

Abscess and bronchobiliary fistula following percutaneous hydatid cyst treatment: A case report

Perkütan kist hidatik tedavisi sonrası apse ve bronko-bilier fistül: Olgu sunumu

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Abstract

Clinical course and treatment are uncomplicated in majority of hepatic hydatid cyst cases. However, in hydatid cysts involving percutaneous intervention, occult biliary fistulas can drain into the cavity due to a decrease in intracystic pressure, and the cyst can become complicated. Complicated cysts may be treated using non-invasive and minimally invasive methods. The cyst must be closely observed in terms of its size and location and the patient's place of residence. Delayed surgical treatment of hydatid cysts with percutaneous intervention and abscess development leads to high morbidity and mortality. Ultrasonography-guided PAIR (puncture – aspiration– injection – respiration) was performed on a patient with a Gharbi type 1 hydatid cyst, 150x110 mm in size, located in the right hepatic lobe. Since the cyst was contiguous with the bile ducts, a percutaneous catheter was inserted and endoscopic retrograde cholangiopancreatography (ERCP) was performed. We report a case of hydatid cyst involving open surgical drainage following cavity infection and postoperative bronchobiliary fistula and pneumonia at follow-up. Patients developing percutaneous treatment-related cavity infection have worse hospital stays, treatment costs, disease-related morbidity and mortality than those undergoing open surgery. We think that patients developing cavity infection should be closely observed and that the surgical procedure should be performed without delay.

Keywords: Hydatid cyst of the liver, PAIR, Cavity infection, Bronchobiliary fistula

Öz

Hepatik kist vakalarının çoğu komplike olmayan klinik seyir ve tedavi göstermektedir. Perkütan müdahale edilen kistlerde, kist içerisindeki basıncın düşmesi ile gizli olan safra fistülleri kavite içerisine drene olabilir ve kist komplike hale gelebilir. Komplike hale gelmiş olan kistler non invaziv ve minimal invaziv yöntemlerle takip ve tedavi edilebilir. Ancak kistin yerleşim yeri, büyüklüğü ve hastanın yaşadığı yer göz önünde bulundurularak yakından takip edilmesi gerekir. Perkütan müdahale edilen ve apse gelişmiş kist hidatiklerde cerrahi tedavide geç kalmak, yüksek morbidite ve mortalite oranlarına neden olmaktadır. Karaciğer sağ lopta 150x110 mm ebadında Gharbi tip 1 kist hidatik lezyonu olan hastaya ultrasonografi eşliğinde PAIR (puncture – aspiration – injection – respiration) yapılmıştır. Kistin safra yolları ile iştirakli olması üzerine perkütan kateter takılmış ve endoskopik retrograd kolanjiopankreatografi (ERCP) yapılmıştır. Takiplerinde kavite enfeksiyonu gelişmesi üzerine açık cerrahi drenaj yapılan, ameliyattan sonra bronko-bilier füstül ve pnömoni gelişen Kist hidatik olgusu sunulmuştur. Perkütan tedaviye bağlı kavite enfeksiyonu gelişen hastaların, hastanede kalış süresi, tedavi maliyetleri ve hastalığın morbiditesi açık cerrahi yapılan hastalara göre daha kötü sonuçlara yol açmaktadır. Kavite enfeksiyonu gelişen hastaların yakın takip edilmesini ve gecikmeden cerrahi işlem yapılmasının daha uygun olduğunu düşünüyoruz.

Anahtar kelimeler: Karaciğer kist hidatik, PAIR, Kavite enfeksiyonu, Bronkobilier fistül

Introduction

Hydatid cyst is a zoonosis caused by the larvae of *Echinococcus granulosus*. The disease is endemic in several countries of the world, including Turkey. Approximately 4000 patients are diagnosed with hydatid cyst in Turkey every year, mainly in rural areas [1]. The larvae most commonly cause disease by settling in the liver and lungs. Depending on the size and location of the cyst, the most common finding is nonspecific abdominal pain. Anaphylactic shock may develop as a result of cyst perforation or during surgery [2]. Diagnosis is made by visualizing the cyst using imaging methods such as ultrasonography, computed tomography (CT) and magnetic resonance imaging (MRI). Serological tests may sometimes be required to confirm the diagnosis. Surgical and percutaneous treatment (PT), which have been increasingly used in recent years, are widely employed in treatment in suitable cases.

