

Differentiated surgical approach in treatment of echinococcosis of the liver

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Abstract

The work is based on the experience of surgical treatment of 427 patients with echinococcosis of the liver of various locations operated in the 2nd clinic of SAMI from 2003 to 2015. In the years 2003-2006. We operated 154 (36.1%) patients. These patients made up a control group. The comparison group included 134 (31.4%) patients operated in 2007-2010. The main group included 139 (32.5%) patients operated in 2011-2015. In comparison with 2003-2006. The incidence of postoperative complications decreased almost 5-fold - from 18.4% to 4.0%. Relapses of echinococcosis in the long term after surgery appeared in 12.9% of patients, and in the group of persons operated in 2003-2006, this indicator reached 28.2%. In subsequent years, against the background of intra- and postoperative prophylaxis of the disease, the number of relapses in the comparison group was reduced to 8.8%, and in the main group was reduced to zero. Among the main germicides, 80-100% glycerol, heated to 70 °C, does not cause destructive changes in the adjacent parenchyma, the brightest and quickest scolexic effect. In the surgery of liver echinococcosis, preference should be given to the topical mini-access, the possibilities of which can be significantly expanded by intraoperative ultrasound and video endoscopic assisting.

Keywords: liver echinococcosis, surgical treatment, relapse prevention

1 Introduction

"Scientific achievements of recent years have radically changed the approaches to diagnosis and choice of the method of treatment of patients with echinococcosis [1, 4]. Currently, echinococcosis surgery includes traditional, video endoscopic and transcutaneous minimally invasive surgery" [1]. This thesis of the Resolution of the XXII International Congress of the Association of Hepatology Surgeons of the CIS countries held in September 2015 in Tashkent dictates a significant number of works devoted to the surgical treatment of echinococcosis. Despite this, to date, it has not been possible to make significant progress in the prevention of recurrence of the disease. Among surgeons there is no common opinion in determining the concept, causes, form and nature of relapse, there is no consensus on intraoperative antiparasitic treatment of the fibrous capsule wall, insufficient attention is paid to the role of residual cysts [2, 3, 5]. The issues of choosing the optimal tactics of surgical treatment, reducing its traumatism, conducting postoperative rehabilitation and dispensary observation of patients with echinococcosis have not been resolved, which certainly confirms the relevance of this study.

2. Materials and Methods

The work is based on the experience of surgical treatment of 427 patients with echinococcosis of the liver of various locations operated in the 2nd clinic of SAMI from 2003 to 2015. In the years 2003-2006. We operated 154 (36.1%) patients in whom treatment of the residual

cavity was carried out with 2-5% formalin solution. These patients made up a control group. The comparison group included 134 (31.4%) patients operated in 2007-2010, in which 80-100% glycerin heated to 70°C was used to treat the residual cavity. The main group included 139 (32.5%) patients operated in 2011-2015, in which the residual cavity in uncomplicated echinococcosis was treated with hot glycerol, and in case of complicated echinococcosis it was treated with hot glycerin in combination with low-frequency ultrasound. The tactics of treatment of the patients of the main group differed from that in the control group and the comparison group in that the choice of the optimal surgical access to the cyst was carried out in a differentiated manner, and the access itself was not very traumatic. In addition, the main group was chemotherapy in full volume. Albendazole was used in a dose of 10-12 mg / kg / day, recommended by WHO (1983). Preparations were prescribed by intermittent courses (1 month of treatment and 15 days - break).

Of the total number (564) of identified cysts of the liver, 62.9% were located on the diaphragmatic, 26.2% on the visceral surface of the organ, 8.3% - intraparenchymally. In the surgery of liver echinococcosis since 2011, we began to widely apply "topical mini-access", carried out as much as possible over the projection of the identified cyst. This incision was used in 98 (70.5%) patients in the main group.

Subclavian and median mini-accesses, if necessary, can be expanded to either side depending on the

intraoperative finding. An important help in expanding the radicality of the operation with the use of topical mini-access is the use of intraoperative ultrasound, which was performed by 39 (39.8%) patients with a positive result in 20.5% of cases. Increasing the angle of operation with a topical mini-access is facilitated by the use of the possibilities of fibroendoscopic techniques for a thorough revision of the residual cavity, which allows you to examine the pockets, chambers and folds of the fibrous capsule difficult to access for immediate imaging, to identify and remove residual germ cells and fragments of the cuticular Shell. Fibroendoscopic assisting was performed in 23 (23.5%) of 98 patients, mainly in individuals with daughter cysts.

The absolute majority of our echinococectomy (99.5%) had an organ-preserving character, and only 0.5% of cases had to resort to resection of the left lobe of the

liver. At the same time, 430 (76.2%) of the residual cavities were treated by the type of closed echinococectomy, and only 131 (23.3%) of the cavity of the fibrous capsules were sealed with a semi-closed drainage method (table 1).

