

TREATMENT OF COMPLICATED FORMS OF LIVER HYDATIDOSIS

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Summary

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Hydatidosis is a widespread zoonosis infecting a large number of animals and humans. Surgical operations and therapeutic approaches were studied and analysed in 21 patients (14 female and 7 male) at the age of 14–78 that presented cases of confirmed liver hydatidosis with the following complications: 6 cases of cyst suppurations, 5 cases with cystic perforations, 3 cases with mechanical icterus and 7 cases of recurrences. In cyst suppurations echinococectomy was performed with drainage of the residual cavity in 4 patients. In the patients with cystic perforation, 3 echinococectomies with cholecystectomies and biliary tract explorations (cases of intrabiliary ruptures) and 2 echinococectomies with lavage and drainage of the abdominal cavity (cases of direct rupture) were performed. In 2 cases of icterus, echinococectomy with cholecystectomy and internal derivation of the "choledochoduodenostomosis" type was made and in 1 case – Kerh drainage. The 7 patients with recurrences were submitted to atypical liver resections in 3 and echinococectomies in 4 cases respectively. The average postoperative stay was 11 days (7–28 days). The mean follow-up time was 60 months (6–120 months). The choice of the operative approach should be based on the experience of the surgeon and topic characteristic.

Key words: complications, liver hydatidosis, surgical treatment

INTRODUCTION

Echinococcosis is a zoonanthroponosis, widely distributed in Bulgaria and a problem for both human and veterinary medicine. The considerable increase in morbidity rate that recently reached 8.47 ‰, requires a complete epidemiological control upon the potential sources of parasites – wild and domestic animals, slaughtering and meat-processing enterprises – an activity within the prerogatives of the regional veterinary services. A clear tendency toward increased incidence of complicated forms of hydatidosis is observed thus emphasizing the importance of the

multidisciplinary approach to disease prophylaxis, diagnostics and treatment.

The complications of echinococcosis (suppuration and perforation) are described as a third stage of the disease and according to some authors (Genov, 1983) they often are the first manifestations of the disease. The complications comprise:

- *Suppuration of the hydatid cyst.* Its incidence is variable (from 4 to 32%). Only 20% to 50% of patients are febrile and in those with hepatic abscesses with a various genesis febrility cases are about 95% (Tasev, 1998). In cases

of suppurated hepatic echinococcus, the icterus is with parenchymal genesis and is encountered in 29% of cases.

- *Perforations (ruptures)*. They appear after a trauma, physical effort, spontaneously, could be of iatrogenic origin consequently to miniinvasive treatment of the cyst or during the degeneration of the endocyst. According to Lewall (1998), the cyst ruptures are divided into closed (within the frames of the pericyst) with incidence of about 1–12%; intrabiliary ruptures (6–23%) that appear when biliary vessels are incorporated into the pericyst, i.e. in a secondary decompression (Ulualp *et al.*, 1995 consider that 5.5% of asymptomatic patients are with intrabiliary ruptures) and direct ruptures (2–24%). From a statistical point of view, marginal cysts on the lower and anterior hepatic surface as well as suppurated cysts rupture most commonly. They are classified as acute abdomen and require an early diagnosis and an urgent surgical intervention (Aeberhard *et al.*, 1996).
- *Calcification*. A natural stage of cyst development that is regarded as a complication from most authors. Intraoperative data show that its prevalence is 1.5–32%. Bouzidi and Chehab (1997) reported that 72% of multichamber cysts were calcified at a different extent. According to us, calcification should be regarded as a complication only in cases with simultaneous suppuration, obturative icterus, reactive pleuritis, rupture etc.
- *Recurrence*. The average period of recurrence appearance and its clinical manifestation is 1.5 years. The more frequent application of the chemotherapy with albendazole (Zentel, Smith-Kline Beecham) for 1995–2003 re-

sulted in a much lower incidence of recurrences compared to preceding years (Kalinova, 2001).

From several decades, the two principal trends of surgical treatment of complicated forms of hydatidosis are the conservative and the radical hydatid surgery, each of them with its own followers and opponents (Pojarliev *et al.*, 1984).

The aim of the present study was to survey cases of complicated forms of patients with hepatic echinococcosis, operated in the Clinic of General and Paediatric Surgery, to analyse the factors that provoked complications, the surgical treatment and the place of veterinary specialists in the prevention of the disease.

MATERIALS AND METHODS

A retrospective analysis of data for the surgical approaches used for treatment of complicated cases of hydatid disease in 21 out of 86 hospitalized patients in the Clinic of General and Paediatric Surgery, University Hospital, Stara Zagora for the period 1998–2003 was performed. Fourteen women (66.7%) and 7 men (33.3%) at the age between 14 and 78 years (mainly patients at the age of 35–55 years) were included in the study. The distribution according to the complications type was as followed: 6 patients with suppurated hydatid cysts (28.6%, Fig. 1); 5 patients with perforated hydatid cysts out of the biliary tree (23.8%, Fig. 2); 3 patients with mechanical icterus (14.3%) as a manifestation of intrabiliary rupture and 7 patients with recurrences (33.3%) including 2 cysts with calcifications (Fig. 3).