Gharbi type 1-2 and some type 3 cysts respond well to PT [3,4]. Fine-needle aspiration and sclerosis (puncture – aspiration – injection – respiration [PAIR]) are sufficient in small cysts and those not involving the bile ducts (<5 cm, 5- 10 cm). Percutaneous catheter drainage, Modified Catheterization Techniques (MoCat) or Percutaneous Evacuation (PEVAC) are required in large cysts and those involving the bile ducts (>10 cm) [5,6]. Hilar and large-diameter cysts can lead to cysto-biliary fistulas by exhibiting destructive effects on the bile ducts. Stent insertion, sphincterotomy with percutaneous catheterization and with endoscopic retrograde cholangiopancreatography (ERCP) can be performed in these cases [7]. However, percutaneous catheter use and ERCP can lead to cavity infection and abscess. Cavity infections developing into abscesses may be treated by catheter insertion, but these need to be closely monitored based on the cyst’s location, size, and the patient’s place of residence. Delayed surgical treatment of hydatid cysts with percutaneous intervention and abscess development leads to high morbidity and mortality among patients.

Case presentation

A percutaneous catheter was inserted in a 46-year-old male patient due to a Gharbi type 1 hydatid cyst of 150x110 mm in size, filling segments 6, 7, and 8 of the right hepatic lobe. The biliary fistula did not decrease in size with percutaneous catheterization, and a stent was inserted in the main bile duct with endoscopic retrograde cholangiopancreatography (ERCP) on day 22 after the procedure. Cavity infection developed at follow-up, and the patient presented to the general surgery clinic with a recommendation of surgery on day 70 after the procedure. A 140x100 mm abscess with air bubbles was present in segments 6, 7, and 8 of the hepatic right lobe at abdominal tomography (Figure 1).

The patient’s laboratory values were as follows: WBC: 9.000 μ L, Hg: 10.6 g/dl, CRP: 44.8 mg/L, ALP: 331 U/L, GGT: 228 U/L, D.DIL: 0.32 mg/L, T.BIL: 0.9 mg/L, AST: 44 U/L, and ALT: 49 U/L. The patient was explored with a median and right lateral incision. Approximately 1000-1500 cc hemorrhagic purulent necrotic material and infected malodorous fluid was aspirated from the cyst with cystotomy. The cyst cavity was necrotic and hemorrhagic secondary to inflammation. No biliary fistula was observed, and the case was concluded with unroofing and drainage (Figure 2).

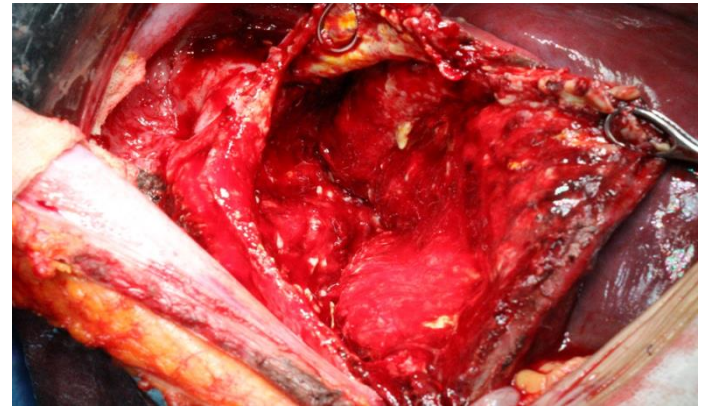


Figure 2: Appearance of the hydatid cyst abscess cavity in hepatic segments 7 and 8

Purulent and necrotic material drainage continued postoperatively. Approximately 100 ml of bile was drained on the 6th postoperative day. Thoracic CT performed on the 10th postoperative day revealed fluid in the right hemithorax, and a chest tube was inserted (Figure 3). About 1000 ml of impure biliary fluid drained from the chest tube. Two days after chest tube insertion, diffuse pneumonic foci developed in this patient with biliary fistula. Sepsis and pneumonia developed, and the patient was intubated. The pulmonary consolidations contracted at follow-up. The biliary drainage from the chest tube persisted for a further 15 days, and the patient was uneventfully discharged on the 60th postoperative day.