When large cysts with a diameter greater than 4-5 cm were eliminated, we tried to apply immersion sutures in the modification of the clinic (Patent No. 3322, application IH DP 9500498/1 dated May 22, 1995). In more than half of the cases (55.3%), the elimination of the parasite lairs was carried out according to the method modified in our clinic. The proposed technique is most conveniently used for the localization of cysts on the visceral surface of the liver (figure 1). This method is well established as an organ-saving operation for giant cysts that occupy the entire fraction.

Table 1: Methods of echinococectomy from the liver

Method of echinococectomy	Group of patients						Total deleted cysts	
	reference		comparison		basic			
	abs.	%	abs.	%	abs.	%	abs.	%
Ideal echinococectomy	-	0,0	1	50,0	1	50,0	2	0,3
Liver resection	1	100,0	-	0,0	-	0,0	1	0,2
Closed echinococectomy (dull suturing of the residual cavity)								
Elimination of the residual cavity by the method of the clinic	64	24,4	94	35,9	104	39,7	262	46,4
Suture of the residual cavity	72	42,8	51	30,3	45	26,8	168	29,8
Semi-closed echinococectomy (suturing of the residual cavity to the drainage tube)								
Elimination of the residual cavity by the method of the clinic	45	50,6	35	39,3	9	10,1	89	15,8
Suture of the residual cavity	15	35,7	5	11,9	22	52,4	42	7,4
Total Cysts	197	100,0	186	100,0	181	100,0	564	100,0

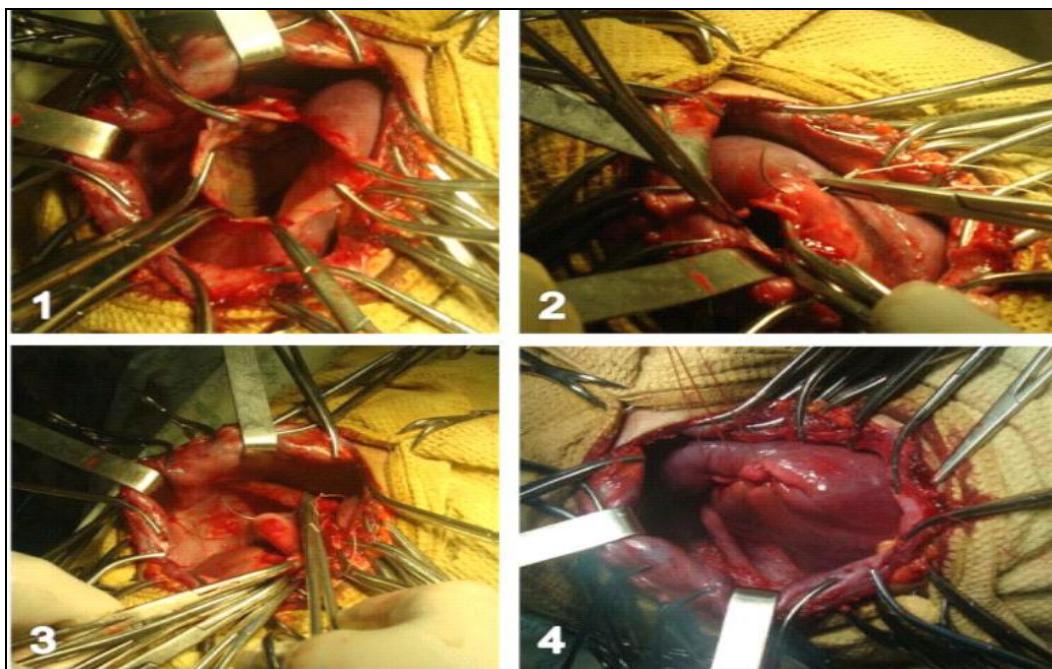


Fig 1: Stages of imposition of immersion sutures in the modification of the clinic: 1) the residual cavity of echinococcus on the right lobe of the liver; 2) the imposition of a submerged suture on the right side of the surgeon wall of the fibrous capsule; 3) application of a seam on the left wall of the capsule; 4) the final stage of suturing the residual cavity.

3. Results

Improvements in the choice of tactics for the surgical treatment of liver echinococcosis could not but affect the immediate results of management of this category of

patients. So, in comparison with 2003-2006. The incidence of postoperative complications decreased almost 5-fold - from 18.4% to 4.0%. Much less began to occur complications such as suppuration of the residual

cavity (8 times), suppuration of the laparotomic wound (2 times), formation of bile fistula (3 times), there were no subdiaphragmatic abscesses.

