis of any form that developed after surgical treatment was considered recurrent, with the exception of cases of intentional leaving of individual liver cysts for subsequent intervention, as well as cases of disseminated lesions in patients in which it is impossible to state the completion of surgical treatment.

The clinical picture of liver echinococcosis did not have specific manifestations and, as a rule, did not have pronounced clinical symptoms. In complicated echinococcosis, the disease manifested itself as a complex of symptoms of suppuration, obstructive jaundice, and cholangitis. When the cyst broke into the abdominal cavity, a transient picture of an acute abdomen developed, which resolved on its own.

The specificity of the enzyme immunoassay reaction in the differential diagnosis of liver echinococcosis was 84.9%, sensitivity – 92.2%. We used the ELISA reaction to monitor the effectiveness of treatment of liver echinococcosis and predict recurrence of the disease.

The basis for diagnosing liver echinococcosis and relapse of the disease was ultrasound examination. Ultrasound for liver echinococcosis has become a routine method for detecting cysts. At the same time, at present, determining the phase of cyst development, preoperative diagnosis of complications, predicting treatment results, as well as differential diagnosis of liver echinococcosis at an early stage of cyst development and early diagnosis of relapse of the disease are of great clinical importance. In this regard, in the study we relied on ultrasound performed by a high-class or expert ultrasonographer. The sensitivity of ultrasound in verifying the parasitic nature of a liver cyst was 96.3%, the specificity was 92.5%. Computed tomography was performed in cases where the results of ultrasound were insufficient to develop surgical tactics, as well as for early diagnosis of liver relapse in primary multiple echinococcosis. Computed tomography was used in 72 patients.

Traditional surgical interventions for liver echinococcosis through laparotomic access were performed in 22 patients. The basic principle when performing surgical intervention for liver echinococcosis, which we do not question, is compliance with the principles of aparasitic and antiparasitic (Vafin A.Z., 1996, 2005) in full.

The objective of this part of the study was to assess the significance of various features of liver damage and the choice of surgical technique from the point of view of the effectiveness of preventing relapse of the disease. For this purpose, we assessed: a) the dynamics of the cumulative probability of relapse in the first 3.5 years after the intervention, subject to active monitoring of patients; b) the frequency of disease relapse by this date.

Access to the cyst in liver echinococcosis is one of the significant factors in the success of a complex of intraoperative anti-relapse measures. Depending on the number of cysts, their location, depth in the liver parenchyma and other features, the selected access is not always convenient, ensuring fairly comfortable manipulation on all cysts.

The localization of the hydatid cyst is an important factor influencing the outcome of the intervention. As a rule, with liver cysts we can only talk about the predominant segmental

localization of the cyst. Long-term results in 17 patients with solitary echinococcosis of the liver showed that the localization of the cyst does not significantly affect the likelihood of relapse.

By the end of 3.5 years, the relapse rate after surgery was 21 (7.8%) out of 29 patients: with closed echinococectomy, relapse was observed in 1 (6.3%) of 16 patients, with open echinococectomy - 19 (7.6%) of 51 patients.

The frequency of relapse in open and closed operations did not demonstrate statistical significance of the difference in the indicator, obviously due to the small number of observations in the group with closed surgical methods.

Elimination of the residual cavity in the liver after removal of parasitic elements and treatment of the fibrous wall was carried out using various methods. Invagination of the mobile parts of the fibrous capsule into the cavity was used in 66 cases. Less commonly, as a rule, when the cyst was located marginally in 3–5 segments of the liver, capitonnage was performed (24 patients). We used omentoplasty as a method of eliminating the residual cavity in 28 patients. Aplatation of the residual cavity was used in 18 patients.

Conclusion. The disinfecting effect of anti-echinococcal agents of contact action used for sanitation of the abdominal cavity in case of cyst breakthrough (3% hypertonic sodium chloride solution, 0.04% chlorhexidine solution and chlorhexidine-cetrimide solution diluted in a ratio of 1:1000) with a 10-minute exposure is not fundamentally different from the effect washing the abdominal cavity with saline solution.

Anti-relapse therapy with Albendazole for 2 months effectively reduces the incidence of abdominal echinococcosis with intraperitoneal administration of a suspension of germinal elements in the experiment.

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