A Novel Technique for Detection and Suturing of Biliary Fistula in a Giant Hydatid Cyst: Video-assisted Biliary Fistula Suturing in Hydatid Cyst

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INTRODUCTION

Hydatid disease remains an important health problem in endemic areas; and by the way of travel and immigration, it can also be encountered in non-endemic areas. The most common cases with complications following hydatid liver surgeries are biliary fistulas with a frequency of 14.6 - 27.5%. Postoperative biliary leakage is generally due to unnoticed biliary tract communications. It is technically difficult to determine and suture the biliary fistulas, particularly for deep located ones with giant cavities for patients with high body mass index. We report a novel technique via video-assisted suturing of potentially unnoticeable bilio cystic fistula in open surgery for patients with hydatid disease.

CASE REPORT

A 61-year male patient reported to the hospital with right upper quadrant pain along with a discomfort in the back. He underwent ultrasonography and abdominal CT scan. CT scan revealed cyst hydatid lesions in the right lobe near hepatic dome and in segment 4A of the liver with daughter vesicles (stage III hydatid cyst) measuring 138 mm and 116 mm in diameter, respectively, and co-existent cholelithiasis. Except for mildly elevated GGT (74 IU/L), all other laboratory values were normal. He was medicated with 10 mg/kg albendazole for 15 days preoperatively. Right subcostal abdominal incision was performed for laparatomy. The location of the cysts expanded towards the back of the liver and impelled the diaphragm. Right lobe of the liver was considerably affected owing to the cysts. In addition, the cysts extended along liver hilum and had, at the same time, an effect on the gallbladder. Cholecystectomy was performed. In order to avoid draining the cyst content, the area around the cyst was kept under control by means of isotonic impregnated gauze. For both cysts, cystotomy with drainage and unroofing was carried out. Scolices were cleaned filling cyst cavities with 20% saline. Biliary leakage was observed within the larger cyst extending along liver hilum. Because of the patient’s anatomy and the placement of the biliary tract patency, the point where the bile came from could not be located clearly. Thereupon, the cavities of both cysts were examined through a video laparoscope. On account of the size of the cysts and tissue tags, the remains of daughter vesicles and some germinative membrane were observed and cleaned. The point of biliary leakage into the 138 mm cyst was seen clearly via laparoscope. An approximately 5 mm bile duct was opening into the cyst with visible bile flow. Biliary tract was sutured with 2/0 prolene via 30 degree laparoscope (Figure 1) under video-assistance. No biliary leakage was identified during checks. Subhepatic region was drained. No postoperative leakage occurred. The patient was...
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discharged on the second day and 10 mg/kg albendazole was given for 6 months.

**DISCUSSION**

The most common complication following hydatid liver surgery is biliary fistula at a rate of 14.6 - 27.5%. Therefore, the techniques and equipment practised in surgical approach become crucial for the disease which is endemic in our country.

In spite of pericystectomy and hepatectomy being approved as curative therapy for liver hydatid disease, these can only be applied on selected patients having specific cysts such as peripherally localised or pedunculated cysts. Commonly, more conservative treatment methods like cystotomy and drainage are preferred. The existence of biliary tracts with various sizes on pericyte wall has been revealed by Gahukamble et al. in their histology-based studies. The authors detected biliary leakage in 5 out of 24 patients (21%), who had undergone partial pericystectomy and external drainage; and the cyst content of whom appeared clear during the surgery. They asserted the existence of thin bile ducts on the removed cyst walls through histological examination. For this reason, the biliary tract communication of remaining cyst cavity should be analysed cautiously on patients who have undergone partial cystectomy.

The ratio of biliary fistulisation can be reduced through the preoperative application of ERCP. Kayaalp et al. reported that central localised cysts are more often in correlation with biliary tracts. They also argued that numerous cysts increase the tendency for biliary leakage complications. ERCP application decreases the postoperative fistulisation from 11.1% to 7.6%. Even if preoperative ERCP is effective, it cannot completely obviate this problem.

During the postoperative period, the most common complication is biliary drainage (14 - 25%). Biliary leakage increases the number of postoperative interventions and prolongs the hospitalisation period. The majority of biliary leakages self-close within 10 days after the operation. In case, the biliary fistula continues, application of ERCP reduces the leakage by decreasing the biliary tract pressure. Upon major biliary tract patency cases, by means of interventional radiology, the biliary tract where leakage is detected can be blocked with occlusive substances. However, unblocked fistulas may cause morbidity as abscess may develop and the need for reoperation may arise. Many methods are applied for the determination of biliary leakage during an operation.

Irkörüü et al. suggested that patients with assumed cystobiliary communication should have cholangiography taken with water-soluble contrast agent; and if a communication between the cyst and the biliary tract is seen, methylene blue is released into the biliary tract and the leakage is ascertained and then sutured. Kayaalp et al. indicated that releasing physiological saline solution into the biliary tract of patients with suspected biliary tract communication, localises the exact place of leakage with easily suturing it. Central localised giant hydatid cysts have high level of biliary tract communication. These fistulas depend upon the location of the hydatid cyst in the liver and the anatomy of the patient. Another technical challenge is to determine and suture successfully cystobiliary fistulas after cystotomy and drainage are performed. In this case, the authors used laparoscope to solve this problem. Clear image acquisition of the cyst cavity is achieved with the help of laparoscope; owing to the magnification speciality of the device, making the image up to 40 times larger, little biliary leakages, bleeding points; and the remains of germinative membrane are detected. It is recommended to observe the inside of the cyst clearly and suture the biliary tract via video-laparoscope, where the biliary leakage exists.

**REFERENCES**