The disease was diagnosed on the basis of history, physical examinations, laboratory and serological studies (reaction precipitation and haemagglutination –



Fig. 1. Suppurated hydatid cyst.



Fig. 2. Ruptured hydatid cyst.



Fig. 3. Petrified hydatid cyst.

RPHA, ELISA), echography, computer axial tomography (CAT), endoscopic retrograde cholangiopancreatography and

intraoperative echography, histological methods. The operative approach was based upon the type and the degree of the complication.

A principal method of treatment, used in all cases of complicated hydatid cysts located in the liver or in other organs, was the surgical intervention. Both conservative and radical operative techniques were used. The fibrous capsule was removed totally (radical methods) or partially (conservative methods).

The obtained data were analysed by statistical methods of retrospective and correlation analysis, the Student's t-test and the Mann-Whitney test. The level of significance was 0.05.

RESULTS

The commonest causes for the appearance of complications in surveyd cases could be summarized as followed:

- delayed appeal for medical aid in the presence of significant complaints – 5 cases (23.8%);
- specifying more accurately the nature of the icterus – 3 cases (14.3%);
- history of physical effort or trauma, resulting in cyst perforation – 3 cases (14.3%);
- lack of early clinical symptoms and primary manifestation of the complication – 10 cases (47.6%).

The prevailing clinical signs were abdominal pain, febrile-intoxication (in cases of suppurations) or icteric syndromes (in cases of intrabiliary ruptures), peritoneal manifestations when an abdominal rupture is present, rarely obstruction of the passage and asymptomatic course (in patients with calcification). The serological samples (RPHA and ELISA > 1:200) were positive in all cases. The accuracy of the echography was 94% by

respect to the localization, size and the complication of the hydatid cyst. The CAT study, performed in 14 patients (66.7%) was 100% informative about the localization of the complication.

The performed operations belonged to one of the following groups:

- Group I: conservative surgery – echinococectomy (8 cases, 38.1%), echinococectomy with cavity drainage (4 cases, 19.5%), echinococectomy with cholecystectomy or internal derivations in biliary vessels (6 cases, 28.6%);
- Group II: resection surgery – atypical resections (3 cases, 14.3%).

In the patients with suppurated hydatid cysts, echinococectomy with drainage of the residual cavity was performed in 3 cases whereas in the other 3 cases with this complication, only echinococectomy with a thorough scolicedic treatment of the residual cavity with antiseptic solutions was made. In the patients with cyst perforations (3 cases in biliary vessels and 2 cases in the peritoneal cavity with hydatid peritonitis) echinococectomies with cholecystectomies (in 2 patients), biliary vessel exploration with Kerh drainage (in 1 patient) and echinococectomies with peritoneal cavity lavage and drainage – in another 2 patients were performed. In patients with intraoperative findings of dilated extrahepatic biliary vessels, an echinococectomy with cholecystectomy and internal derivation of the “choledochooduodenostomosis” type was performed. In hydatidosis recurrences, 3 atypical hepatic resections and 4 echinococectomies were made. The calcified cysts encountered in patients at the age of 70 and 78 years respectively, required the performance of atypical resections because of their superficial location and change of the pericystic hepatic paren-

chyma, evidenced histologically. The cyst was most commonly treated with 10% povidone iodine (Braunol).

The histological examinations of material adjacent to the pericyst in all groups of patients showed a reactive inflammation with presence of intrahepatic cholestasis and a moderate cholangitis (Fig. 4).

The postoperative complications were predominantly suppuration and dehiscence of the operative wound (in 3 patients, 14.3%) and pleuropulmonary injuries (pneumonia and reactive pleural effusion in 2 patients, 9.5%). In one case with Kerh drainage, a bilirrhagia through the drainage, that recovered spontaneously by the 40th post operative day, was observed. Postoperative complications were observed in all groups of patients without reference to the surgical intervention, but more frequently after conservative surgery with drainage procedures. A relaparotomy was done in one patient with external biliary fistula.

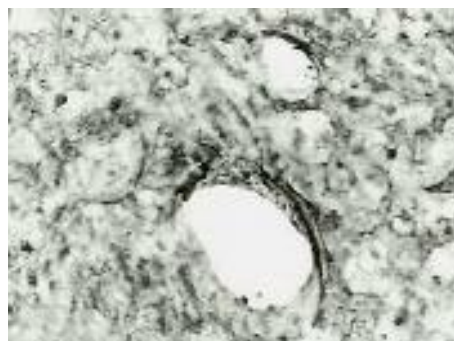


Fig. 4. Cholangitis scleroticans

The post operative stay was on the average 7 days for conservative methods (12 days for those using drainage procedures). During the present survey, no lethal issues occurred.

