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Research Article

RESULTS OF MODERN RADICAL OPERATIONAL TECHNIQUES FOR LIVER ECHINOCOCCOSIS

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ABSTRACT

The study included the results of surgical treatment of 71 patients with liver echinococcosis. All patients underwent ideal echinococcectomy or total pericystectomy. The use of the ultrasonic dissector of the SONOCA 300 aspirator makes it possible to more widely use radical modern methods of surgical interventions for liver echinococcosis, to perform them bloodlessly, with good final hemo- and cholestasis with minimal tissue injury in the affected area. It allows to reduce the duration of the operation, reduce blood loss, perform effective antiparasitic treatment of the cyst walls, and ensure reliable hemo- and cholestasis after traumatic interventions. Ultimately, this provides a significant improvement in the immediate results of surgical treatment of patients with liver echinococcosis and prevents recurrence of the disease.

KEYWORDS

Liver echinococcosis, radical echinococcectomy, ultrasonic dissector aspirator.

INTRODUCTION

The relevance of research. At the present stage, the diagnosis of liver echinococcosis does not present significant difficulties, largely due to the emergence of non-invasive imaging methods, the information content of the complex application of which reaches 95-100%. However, the lack of alertness in relation to echinococcosis contributes to late diagnosis, and, consequently, an increase in complicated forms of the disease. At the same time, the treatment of EP is a serious surgical problem. The most common method

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of operation remains echinococcectomy with various options for the elimination of the residual cavity, which is performed in the vast majority (90.6%) of cases. As a result, the postoperative mortality rate of surgical patients averages 2.2%, relapses after surgery are observed in 3-54% of cases. In the light of the foregoing, it becomes obvious that there is a need to improve the known and develop new effective measures for the prevention and treatment of this formidable disease.

In modern literature, there is no consensus on the definition of the concept, causes, form and nature of recurrence, no consensus has been reached on intraoperative antiparasitic treatment of the fibrous capsular wall, very little attention is paid to the role of residual cysts, doctors remain wary of the safety of antiparasitic drugs.

Purpose of the study: To evaluate the effectiveness of the cavitation ultrasonic aspirator dissector in radical echinococcectomy with exfoliation of the fibrous capsule.

Material and research methods. The study included the results of surgical treatment of 71 patients with liver echinococcosis. All patients underwent ideal echinococcectomy or total pericystectomy. Depending on the undertaken surgical interventions, the patients were divided into two groups. The 1st group included 54 (76.0%) patients operated on using the ultrasonic dissector of the SONOCA 300 aspirator. The 2nd group included 17 (23.9%) patients, they underwent ideal echinococcectomy from the liver and total traditional instruments (Table 1).

Table 1

Distribution of patients depending on the operation performed

Group of patients	Operation	Number of patients (n=71)	
		абс.	%
1 - group	Ideal liver EE using SONOCA 300	25	35,2
	Total pericytectomy with SONOCA 300	29	40,8
2 - group	Ideal EE from the liver using a monopolar coagulator	2	2,8
	Total pericytectomy with monopolar coagulator	15	21,1
Total:		71	100

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Until 2020, radical operations such as ideal echinococcectomy (Fig. 1) and total pericytectomy (Fig. 2) after open surgery were performed using a monopolar coagulator. At the same time, the operation lasted for abundant blood loss and unsatisfactory results in the postoperative period.

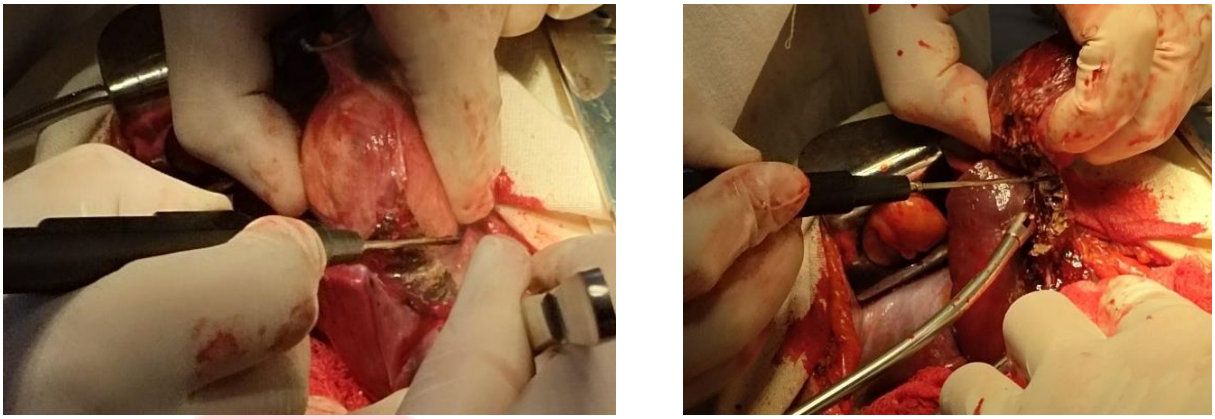

Fig. 1. Ideal echinococcectomy with a monopolar coagulator and excised fibrous capsule

