

Title Biliary Fistula in Surgery of Hepatic Hydatid Cyst. Therapeutical and Diagnostic Consideration

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ABSTRACT Hepatic hydatid cyst remains a condition that involves a high social cost, in particular by higher average length of stay. It is known that the main factor that increases the duration of hospitalization is the development of postoperative complications, of which one is the most frequent postoperative biliary fistula. In this study we attempted to analyze the issues raised by biliary fistula, hepatic hydatid cyst surgery occurred in succession in terms of diagnostic methods and therapeutic possibilities.

KEY WORDS *hydatid cyst liver, biliary fistula, papillosfincterotomy*

Introduction

Hydatid cyst liver disease caused by cystic tumor development in the liver of larvae of *Taenia Echinococcus granulosus* (1), presents many complications in its evolution. Of these external biliary fistula detach both in frequency and as postoperative repercussions. Fistula is defined as abnormal and persistent loss of bile, which appeared when the present condition after surgery for hepatic hydatid cyst (2). External biliary fistulas are postoperative complications inherent in hydatid cyst surgery in many studies on the subject incidence ranging between 5 and 25% (3).

In this study we tried to establish a correlation between the location of hydatid cyst of the liver and frequency appearance as complication of biliary fistula, as well as ways to make a diagnostic analysis and treatment of biliary fistulas.

Material and method

In Clinical Surgery III Craiova, in the period 2003-2010 have been hospitalized and diagnosed with liver hydatid cyst, a number of 98 patients who underwent surgery. After treatment all these patients we recorded a total of 28 postoperative biliary fistula.

We considered all the external biliary fistula biliragias expressed the drain which had a rate greater than 100 ml/24 hours, which lasted more than three days. We also considered the biliary fistula the fistula with low flow were less than 300 ml evacuated biliary secretion/24h and biliary fistula with high flow fistula that were evacuated more than 300 ml biliary secretion/24h.

For all we analyzed biliary fistula:

- demographics (the possible correlation between age, gender, etc. and the occurrence of postoperative biliary fistula),
- correlation between the location of hydatid cyst of the liver and biliary fistula frequency - diagnosis of biliary fistula,
- monitoring the drainage of bile fistulas by measuring daily ultrasound of residual cavity and cavitatographia (X-ray residual cavity after injection of contrast through the drainage tube placed in the cavity),
- treatment of biliary fistulas.

Results

Analysis of demographic data of patients with biliary fistula shows that among the 28 patients, 17 (60.71%) were from rural areas and 11 patients (39.29%) in urban areas. The age limit was between 28 and 67 years with a mean age of 47.5 years. Sex distribution shows a slight predominance of male patients 16 (57.14%), compared with 12 female patients (42.86%).

Distribution analysis of external biliary fistulas according to the original location in the various segments of hydatid cyst of the liver (Couinaud classification), we showed that the left lobe of median segments I and IV have been two cases of fistula (7.14%) and 4 cases of fistula (14.28%) and in the same lobe but left lateral segments II and III, one case (3.57%) and two cases of fistula (7.14%). The right lobe of lateral segments VI and VII have been three cases of external biliary fistula (10.71%) and 4 cases (14.28%). The median segments V and VIII, we recorded seven

cases (25%) and 5 cases of postoperative biliary fistula (17.85%).

Distribution of biliary fistulas in the liver, depending on the location of hydatid cysts in the liver segments is shown in Graph no. 1.

Preoperative diagnosis of biliary fistula is not always easy, specific symptoms of this complication is rather less common in clinical patients. So angiocolitis (jaundice, fever, chills), clinical signs that may suggest a hydatid cyst rupture in biliary tract, we encountered 8 patients (28.57%). Ultrasound and CT have been more helpful in preoperative diagnosis of biliary fistula, so I recorded ultrasound or tomographic images suggestive of ruptured hydatid cyst in the bile ducts (stage IV classification of Gharbi) in 12 cases (42.85%).

Intraoperative, biliary fistula is more easily diagnosed than preoperatively, it is suggested the existence of the ball when hydatid cyst hydatid fluid evacuation or by highlighting the actual fistula after discharge pericystic hydatid cyst. Highlighting the pericystic direct fistula was possible in 10 patients (35.71%). Diagnosis of biliary fistula by using intraoperative cholangiography have not been able to perform only two cases (8.28%) for technical reasons. In four cases (14.28%) have shown biliary fistula by injecting saline or methylene blue and then I showed transcystic serum or color in the residual cavity, it is discharged through the fistula biliochystic. We made this maneuver concomitant with exerting a slight pressure on the lower the cystic implantation, thereby preventing color shift or saline in the duodenum and favoring his ascension to the intrahepatic bile ducts.

Postperatory diagnosis does not raise problems, put by the biliragia presence over the drainage tubes in the first or the next day after surgery, so that all cases pre or intraoperatively undetected biliary fistula will become evident later.

Treatment of biliary fistula is dependent on the time of its diagnosis. Thus, if the fistula is evident in its treatment pericystic is its direct suture thread past the in "X";. In our case, this was possible in 10 cases (35.71%). However, we made biliochystic postoperative fistula in 3 cases (10.71%) of the fistula and sutured intraoperatively.

