

IMPROVING THE METHODS OF DISINFECTION OF THE RESIDUAL CAVITY OF THE FIBROUS CAPSULE IN COMPLICATED AND UNCOMPLICATED ECHINOCOCCAL CYSTS OF THE LIVER

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ABSTRACT

Objective of the research work: to evaluate the effectiveness of methods for disinfecting the residual cavity of the fibrous capsule of the echinococcal cyst. Cytological studies of the contents of the echinococcal cyst were carried out, depending on the antiparasitic drug used. In the 1 group, intraoperative antiparasitic treatment of the residual cavity of the fibrous capsule was carried out with 0.02% furacilin and 30% hypertonic solutions, and in group 2 with 80% glycerol. Research has shown that glycerin has a more pronounced scolecidal disinfecting effect. The patients received immunostimulating therapy in combination with chemotherapy - albendazole. During the operation, the antiparasitic treatment of the cyst should be based on the requirements of the aparasitic and antiparasitic echinococcectomy.

Keywords: echinococcosis, cytology, methods of decontamination, antiparasitic treatment of the residual cavity of the fibrous capsule, immunostimulation, preventive chemotherapy.

INTRODUCTION

One of the main stages of the operation to prevent the recurrence of echinococcal disease is intraoperative scolecidal treatment of echinococcal cysts. [1,3,8]. Various methods are used to influence the residual cavity of the cyst with a hypertonic solution, iodine-containing agents, albendazole liquid form, glycerin solution, dimixide solution, ethyl alcohol and formalin [2,4,6]. However, the search for a differentiated approach to antiparasitic intraoperative treatment of the residual EC cavity is still ongoing. [5,7].

All of the above was the basis for the planning and execution of this study.

The purpose of this work is: to evaluate the effectiveness of methods of intraoperative antiparasitic treatment of the residual cavity of the fibrous capsule of the echinococcal cyst.

MATERIALS AND METHODS

Operated patients with ED in the surgical clinics of the Andijan State Medical Institute for the period 2015-2020,

depending on the methods of intraoperative antiparasitic treatment of the residual cavity of the EC fibrous capsule, were divided into 2 groups. Group 1 included 17 patients with ED, where intraoperative antiparasitic treatment of the residual cavity of the fibrous capsule of EC was performed with 0.02% furatsilin and 30% hypertonic solution. Group 2 included 18 patients with ED, where intraoperative antiparasitic treatment of the residual cavity of the fibrous capsule of EC with 80% glycerol was performed.

Tactical and technical principles of antiparasitic therapy were developed in combination with improved methods of treatment on the basis of the Department of Surgical Clinics of AndStateMI.

In the compared groups, women slightly prevailed (64.9% and 52.1%). At the same time, patients aged 19-44 years prevailed: 77.9% and 71.8%, patients aged 45-59 years accounted for 10.4% and 21.1%, and in the elderly 11.7% and 7.1%.

METHODOLOGY OF CYTOLOGICAL STUDIES

A special section of the research was the cytology of the contents of EC for the presence of scolex and the determination of the timing of the death of germinal elements under the influence of disinfectants. In the studied groups, the contents of EC were taken for cytological examination.

For cytological studies, native preparations were prepared and stained with hematoxylin-eosin according to the Papanicolaou method. Microscopic studies were carried out on a CYAN microscope manufactured in Belgium.

RESULTS AND DISCUSSION

To ensure aparasiticity, great importance was attached to surgical access, the rules for isolating the surgical field, and aparasitic methods for evacuating the contents of removed cysts. We also adhered to the strict principles of antiparasiticity, consisting in the disinfection of the germinal elements of the parasitic cyst. Initially, a puncture was performed, the contents of the EC were aspirated, and then, after the evacuation of the germicide, the fibrous capsule was opened and the integrity of the chitin membrane was determined, followed by its removal. Before and after disinfection, the contents of the cyst were taken for cytological examination.

