

Review

Nonsurgical Treatment of Hepatic Hydatid Cyst

I. Brezean¹, M. Vilcu¹, E. Catrina¹, I. Pantea², D. Ferechide³

¹The "I. Juvara" Department of Surgery, The "Dr. I. Cantacuzino" Clinical Hospital, UMF "Carol Davila" Bucharest, Romania

²The Faculty of Medicine, „Transilvania” University, Braşov, Romania

³The Discipline of Physiology I, UMF "Carol Davila" Bucharest, Romania

REZUMAT

Tratamentul non-chirurgical al hidatidozei hepatice

Tratamentul non-chirurgical al hidatidozei hepatice a cunoscut progrese semnificative în ultima perioadă datorită utilizării eficiente a medicamentelor antiparazitare și utilizării tehnicii de aspirare pe ac ce permite instilarea de substanțe paraziticide direct în interiorul chistului hidatic. În prezent indicațiile tratamentului medicamentos, precum și a puncției-aspirație, sunt clar definite pentru anumite forme anatomoclinice de chist hidatic.

Cuvinte cheie: chist hidatic hepatic, parazitoid, puncție

ABSTRACT

The nonsurgical treatment of hepatic hydatid cyst has made significant progress lately through the use of efficient parasitocidal drugs and through the technique of fine needle puncture which enables the instillation of the parasitocidal substances directly inside the cyst. At present, the indications of the drug treatment as well as of the punctures are well defined for certain anatomoclinical hydatid cysts.

Key words: hepatic hydatid cyst, parasiticide, puncture

MEDICAL TREATMENT

Hopes for a medical treatment of the hydatid cyst are old. However, the noninvasive treatments (vaccinotherapy, immunotherapy, chemotherapy) used so far did not lead to a cure. The latest drugs

introduced as treatment are albendazole and mebendazole with a parasitocidal effect and praziquantel with a parasitostatic effect. Chemotherapy indications, established by WHO in 1996, are the adjuvant treatment administered preoperatively and postoperatively in the plurivisceral hydatid disease

Corresponding author: Assoc. Prof. Iulian Brezean, PhD, The "I. Juvara" Department of Surgery
The "Dr. I. Cantacuzino" Clinical Hospital, 5-7, Ion Movila Street, District 2, Bucharest, Romani
e-mail: dribrezean@yahoo.com

when surgical treatment is contraindicated. The contraindications for chemotherapy are given by the occurrence of cysts complications or by the death of the parasite (1). The results of chemotherapy as a single treatment are 10-13% cure, 40-60% partial remission, 10-30% failure (1,2).

Albendazole is a benzimidazole anthelmintic derivative for roundworms, flatworms and the larval forms of *E. Granulosus*. It acts at the level of the parasites' cells, respectively of the proliferous membrane of *E. Granulosus* by inhibiting the polymerization of β -tubulin from which the intracytoplasmic tubules are formed and through which glucose is absorbed. Blocking glucose absorption causes parasite's death through a process of vesiculation and fibrosis of the proliferous membrane which becomes infertile. Albendazole dosage is 10-15/mg/kgc/day, in two daily doses, over a 30-day course of treatment, which is to be repeated after a two-week pause.

Praziquantel is a pyrazinoisoquinoline derivative active against flatworms from the class of trematodes and cestodes, including their larval forms. Its parasitostatic action derives from the alteration of calcium metabolism, it inhibits malate dehydrogenase at the level of the parasite, and from the antiparasitic immunostimulating effect produced by the expression of some antigens by altering the larval form. It has moderate effects on hydatidosis. The posology is 50mg/kgc/day, fractioned in 3 daily doses, a two-week course of treatment (1,2).

Mebendazole is a benzimidazole derivative, a broad-spectrum anthelmintic agent. It has a similar effect to albendazole. The bioavailability of mebendazole is reduced due to the variable intestinal absorption, the plasma linking to proteins and the hepatic metabolism, however, the effective therapeutic dose toxicity is relatively significant (hepatotoxic, embryotoxic, medulotoxic). The dose of mebendazole in hydatosis is 30-50 mg/kgc/day, divided into 3 daily doses, during 3-4 weeks, the course of treatment being repeated four times, at an interval of two weeks.

