

Review

Surgical Attitude Towards the Hepatic Hydatid Pericystic Cavity

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REZUMAT

Atitudinea chirurgicală faţă de cavitatea perichistică hidatică hepatică

Diversele forme anatomoclinice ale echinococozei hepatice impun alegerea unor procedee chirurgicale ce au drept scop reducerea sau desfiinţarea cavităţii perichistice. Prezenţa sau absenţa fistulei biliare şi atitudinea chirurgicală faţă de perichist diferenţiază procedeele chirurgicale. Astfel pentru perichisturi hidatice cu fistulă biliară sunt indicate: drenajul extern bipolar al cavităţii restante, perichistectomia parţială cu sutura fistulelor, drenajul perichistodigestiv, drenajul perichistobiliar, perichistectomia totală sau hepatectomiile. Pentru perichisturi hidatice fără fistulă biliară sunt indicate perichistotomia – rafie sau perichistectomia parţială.

Cuvinte cheie: echinococoză hepatică, cavitate restantă, procedee chirurgicale

ABSTRACT

The various anatomoclinical forms of hepatic echinococcosis require the choice of surgical procedures aiming to reduce or to eliminate the pericystic cavity. The presence or the absence of a biliary fistula and the surgical attitude towards the pericyst differentiate between the surgical procedures. Thus, for hydatid pericysts with a biliary fistula the following are indicated: bipolar external drainage of the residual cavity, partial pericystectomy with the suture of the fistulae, pericysto-digestive drainage, pericysto-biliary drainage, total pericystectomy or hepatectomy. For hydatid pericysts without a biliary fistula, the pericystotomy-rhaphy or partial pericystectomy are indicated.

Key words: hepatic echinococcosis, residual cavity, surgical procedures

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INTRODUCTION

There are a variety of anatomoclinical forms of hepatic echinococcosis. This has led to finding and applying a number of surgical procedures which have the same aim, namely the reduction or elimination of the pericystic cavity. Besides, solving the residual pericystic cavity after the elimination of the parasite represents the main problem of the surgical treatment. The postoperative complications of the hydatid cyst are caused by the failure to adapt the surgical procedures to the morphological characteristics of the pericystic cavity.

In the Romanian medical literature, the surgeries performed for the hepatic hydatid cyst are divided into the so-called conservative surgeries, which abandon the pericystic cavity or resect a part of the pericyst, and the so-called radical surgeries, which completely remove the pericystic cavity by sacrificing a smaller or greater area of the parenchyma of the liver.

In the case of the hepatic localization of the cyst, the biliary fistula of the pericyst is a specific complication. Therefore, the biliary fistula after the so-called conservative surgeries remains the main problem of the evolution of the pericystic cavity, totally or partially left in place. The surgical procedure should be selected according to the presence or the absence of the biliary fistula. A series of preoperative investigations can suggest the possible presence of the fistula, but this is determined with certainty intraoperatively and then the surgical procedure is selected.

According to the presence or the absence of the biliary fistula and to the surgical attitude towards the pericyst, we propose the following grouping of the surgical techniques:

Hydatid pericysts with biliary fistula

Bipolar external drainage of the residual cavity

Bipolar external drainage of the residual cavity, an operation proposed by J. Divi, ensures the biliary drainage by preventing the accumulation of the bile in the residual cavity, on the one hand, and the drainage of the residual cavity, on the other hand [1]. There are several techniques for performing the bipolar external drainage of the residual cavity:

- In the case of the cysts with a large biliary fistula and the migration of hydatid material into the biliary ducts, which require its extrac-

tion through a choledochotomy, the biliary drainage is performed with a Kehr tube, a procedure described by T. Burghel [2].

- In the case of the cysts with a biliary fistula without migration of hydatid material into the biliary tract, therefore with an undilated CBP, the external biliary drainage can be achieved by a transcystic approach (after a cholecystectomy) or by an axial transomphalic approach, according to the technique described by D. Burlui or by means of an endoscopic papillectomy [3].