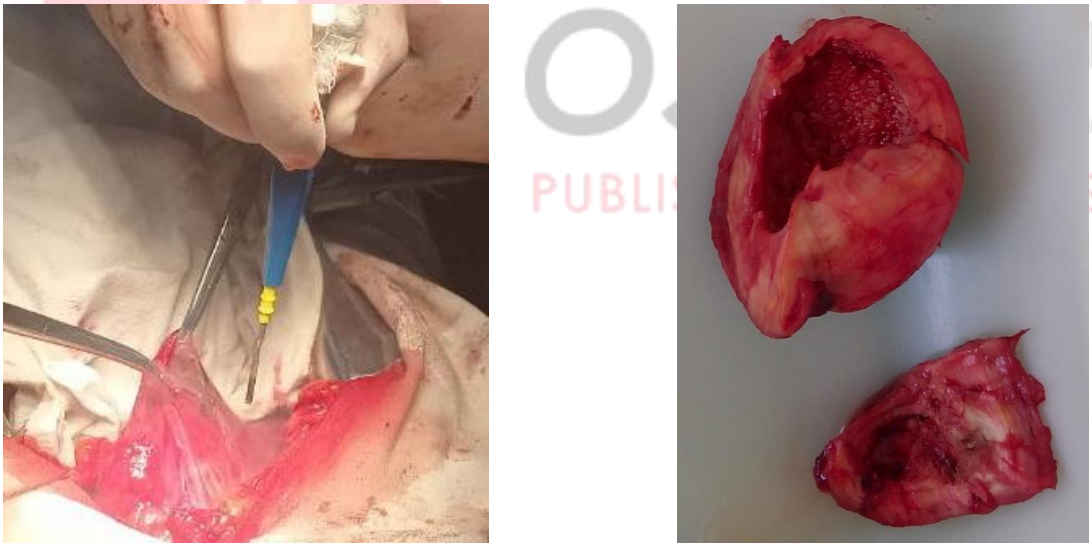

Fig. 2. Total pericystectomy with a monopolar coagulator and excised fibrous capsule

Given these circumstances, since 2020, radical operations have been performed using the cavitation ultrasonic dissector of the SONOCA 300 aspirator (Fig. 3).

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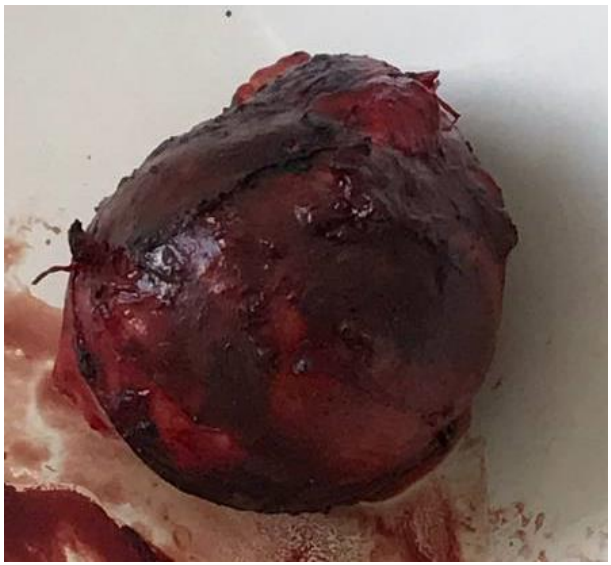
Fig. 3. Cavitation ultrasonic dissector aspirator - SONOCA 300 (Söring company)

The ultrasonic dissector Sonoca 300 allows you to create a wave of ultrasonic waves on the working tip of the instrument within 25, 35, 55 kHz. The operation of the ultrasonic dissector - aspirator Sonoca 300 is based on the principle of selective treatment of parenchymal tissue with ultrasound. In this case, the parenchymal tissue is destroyed and removed by suction. The destruction that occurs under the action of cavitation, the supply of liquid and the aspiration of the tissue occur simultaneously, due to the design features of the working tool and apparatus (Fig. 4).



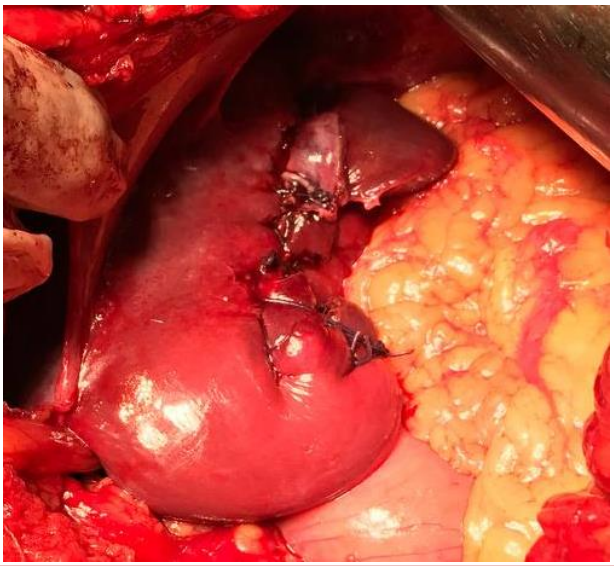


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Fig. 4. Enucleation of the cyst using an ultrasonic aspirator dissector - SONOCA 300

In this case, the tubular structures are not destroyed, they intersect after clipping or ligation. Due to this, the whole cyst is husked with minimal blood loss, with minimal damage to healthy liver tissue, and there is no bile leakage in the postoperative period.