In the cases where the fistula could not be evidenced intraoperatively to be sutured, we used either bipolar drainage or making perichysto-digestive anastomosis.

The first way was the treatment of bipolar drainage, which is the residual cavity drainage tube drainage (one pole of the drainage) and the drainage of bile duct or tube made transcystic

Kehr (the second pole of the drainage). Biliary drainage pole aims to decrease biliary pressure residual cavity and biliary fistula closure.

We performed bipolar drainage in 12 patients with biliary fistulas, it can be done in 75% of cases by Kehr drainage after choledocotomy and bile duct exploration and drainage otherwise the transcystic. Choledocotomy size was dictated by CBP, the appearance of bile discharged through the cystic duct, preoperative clinical and laboratory signs suggestive of hydatid cyst involving the bile. Prior to drain bile duct, cholecystectomy was performed in all cases. Please note that there were four patients with large biliary fistula, intra obvious that I practiced suturing in the "X" of the fistula and associated bipolar drainage, with good postoperative evolution (absence postoperatively biliragias).

The second method used for the treatment of biliary fistula was diagnosed preoperatively or intraoperatively performing perichysto-digestive anastomosis. Thus, three anastomoses were performed perichystodigestive, 2 anastomoses perichystogastric perichystojejunal anastomosis with a loop and mounted in the Roux Y. Perichysto digestive derivations have been used for liver hydatid cysts developed on the visceral bulky liver that had contact with the digestive organs.

Treatment of 28 postoperative fistulas manifested by the appearance of bile in the biliragia drain, was different depending on the flow fistula. Thus, we adopted the low flow fistulas with conservative treatment, tracking the evolution of the fistula, and fistulas with high flow in general have adopted an interventionist treatment.

Of the 28 biliary fistula, biliary fistula have been 19 low flow (67.85%). Biliary fistulas in low flow evolution was favorable, the flow decreased gradually to the disappearance and fistula closure in a time between 12 and 36 days. The evolution of postoperative biliary fistulas was monitored by daily measurements of bile drainage flow, and the residual cavity echo cavitatography (X-ray residual cavity after injection of contrast through the drainage tube placed in the cavity during surgery).

In the 9 patients (32.15%) who had fistulas with high bile flow (bile drainage was between 300 and 900 ml per day), we recorded a much difficult favorable evolution. In five patients (17.85%), which tend to close the fistula there was manifested by a decreased flow rate, however small, to apply a conservative approach. Thus, no surgery but patients were followed over a period

of between 36 and 68 days. Measurement of bile flow decreased gradually until it became insignificant and the ultrasound showed a gradual reduction of the residual cavity volume.

In four cases (14.28%), in which I had to do with biliary fistula with high flow and no spontaneous tendency to reduce the flow underwent endoscopic retrograde cholangiography with oddian sfincterotomy (ERCP) and subsequent favorable evolution (lowering flow gradually complete closure of the fistula in a period of 9-12 days after ERCP).

Discussions

Biliary fistula production takes place in two stages, initially membrane cracking occurs as a result of interaction between the cystic and bile ducts pericystic, resulting in the passage of part of biliary tree in the hydatid fluid, reducing pressure in the cyst after the ball and it goes into production characteristic changes (4). When the cyst in its development comes into contact with a major bile duct, the cracking process is complicated by the wide opening of the cyst in this channel which is equivalent to the classical notion of rupture of the cyst in the bile ducts.

In our study we recorded 28 postoperative biliary fistula (28.57%), a percentage slightly higher than studies published in the literature. Analysis of demographic data overlaps with biliary fistulas known demographics for hepatic hydatid cyst that is slightly greater frequency in males and in rural areas.

Analyzing the occurrence of biliary fistulas after hydatid cyst localization in the liver there is an increased frequency of occurrence of fistulas especially in the right hepatic lobe and central segments IV, V, VI, VII, and this is seen in studies of reference (5) be explained by the fact that at this level is important biliary pedicle that will develop relationships with hydatid cysts.

Patrascu et al. shows that the ideal is to be diagnosed as biliary fistula intraoperatively, a situation that would allow at least theoretically its abolition. Abolition can be achieved by fistuloraphia, which consists in revealing biliary fistula and their closure by suture thread in the "X". Stressed that the method is possible only if the fistula is complete because a major channel lateral suture may cause stenosis (6). Laparoscopic technique has advantages in this case because the obvious diagnostic and therapeutic biliary fistula view is much easier in this case (7).

In our case, we found the obvious fistula pericystic and we made it with wire suture in the past "X", this is possible in 10 cases. However, I

made bilio cystic fistula in 3 cases of postoperative fistula and sutured intraoperatively evident. Tomus C. et al. says a study of hydatid cysts ruptured into the biliary tree during a period of 17 years, the suture of bilio-cystic communication does not remove the risk of postoperative biliary fistulas (8). Also in the same study the author states that internal drainage of hydatid cyst would be an alternative for solving biliary fistula, which is accompanied by a low morbidity.