Partial pericystectomy with the suture of the fistulae

This technique consists in revealing the biliary fistulae and closing them with suture with threads after the uncapping of the pericyst. Surgery is rarely possible because the visual and instrumental access to the fistulae in the residual cavity is possible only in the case of the localizations of the cysts in the anterior segments of the liver. The suture of a fistulous orifice is performed only if it is of the terminal type and if it does not have a large diameter. The suture of a lateral fistula on a major bile duct may lead to its stenosis with segmental biliary retention.

Pericysto-digestive drainage

Pericysto-digestive drainage aims to discharge the bile from the pericystic cavity into the digestive tube, thus eliminating the drawbacks of the pericysto-biliary drainage (the mandatory declivity of the fistula, the closure of the orifice of the fistula before the disappearance of the residual cavity). The drainage can be performed by pericysto-jejunal anastomosis (an operation proposed for the first time by P. Goinard), pericysto-gastric anastomosis or duodenal anastomosis [4].

The pericysto-jejunal anastomoses on a dysfunctional jejunal loop ("Y" or "Ω" mounting) are more difficult to execute but superior in performance to the other types of digestive drainages due to the complete exclusion of the pericystic cavity from the digestive transit. The principle of placing the anastomosis in the declivity area of the pericystic cavity makes the procedure suitable for the cysts with exteriorization on the inferior side of the liver, as well as for the cysts exteriorized on the diaphragmatic side near the anterior margin. Deep cysts, located in the central segments of the liver, as well as those with high caliber fistulae in the pericyst [5], benefit from

the jejunal drainage of the pericystic cavity. The main drawback of the pericysto-jejunal drainage is the infection of the pericystic cavity, sometimes even under acute forms (hepatic abscess), but which can be treated by means of a temporary external drainage of the pericystic cavity [3, 5]. The other types of pericysto-digestive derivations in which the digestive partner is the stomach or the duodenum, although easier to perform, have as a disadvantage the penetration of the digestive juices and food into the pericystic cavity [3].

Pericysto-biliary drainage

Pericysto-biliary drainage is a technique consisting in the drainage of the pericystic cavity through the biliary duct, either externally or internally in the digestive tube with the suture of the pericystotomy.

The external pericysto-biliary drainage is performed by means of a Kehr tube whose ascending branch passes through the biliary fistula to reach the pericystic cavity, and then the pericystotomy is sutured tightly with slowly dissolving threads, a procedure described by D. Rădulescu [6].

The internal pericysto-biliary drainage described by P. Goinard, by means of a surgical papillo-sphincterotomy, nowadays performed endoscopically is somewhat equivalent to a biliodigestive anastomosis. By means of the papillo-sphincterotomy, the pericystic cavity is drained through the fistula and the biliary ducts into the duodenum. The pericysto-biliary drainage can be applied when the fistulous orifice from the pericystic cavity is declive and wide. The desquamation of a thick pericyst may clog the fistulous opening or the CBP and lead to the formation of an abscess with angiocholitis. The closure of the fistulous orifice before the disappearance of the pericystic cavity can also lead to a liver abscess. Therefore, the drainage with a Kehr tube is better because it allows both the lavage of the cavity and the radiological control of its evolution.

Total pericystectomy

Total pericystectomy, an ideal solution for the treatment of the pericyst, was first described by Pozzi [3]. The procedure is applicable only in a few cases, for almost completely externalized cysts, located on the anterior border of the liver or on its left or right extremities. The advantage of this method consists in the complete removal of the pericyst, leaving behind a supple liver wound which heals easily. However, in the deep localizations, the

technique is dangerous due to the high biliovascular risk. This is the reason why Mabitt described a technical version called extended pericystectomy in which most of the pericyst is resected, abandoning only the parts situated in dangerous relations with the biliovascular tract [3].

The employed hepatectomies

The employed hepatectomies are the atypical ones which remove easily accessible hepatic areas, completely covered by large cysts which transform the covering parenchyma into an easily resectable tissular layer which can be controlled from the vasculo-biliary point of view. It is the case is of certain cysts localized in segments 2, 3, virtually annulled as functional parenchyma due to the development of the cyst ("echinococcal hepatectomy"). The hepatectomies performed by sacrificing the functional parenchyma are not indicated in a benign disease which can be solved through other surgical procedures.