The effectiveness of the ultrasonic aspirator dissector in surgery for liver echinococcosis was evaluated according to the following criteria:

- amount of intraoperative blood loss;
- Quantity and nature of fluid content in control drains;

To determine the dependence of the amount of surgical blood loss on the methods of surgical interventions used, the average values of intraoperative blood loss during surgical interventions of various volumes in patients of the above groups were compared. These results are reflected in table 2.

Table 2.

Intraoperative blood loss during surgical interventions for liver echinococcosis (ml)

Operation types	Group 1, n=54	Group 2, n=17
Ideal liver EE using SONOCA 300	57,4±0,96 n=25, *P<0,05	
Total pericytectomy with SONOCA 300	109,3±2,15 n=29, P<0,05	
Ideal EE from the liver using a monopolar coagulator		303,4±18,85 n=2
Total pericytectomy with monopolar coagulator		381,2±20,75 n=15

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P - reliability of differences when compared with the corresponding indicator in group 2

As can be seen from Table 2, the average amount of surgical blood loss when using a monopolar coagulator with ideal echinococcectomy was 303.4±18.85 ml (Group 2). When using the ultrasonic dissector of the SONOCA 300 aspirator when husking a cyst with a fibrous capsule, surgical blood loss was minimal and decreased by almost 5 times (group 1).

One of the criteria for a comparative assessment of the invasiveness of the operation, the quality of the achieved hemo- and cholestasis, was the amount and nature of the discharge from the abdominal cavity along the drains, as well as the timing of the removal of control drains. Data from the case histories of the above 71 patients were analyzed. These results are shown in Table 3.

Table 3.

The amount of discharge from the abdominal cavity through drainage in the postoperative period (ml per day)

The amount of discharge	Group 1, n=54		Group 2, n=17	
	abs.	%	abs.	%
0	5	9,2		
<10 ml	38	70,4		
10-30 ml	8	14,8	1	5,9
30-50 ml	3	5,5	3	17,6
50-100 ml	-	-	8	47,0
> 100 ml	-	-	5	29,4

As can be seen from the table, after radical echinococcectomy in the compared groups, a significantly good result was observed in patients using SONOCA 300. When analyzing the nature of discharge from the abdominal cavity through drainage in the postoperative period, 3 (4.2%) patients after traditional radical intervention observed hemorrhage up to 300 ml. In all cases, hemorrhage was stopped conservatively, relaparotomy was not required. In 4 more (5.6%) patients, bile leakage was observed, and

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during dynamic monitoring, bile leakage stopped on days 9-12 (Table 4.).

In our observations, control drains were removed during the first three days after surgery in 34 (62.9%) patients of the 1st group and 2 (11.8%) patients of the 2nd group. In 4 (23.5%) patients of group 2, the drains were removed after 5 days (Table 5).

Table 4.

The nature of discharge from the abdominal cavity through drainage in the postoperative period

The nature of the discharge	Group 1, n=54		Group 2, n=17		Total, n=71	
	abs.	%	abs.	%	abs.	%
Serous	20	37,0	1	5,9	21	29,6
Serous-hemorrhagic	34	63,0	9	52,9	43	60,6
hemorrhage	-	-	3	17,6	3	4,2
bile leakage	-	-	4	23,5	4	5,6

Table 5.

Drainage removal time (days)

Timing	Group 1, n=54		Group 2, n=17	
	abs.	%	abs.	%
1- day	-	-	-	-
2- day	34	62,9	2	11,8
3- day	18	33,3	1	5,9
4- day	2	3,7	3	17,6
5 day	-	-	7	41,2

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> 5-day	-	-	4	23,5

CONCLUSIONS

Thus, the use of the ultrasonic dissector of the SONOCA 300 aspirator makes it possible to make wider use of radical modern methods of surgical interventions for liver echinococcosis, to perform them bloodlessly, with good final hemo- and cholestasis with minimal tissue injury in the affected area. It allows to reduce the duration of the operation, reduce blood loss, perform effective antiparasitic treatment of the cyst walls, and ensure reliable hemo- and cholestasis after traumatic interventions. Ultimately, this provides a significant improvement in the immediate results of surgical treatment of patients with liver echinococcosis and prevents recurrence of the disease.

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