In our case, when I found intraoperatively that we are dealing with fistula biliar could not but highlight the fistula drainage pericystic bipolar we realized, with good postoperative results (even if there were biliragias the residual cavity, these have been 150 ml per 24 hours and disappeared after 4 days postoperatively). Whether we made pericystic anastomosis in the digestive, biliary fistula voiding such as postoperative complication.

Following the finding in our study we believe that if it shows a biliary fistula intraoperatively, even if it succeeds in achieving its sutures, however, be associated with bipolar drainage to reduce the risk of mxim an external biliary fistula postoperative.

Regarding biliary fistula that could not be identified intraoperatively but were made manifest by the appearance biliragia the immediate postoperative drainage tubes, their treatment depends on the flow. Postoperative biliary fistulas are classified according to their flow, low flow in biliary fistula, which manifested by biliary secretion < 300 ml / 24 hours and biliary fistulas with high flow, in which > 300 ml / 24 hours (4).

In biliary fistula with low flow, the evolution is favorable in general, they are closing after a certain period of time without the need for surgical reintervention. There are cases when a part of bile with a high flow fistula close spontaneously, but always after an interval of time. In literature, many authors have published studies with spontaneous closure of postoperative bile fistulas. Balik et al. (9) in a study of 304 cases of postoperative biliary fistula states that all closed spontaneously were between 2 - 4 months.

The results we obtained are consistent with the literature. Thus in our study, we had a total of 19 biliary fistula with low flow (67.85%) in all such cases the evolution is favorable, the flow gradually decline to extinction in a time between 12 and 36 days. In the same category of postoperative biliary fistulas closed spontaneously were enrolled and 5 cases of postoperative fistulas with high flow, but progress has lasted 36 - 68 days.

Duration of care such patients is very long, the suffering of the patient, the risk of complications in this range and high social costs. For this reason many authors disagree with the treatment applied to hold fistula or bile, especially those with high flow. As an alternative to surgical reintervention is to perform biliary fistula treatment by internal drainage if local conditions allow (pericystic location in the liver, especially its status) or bipolar drainage. A modern alternative with good results in the treatment of a biliary fistula treatment is endoscopic retrograde cholangiography conducting oddian sfincterotomy.

Dolayk K et al. shows that when external biliary fistula after surgery for hepatic hydatid cysts, sfincterotomy is considered the procedure of choice, decreasing the rate of surgical reinterventions. There seems to be no relationship between the time from fistula creation to the time required performing ERCP and complete closure of the fistula (10).

S. Agarwal et al. says a 2005 study that using transformed internal sfincterotomy external biliary fistula with high flow in small flow biliary fistula, which subsequently closed spontaneously during the closure the maximum being 38 days. The author shows that ERCP is necessary to speed the healing of fistulas, even if they would shut down spontaneously as prolonged bile drainage causes a high morbidity (11).

In a study on endoscopic treatment of biliary fistulas conducted in 2006 on a group of 32 fistulas Saftoiu et al. shows that the healing of all fistulas sfincterotomy obtained within 3.5 ± 1.7 days. He shows that by ERCP reduces the pressure difference bilioduodenal from an average of 8 mmHg to 0 mmHg, promoting preferential flow of bile into the duodenum thus allowing the fistula to heal. Fistula healing depend on a number of important factors: the volume of bile produced by the biliary system above the fistula, fistula size, pressure, flow and residual hydatid material effects of obstructive biliary tract (2).

Adas G et al. concludes in a multicenter study in 2010 conducted on 109 patients who underwent endoscopic sfincterotomy, obtaining in all cases and the fistula closure order biliary fistulas with high flow over 300ml/zi indicates addition sfincterotomy and placing a stent in the bile, it decreased during fistula healing (12). The success rate in healing external biliary fistulas by endoscopic sfincterotomy using drainage is considered in the literature to be 83.3 to 100%, averaging approximately 90% (13).

In our study we recorded four cases of biliary fistula with high flow and no tendency to reduce who underwent endoscopic retrograde cholangiography and carrying out further development favorable oddian sfincterotomy (low flow gradually complete closure of the fistula at a time 9-12 days).

It is noted that the results are therefore consistent with the literature mentioned above. As external biliary fistulas in the treatment of conduct we believe, as our study and showed that the biliary fistula with conservative treatment is useful at low speeds, while unintervențional fistulas with high flow method is most appropriate internal endoscopic sfincterotomy .

Conclusions

Frequency of occurrence biliary fistulas in hydatid cyst of liver development is high enough, it recorded a rate of 28.57% in our study.

The occurrence of postoperative bile fistulas were statistically higher for cysts located in liver as compared with the left and central segments compared side.

Detection of intra-bilio-chystic communication, an obligation to make bipolar drainage was performed even if the pericystic fistulorafia to prevent postoperative fistula foreign Bilar.

Sfincterotomy use of endoscopic treatment of postoperative external biliary fistula was followed by a favorable outcome with the closure of the fistula within 9-12 days.

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