The purpose of the cytological study was to determine the viability of scolexes and stain them brown with 1% aqueous eosin solution. This technique allowed us to judge the effectiveness of the disinfection method, which are presented in table 1

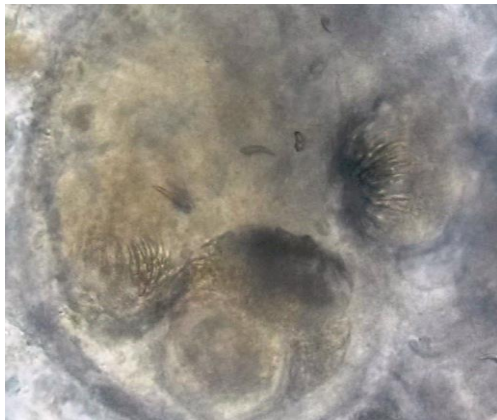
Table 1

The results of the effect of the antiseptic solution of furacilin in combination with a hypertonic solution on the viability of the fruitful elements of the echinococcal cyst in the 1st group of patients

Method of disinfection	Amount of patients	Exposure (in minutes)% of dead scolex		
		3	5	10
Antiseptic solution 0.02% furatsilina and 30% hypertonic solution	17	70,0	80,0	90,0

The use of an antiseptic solution of furacilin in combination with a hypertonic solution did not have a detrimental effect on scolexes for up to 5 minutes, and after 10 minutes of exposure, 90% of dead scolexes were detected, there were no hooks and thickening of the internal structure was noted.

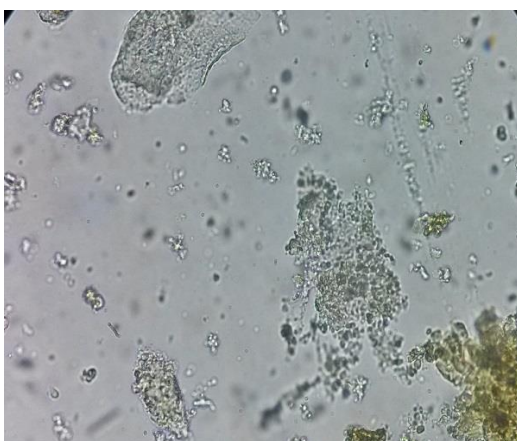
The results of the cytological study are shown in Pic. 1-4. Live scolex with an intact germinal membrane with an integral internal cellular content (Pic. 1).



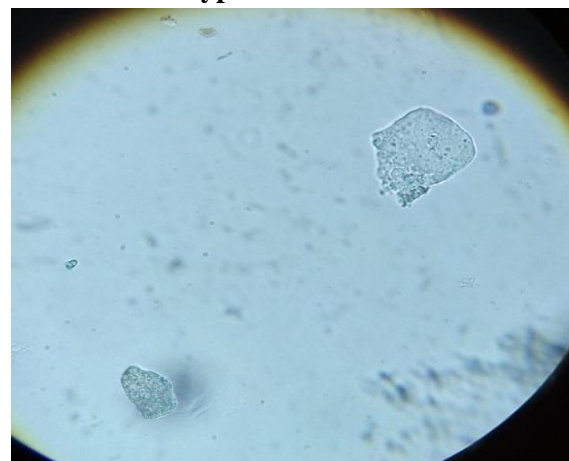
Pic.1. Live scolex before treatment with furatsilin and hypertonic saline



Pic.2. 3 minutes after exposure to furacilin and hypertonic saline



Pic. 3. The state of scolex 5 minutes after exposure to furacilin and hypertonic saline



Pic.4. 10 minutes after exposure to furacilin and hypertonic saline

At the third minute of exposure, changes in the shape of the scolex were determined in the direction of extension and swelling

of the cell membrane (Pic. 2). At the 5th minute of exposure, the destruction of the germinal membrane is observed with a thickening of the cellular structure and with partial staining in brown color (Pic. 3). Thus, our cytological studies indicate that the antiseptic solution of furacilin in combination with a hypertonic solution is an effective disinfectant when treating the cavity of the fibrous capsule during echinococectomy, but after 10 minutes the percentage of dead scolexes was 90% (Pic. 4).

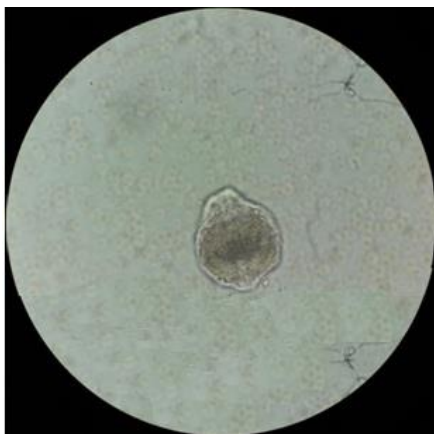
The results of cytological studies in the 2nd group of patients are shown in Table 2.

Table 2

The results of the impact of disinfectant, antiseptic, antimicrobial, antifungal drug 80% glycerol on the viability of the fruiting elements of echinococcal cysts in group 2 patients.