Pericysts without a biliary fistula

Pericystotomy-rrhaphy

Pericystotomy-rrhaphy consists in a pericystor-rhaphy without drainage after the evacuation of the parasite by a pericystotomy ("reduction without drainage"). The term reduction refers to its reintegration ("reduction") into the peritoneal cavity and not to the decrease of the size of the pericystic cavity.

Advantages: rapid, minor, intraoperative risk free intervention. Disadvantages: relatively frequent due to the preservation of a closed cavity with the risk of accumulation of secretions (flaky pericyst, lymph and blood) which can become infected and turn into an abscess.

Pericystotomy-rrhaphy with external drainage

Pericystotomy-rrhaphy with external drainage is also known as the "narrow marsupialization", described by C. Rivas, or "reduction with drainage". [3] This operation is different from marsupialization and consists in the suturing of the pericystostomy to the skin of the abdominal wall. Marsupialization, nowadays a surgery with a historic character, was burdened by numerous postoperative complications (suppurations of the cavity, external biliary fistula, difficult and long care of the stoma). Consequently, the external drainage through a drainage tube proposed by C. Rivas represented genuine progress.

Pericystotomy-rrhaphy with external drainage eliminates the drawbacks of the pericystotomy-rrhaphy. Thus, the evacuation of the secretions is ensured and their nature is monitored, allowing the radiological monitoring and confirming the “desiccation” of the pericystic cavity. There is a technical version described by D. Burlui, where the drainage is transomphalic or transligamentous [3].

These types of surgical interventions are indicated for the treatment of young hydatid cysts, without a biliary fistula, with one vesicle, with a thin pericyst which can occur especially in children or young people, in recent infestations.

Partial pericystectomy

Partial pericystectomy through the resection of the exteriorized extrahepatic pericyst and the maintenance of the “cup” of pericyst which communicates widely with the peritoneal cavity achieves an “uncapping” of the cyst. This method is indicated especially for the cysts exteriorized on the visceral side of the liver and without a biliary fistula (the Lagrot operation). As far as the cysts exteriorized on the diaphragmatic side are concerned, these are drained more inefficiently after a partial pericystectomy and the postoperative adhesions between the diaphragm and the margins of the residual cyst can form cavities where secretions accumulate and which become the starting point for the formation of subphrenic abscesses. This is why, various effective manners of drainage of the residual pericystic cavity, or even its decrease, have been sought. Several proposals for surgical techniques to achieve this goal have been made:

- a) The drainage with two tubes in order to obtain a more effective “desiccation” of the residual cavity, possibly through lavage. I. Juvara described and performed the extrapleural transthoracic - diaphragmatic drainage of the residual cavity [7] and D. Burlui the transomphalic or transligamentous drainage [3]. Filling the residual cavity after the resection of the exteriorized pericyst with portions of the great omentum (Mauclaire) or even of the lung (D. Burlui), does not provide the “desiccation” of the residual cavity, on the contrary it blocks the drainage tubes and favors the formation of an abscess.
- b) The reduction of the residual cavity can be achieved using several procedures: the “tunneling” of the cavity transforms the cavity

into a tunnel by the invaginating suture of the remaining margins after the partial pericystectomy – a method proposed by I. Juvara [8]. Other procedures achieve the reduction of the cavity by means of overlapping bursae (Delbet, Guedj) [3].

DISCUSSIONS

The surgical treatment of the hepatic hydatid cyst (HHC) cannot consist in a single procedure due to the complex anatomical relations acquired by the cyst during its evolution, sometimes a long one, with the hepatic and extra-hepatic structures which make it a particular case. The anatomoclinical forms of HHC require certain surgical procedures with their advantages and disadvantages. Choosing one or another of these procedures must take into account the elements which define these forms, namely: the place of exteriorization of the cyst on the surface of the liver; the localization in the parenchyma of the liver; its uniqueness or multiplicity; the age of the cyst; the relations with the vascular tree; the relations with the organs and structures in the vicinity of the liver and especially the relations with the biliary tract.

CONCLUSIONS

The peculiarity of the hepatic localization of the hydatid cyst is represented by its relations with the biliary tract, respectively the presence or the absence of the biliopericystic fistula.

The selected surgical procedure should be adapted to the anatomoclinical form of the cyst and it should take into account the presence or the absence of the biliary fistulae and their nature.

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