All patients with complicated hydatidosis were subject to chemotherapy with

albendazole at 10 mg/kg administered for two 3-month periods. The patients were monitored for 12 to 60 months after the operations. The post operative survey showed a slow normalization of serological data up to the end of the first year with recurrences only in cases where conservative methods were used. We suppose that this was a residual echinococcosis manifested by the third post operative year in patients, whose albendazole chemoprophylaxis was not adequate.

DISCUSSION

The analysis of causes that resulted in complicated exhinococcosis showed that 14 patients (66.7%) were with a long-time history of pain and discomfort in the right subcostal region. The other 7 patients (33.3%) were monitored and treated by the general practitioner's system. Therefore, there are important reserves in the programme for early diagnostics and for timely operative treatment, that prevents at a considerable extent the incidence of complications. For this purpose, there is a need for a better co-operation between the general practitioner, the gastroenterologist and the surgeon with regard to the earliest diagnosis and treatment of hepatic echinococcosis and of the subsequently occurring complications.

The diagnostic imaging (echography and computer tomography) have a predominant role in the non-invasive diagnostics of complicated hydatidoses and in the choice of the proper operative approach.

The operative tactics meet many adepts of radical operative techniques as well as proponents of the more successful mini-invasive surgical approaches.

In cases of hepatic cyst suppurations, the semi-closed operative techniques to

the residual cavity are considered to be the most appropriate at present (Tasev, 1998). We also do prefer this method after a proper scolicedic treatment and placing a thin intracavitary drain until the exudation ends. Recently, several reports discuss the percutaneous puncture and drainage of the cavity under an echographic or CAT control (Pojarliev *et al.*, 1984). The omentoplasty must be avoided in suppurated cysts because there is a risk for sequestration and abscess formation of the residual cavity. Some authors (Gaidarski *et al.*, 1994) support the thesis of capitonnage of the residual cavity following adequate scolidisation and treatment with antiseptic solutions that would not cause caustic sclerotic cholangitis. The commonest scolicedic solutions are 10% povidone iodine (Braunol, Braun Melsungen, Germany), 10% aqueous solution of chlorhexidine (Hibitan) and hydrogen peroxide. The effects of these treatments were also histologically affirmed (Gulubova and Vodenicharov, 2001).

When the cyst is ruptured in the abdominal cavity, the patients are subject to urgent operative intervention. In such cases, the antirecurrence therapy is an obligatory element of the treatment according to most authors (Vara-Thorbeck, 1986; Kalinova, 2001).

In cases of intrabiliary ruptures of hepatic cysts, the operative intervention is usually one-stage and aims echinococcectomy with sanitation of the cyst and ensuring adequate passage of choleducts. When the bile is adjacent to the cyst or a lithiasis is present, a cholecystectomy should possibly be undertaken (Horton, 1989). Whether a wide ductus choledochus is present, often the operation ends with placement of external T-shaped Kehr drainage or internal derivation. The presence of biliocystic fistulas without biliary

hypertension or mechanical icterus necessitates the direct suturing of the fistula and obliteration of the residual cavity by capitonage.

The available literature data show that in case of ruptures in biliary ducts, the following operative techniques are found to be most preferred:

- bipolar drainage of the cavity and derivation of the choleducts; external derivation with Kehr drainage; internal derivation with bilio-digestive anastomosis or open (endoscopic) papilosphincterectomy;
- closed method to the cavity and drainage of choleducts;
- monopolar drainage according to Ennabli;
- cysto-biliary deconnection – Perdommo's technique;
- radical surgery – pericystectomy or hepatic resection, combined with derivation on choleducts (Suluer *et al.*, 2002).

Conservative surgical techniques are also appropriate for the hydatid surgery of the liver, so the choice of radical interventions should not be as an end to themselves, but are to be based on a responsible and precise consideration.

CONCLUSIONS

Despite the advances in hydatid surgery, echinococcosis and the related complications in particular, are still a source of operative problems. The purulent septic complications are preferably treated by semi-closed echinococectomy, the intra-biliary ruptures – by cyst sanitation and ensuring adequate passage of choleducts via choleduct exploration, the cyst calcifications – by cystopericystectomy or hepatic resection in cases with favourable anatomical localization.

The increased morbidity rate of echinococcosis in Bulgaria, the expensive materials necessary for the surgical interventions and the expenses for patient's families require the application of serious actions for prevention of echinococcosis distribution.

A primary importance with this regard is attributed to the strict veterinary control, accomplished by the National Veterinary Service by respect to meat production, destruction of infected animal organs and deworming of the dogs, accompanying the herds. The health protection by respect to echinococcosis requires the combined efforts of both human and veterinary medical specialists.

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