Method of disinfection	amount of patients	Exposure (in minutes)% of dead scolex		
		3	5	10
Glycerin 80%	18	90,0	100,0	100,0

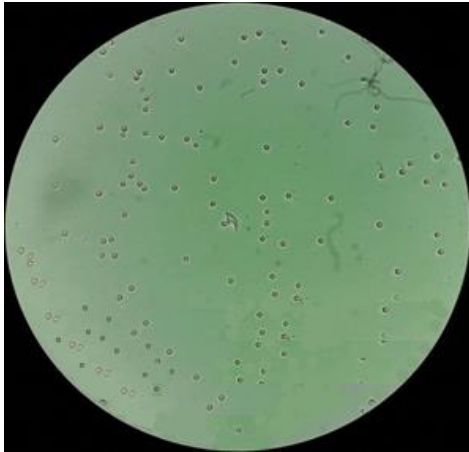
The use of an 80% solution of glycerin already at 3 minutes had a detrimental effect on scolexes, and 90% of dead scolexes were detected. This was manifested by the fact that the secondary elements of echinococcus were immobile, intensely stained brown, their internal structure was almost not differentiated. Studies conducted during exposures from 5 to 10 minutes did not reveal significant differences, all scolexes were dead. It was found that the optimal exposure time is 4-5 minutes. The results of cytological examination are presented in Pic.5-8. A live scolex with a whole germinal membrane with an integral internal cellular content (Pic. 5).



pic. 5. Live scolex before treatment with glycerin



pic. 6. 3 minutes after exposure to glycerin



pic. 7. 5 minutes after exposure to glycerol.



pic. 8. 10 minutes after exposure to glycerol

At the third minute of exposure, a change in the shape of the scolex was determined in the direction of stretching and swelling of the cell membrane (Pic. 6). At the 5th minute of exposure, the destruction of the germinal membrane was observed with a thickening of the cellular structure and with partial staining in brown color (Pic. 7,8). Summing up the results of cytological studies in group 2 patients, it can be assumed that 80% glycerin in its scolexicidal action is an effective disinfectant of the residual cavity of the fibrous capsule and is not inferior to 0.02% furatsilin solution and 30% hypertonic solution, which was the reason for us to use 80% glycerin solution in the clinic.

Along with the observance of the principles of aparasitism and antiparasitism during the operation, patients in the postoperative period underwent stimulation of specific immunity and chemotherapy with albendazole. In addition, detoxification, antioxidant and hepatoprotective therapy was performed in the postoperative period. It is well known that Echinococcus stimulating the immune on the one hand, on the other hand, causes suppression of the immune response and suppresses the host's defense mechanisms both against their own antigens (homologous immunosuppression) and antigens of other agents infecting organisms. It was found that most of the studied patients with ED are characterized by the presence of an immunodeficiency state of varying severity; the most pronounced immunodeficiency state is observed in patients with a long history of the disease, a severe course of the pathological process, and pronounced changes in biochemical tests. For the purpose of immunostimulation and preventive prophylactic treatment of immunodeficiency, immunomodulin was used in the complex of treatment for patients in the preoperative and postoperative period. Immunomodulin was used at a dose of 2.0 ml intramuscularly 2 times a day. One of

the effective methods of preventing postoperative complications and recurrence of the disease in operated patients was preventive antibiotic therapy with albendazole. The drug "Albendazole" was taken in two doses at a standard dosage of 10-12 mg/kg. Chemotherapy was also combined with the use of furazolidone 50 mg 3 times a day, metronidazole 250 mg 2 times a day. As hepatoprotectors, we used the drug Essentiale forte according to

300 mg intravenously, Hepa-Merz 10 mg per 400 ml infusion solution.

Thus, the purpose of prophylactic chemotherapy was to rehabilitate the body of a patient with echinococcosis with an anthelmintic chemotherapy drug in order to prevent the recurrence of the disease in the postoperative period.

CONCLUSION

Thus, the choice of treatment and diagnostic tactics for liver echinococcosis in most cases depends on the nature of the lesion, the number and size of echinococcal cysts, as well as on the choice of the most optimal access and methods for isolating the surgical field, antiparasitic treatment of the cyst and rational drainage of residual cavities, based on the principles aparasiticity and antiparasiticity of echinococcectomy, increase the radicalness of operations and sharply reduce the likelihood of recurrence of the disease. Conducted immune-stimulation improves the course of the early postoperative period. Pre- and postoperative chemotherapy with albendazole in combination with an immunostimulant immunomodulin and hepatoprotectors, as well as consistent, phased and effective treatment of echinococcal cysts, reduced the incidence of immediate complications by 2-3 times.

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