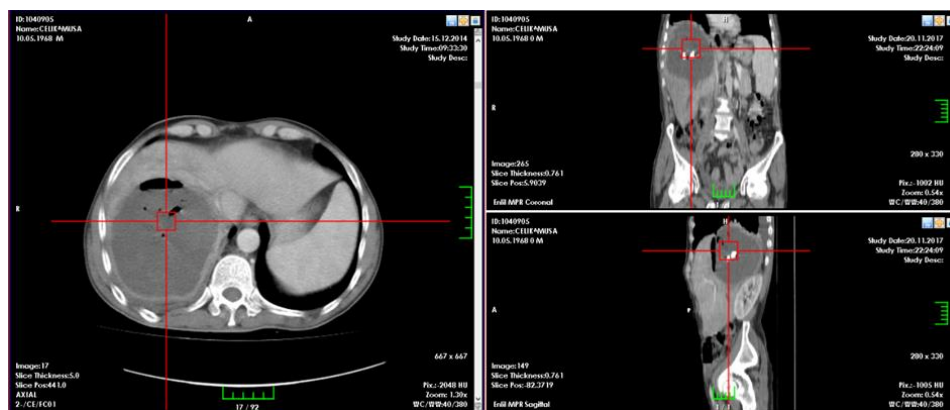


Figure 1: Abscess in the hydatid cyst cavity. The catheter is visualized within the cyst.



Figure 3: Fluid in the right hemithorax and pneumonia in the left lung at abdominal and thoracic CT scans

Discussion

Gharbi type 1-2 and some type 3 cysts respond well to percutaneous therapy. Percutaneous treatment of hydatid cyst of the liver is performed with PAIR and percutaneous catheter, MoCat, and PEVAC drainage. PAIR can be used if the cyst is smaller than 5-6 cm in diameter and if there is no biliary fistula. Cysts exceeding 5-6 cm, some type 3 and 4 cysts, and those with biliary fistula are treated with a catheter [3-5,8]. Even if drainage ceases in large cysts treated with percutaneous catheterization, the catheter must still be left in place for at least one week, since cystobiliary fistula may develop at follow-up [9]. In that case, papillotomy with ERCP and stent are performed [7]. However, both percutaneous catheter insertion and papillotomy with ERCP and stent placement can lead to the development of refractory inflammation in the cyst cavity. Care must therefore be taken with appropriate patient selection considering the location, diameter and content of the cyst for percutaneous catheter procedures [10].

A percutaneous catheter was inserted in this patient with a 150 x110 mm cyst in segments 6, 7, and 8 of the right hepatic lobe. The cystobiliary fistula persisted at follow-up, and a stent was placed with ERCP on postprocedural day 22. Cavity infection developed, and the patient was operated on day 70 following the percutaneous procedure.

Since the cyst cavity was covered in intensely inflammatory and hemorrhagic necrotic tissue, intraoperative biliary fistula repair was not possible. The cyst wall adhered to the diaphragm due to inflammation. Abscess drainage and unroofing were performed. Biliary fistula developed in the cyst cavity on the 6th postoperative day. Approximately 250-300 ml of biliary drainage was observed daily. Respiratory distress developed on the 10th postoperative day, on which diffuse fluid was determined in the right pleural area at abdominal and thoracic CT. A chest tube, which drained infected bile, was inserted. Manifestations of pneumonia and sepsis developed in this patient at follow-up. The patient was connected to a ventilator, after which pulmonary infection improved. He was uneventfully discharged on the 60th postoperative day.

Conclusion

Percutaneous therapy is successfully performed in hydatid cysts of the liver of selected patients. Percutaneous intervention in hydatid cysts of the liver lowers treatment costs and shortens hospital stay compared to surgical procedures. However, patients developing intracavitary infection associated with percutaneous treatment have longer hospital stays, higher treatment costs and disease morbidity than those undergoing open surgery. Care must therefore be taken over patient selection for percutaneous procedures. Attention must be paid to the size and location of the cyst and the patient's place of residence in subjects developing cavity infection. Patients must be followed-up at frequent intervals. We think that surgical procedures are more appropriate, particularly in patients living in rural areas and who cannot be followed-up on a regular basis.

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