Long-term results of liver echinococectomy were studied in the period from 1 to 14 years in 369 (86.4%) of 427 operated patients. At the same time, the fate of 299 (81.0%) patients was traced in terms of more than 3 years.

Relapses of echinococcosis in the long term after surgery appeared in 12.9% of patients, and in the group of persons operated in 2003-2006, this indicator reached 28.2%. In subsequent years, against the background of intra- and postoperative prophylaxis of the disease, the number of relapses in the comparison group was reduced to 8.8%, and in the main group was reduced to zero (table 2).

As a rule, the recurrence of the disease is diagnosed within 3-7 years, only in 12 (9.1%) of patients from the control group the re-development of the parasite was

detected 7-14 years after the initial operation, with the diameter of the cysts not exceeding 6 cm, -5 cm, which indicated more likely a reinvasion, rather than a true relapse. In the study of gastric secretion in 10 of 12 patients, a hypoacid condition was detected in 9 of them, and only one patient had normocidal acidity of gastric juice. The revealed regularity of the timing of the development of relapse of echinococcosis determines the minimum (mandatory) period of postoperative dispensary observation: the examination should be carried out for 7 years, and subsequently persons with a hyperacid and normocidal status can be withdrawn from the observation.

Those relapses of echinococcosis, which originated in the same organ fraction, were conditionally associated with defects in the antiparasitic treatment of the residual cavity of the parasite. Such relapses were observed in 40.4% of patients (table 2).

Table 2: The frequency of relapse and the comparative analysis of the localization of recurrent cysts

Localization of a recurrent cyst	Group of patients						Total, n=369	
	Control, n=131		Comparison, n=113		Basic, n=125		abs.	%
	abs.	%	abs.	%	abs.	%		
In the operated share	14	10,7	5	4,4	-	-	19	8,1
In the contralateral lobe	9	6,9	2	1,8			11	
Implantation echinococcosis of the abdominal cavity	12	9,2	2	1,8	-	-	14	3,8
In the lungs	2	1,5	1	0,9	-	-	3	0,8
Total	37	28,2	10	8,8	-	-	47	12,7

An analysis was made of the relationship of localization of recurrent cysts to the site of primary lesion in 30 patients with repeated echinococcosis of the liver. In this case, the localization of a recurrent cyst in only 26.7% of patients coincided with the segmental localization of the primary cyst, which made it possible to exclude the absolute dominance of the role of the fibrous capsule in the genesis of the recurrent course of the disease.

The likelihood of recurrence is probably related to the fact that the primary liver damage could initially be multiple, and the development of only one parasitic cyst is associated with its dominance, which competitively suppresses the growth of other cysts.

4. Conclusions

1. Hypoacid state of gastric juice is a significant risk factor for echinococcosis - in 90% of cases it is associated with a decreased acid-forming function of the stomach.
2. Among the main germicides, 80-100% glycerol, heated to 70 °C, does not cause destructive changes in the adjacent parenchyma, the brightest and quickest scolexic effect.
3. In the surgery of liver echinococcosis, preference should be given to the topical mini-access, the possibilities of which can be significantly expanded by intraoperative ultrasound and video endoscopic assisting. Reducing the traumatic nature of the intervention, preserving the anatomical integrity of the affected organ, reducing the frequency of iatrogenic is facilitated by the proposed method of suturing the residual cavities of the liver.

4. The use of the proposed complex helps reduce the frequency of postoperative complications from 18.4 to 4.0% with liver echinococcosis, reduce the duration of surgical intervention, and shorten the duration of inpatient treatment by half.
5. In 90.9% of cases, relapse of echinococcosis is diagnosed within 3-7 years after the operation. Only due to intraoperative treatment of the residual cavity with glycerol heated to 70 °C it is possible to reduce the frequency of recurrence of echinococcosis from 28.2 to 8.8%, and the use of hot glycerin in combination with postoperative chemotherapy allows the cases of relapse to be reduced to zero.

5. References

1. Azamat S, Kosim R, Jamshid S, Zafarjon K. The role of chemotherapy in prophylaxis of the liver echinococcosis recurrence. *European science review*. 2016; 5-6.
2. Byun SJ, *et al.* An imported case of echinococcosis of the liver in a Korean who traveled to western and central Europe // *The Korean journal of parasitology*. 2010; 48(2):161-165.
3. Moro P, Schantz PM. Echinococcosis a review // *International Journal of Infectious Diseases*. 2009; 13(2):125-133.
4. Kaltenbach TEM, *et al.* Determination of vitality of liver lesions by alveolar echinococcosis // *Nuklearmedizin*. 2015; 54(1):43-49.
5. Rinaldi F, *et al.* Cystic echinococcosis of the liver: A primer for hepatologists *World journal of hepatology*. 2014; 6(5):293.