Other chemotherapy drugs used on a reduced scale in hydatid cyst treatment are: Netobimin, Fenbendazole, Doxorubicin, Cyclosporine, IFN α , IFN γ , Isoprinosine (1,2,3).

Puncture treatment

The ultrasound guidance and the use of fine needles has made the puncture of hydatid cysts

possible without the risk of triggering allergic reactions caused by hydatid fluid spillage into the peritoneum. Following fluid's extraction, a protoscolicidal substance is instilled and reaspirated after a time interval, this procedure being called „PAIR” for Percutaneous Puncture Aspiration Instillation Reaspiration. The puncture can be repeated after 72 hours (D-PAIR) (4).

The indications of the method are for the inoperable patients or for those who refuse the surgery (WHO). The cysts which can be punctured must be more than 5 cm in diameter, with an ultrasound aspect type Gharbi 1-2, univesicular. The contraindications of the puncture are septated multivesicular cysts which are deep or more exteriorized (with a risk of peritoneal dissemination), the cysts with a biliary fistula and the „dead” cysts (ultrasound aspect type Gharbi 4-5). The puncture must be preceded and followed by chemotherapy. The puncture is performed under local anesthesia, with antiallergic and antibiotic prophylaxis, in the hospital (4).

The puncture protocol is the following (4):

- Puncture of the cyst;
- Aspiration of 10-20 ml of fluid from the cyst, followed by the ultrasound visualization of the decollement of the proliferous membrane. The fluid is examined under a microscope in order to obtain a parasitic diagnosis of certainty. By introducing contrast media, biliary fistulae can be revealed.
- Instillation of the protoscolicidal solution which can be 90% ethyl alcohol, 30% NaCl solution, an iodine pyrrolidine solution, a silver nitrate solution, oxygenated water. The instilled solution is left in place for 20 minutes.
- Reaspiration of the fluid from the cyst, followed by its examination under a microscope to check the protoscolicidal effect. The presence of viable protoscolices mandates the re-instillation of the solution.

The puncture can be repeated after 72 hours (Double-PAIR). The patient is under ultrasound and immunological monitoring on a monthly basis for six months, and afterwards, on a yearly basis for 5 years (4). The puncture is not without risks, as it can be followed by the general complications of any puncture (hemorrhage, infection) and by the specific complications of a hydatid cyst (anaphylactic shock, secondary hydatidosis (3) and infection of the remaining dead cyst.

DISCUSSIONS

The attempts to treat hydatid cysts exclusively with medication have a relatively modest success rate, even if last generation medication is used. The association of drug therapy with a puncture or with surgical procedures increases the success rate of the treatment of parasitosis. The puncture of the cyst, a previously completely prohibited maneuver, due to the allergic complications which could even lead to death by allergic shock, is nowadays a maneuver which is possible by using fine needles, ultrasound guidance and the prophylaxis of anaphylactic shock. The combination of drug therapy with the instillation of parasitocidal substances directly into the cyst increases significantly the chances of annihilating the parasite. Unfortunately, not all the cysts can benefit from a puncture, and for these surgery is the remaining solution. A problem with the nonsurgical treatment is represented by the remains of solid parasitic content in the pericystic cavity even if the parasite has been destroyed. This solid parasitic material can become infected, thus leading to the

occurrence of a liver abscess which, in its turn, will have to be treated in a more or less invasive manner.

CONCLUSIONS

Currently, the nonsurgical treatment of the hepatic hydatid cyst has well established indications and undoubtedly represents a significant progress in the treatment of hydatid disease.

The nonsurgical treatment together with minimally invasive surgery and interventional endoscopy will substantially diminish the indications of conventional surgery for the treatment of hepatic hydatidosis.

REFERENCES

1. Călievici S.E, Crețu C.M. - Echinococcus SPP; și Echinococoză; Ed. Cartea Universitară; 2005. p. 6-8; 9-12; 32, 80, 71, 103
2. Eckert J. Gemmel M.A. Meslin F. X. Pawlowski Z. S. 2001 WHO/OIE Manual of Echinococcosis in Humans and Animals; a Public Health problem of Global Concern.
3. Brunetti E. Filice C. "Echinococcosis Hydatid Cyst" e-medicine, from Webb MD, 13, 2006.
4. Sabău D. Chistul hidatic hepatic. In: Popescu I. Chirurgia ficatului. București: Editura Carol Davila; 2005. p. 332.