

Case report

Hydatid liver cyst fistulized in the duodenum: A case report

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Background: Hydatid cyst is a zoonosis that is endemic in developing countries. The most frequent complication of a hydatid liver cyst is communication with the biliary tract. Communication with the duodenum is an uncommon complication.

Case presentation: A 60-year-old woman presented with abdominal pain and vomiting. There was no jaundice or fever. A biological inflammatory syndrome was identified. An abdominal computed tomography (CT) scan revealed a fistula between a centro-hepatic hydatid cyst and the first portion of the duodenum. The subject underwent disconnection of the fistula and a pericystectomy, followed by placement of a tube duodenostomy for the fistula and a subhepatic drain. The postoperative period was uneventful.

Conclusion: Despite the benign nature of hydatid cysts, duodenal fistula is a unusual complication. Surgical treatment is determined by the size of the duodenal defect.

Keywords: fistula, hydatid cyst, duodenum, liver, case report.

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1. Introduction

Hydatid cyst is a zoonosis caused by the larval stage of a parasite called *Echinococcus granulosus* [1]. This pathology is endemic in Mediterranean countries and Middle Eastern regions [2]. Hepatic localization of the cysts is the most common in adults, occurring in approximately 75% of cases [2]. The most frequent complications of a hepatic hydatid cyst are infection and rupture into the biliary tract [2]. Conversely, rupture of the cyst into the gastrointestinal tract is an uncommon outcome, with an incidence of up to 0.5% [3]. Surgical treatment of this complication is particularly challenging, and various surgical techniques can be employed. Herein, we report a case of a hydatid liver cyst fistulized into the duodenum.

2. Case report

60-year-old woman with no notable medical history presented with abdominal pain and vomiting. There was no jaundice or fever. On physical examination, she had a fever of 39°C and exhibited abdominal tenderness in the right upper quadrant. Biological analysis showed elevated white blood cell count (18,000 elements per mm³) and C-reactive protein (120 mg/L). Other biological parameters were within normal range: urea was 5 mmol/L, and creatinine level was 70 μmol/L. The levels of GGT and PAL were normal. An abdominal computed tomography (CT) scan was performed, revealing an 8 cm hepatic lesion located in segment IV with air bubbles (Fig. 1 and 2). A fistula between the cyst and the duodenum was suspected. Emergency laparotomy was performed under the diagnosis of an infected

hydatid cyst. A right subcostal incision was made. A centro-hepatic hydatid liver cyst measuring 8 cm was found in close contact with the first portion of the duodenum. Puncture of the cyst revealed purulent fluid. Exploration of the cystic cavity revealed communication with the anterior wall of the first portion of the duodenum. The fistula was large, measuring approximately 25 mm (Fig.3 and 4).

The surgical procedure included disconnection of the fistula and peri-cystectomy. No obvious opening in the bile ducts was found, which was confirmed by cholecystectomy with cholangiography. A tube duodenostomy was placed for the fistula, along with a subhepatic drain.

The patient's postoperative course proceeded without incident. The drain was removed gradually, starting on the 5th postoperative day. Enteral feeding resumed on the 9th postoperative day. Progressive withdrawal of the duodenostomy tube began 21 days after the procedure and was completely removed 2 months later. The patient remained in good health during the 1-year follow-up.

3. Discussion

Hydatid cyst is caused by the development of the zoonosis *Echinococcus granulosus*. The evolution of the cyst is predominantly associated with two complications: infection and rupture into the biliary tract. Perforation of the cyst into the gastrointestinal tract is a very rare outcome, with rupture into the duodenum occurring in only 0.15% of cases [4]. Two mechanisms can lead to duodenal fistulization: infection and mechanical friction. All studies found in the literature were case reports. In 2021, Vázquez conducted a systematic review of complicated hydatid cysts involving the duodenum [5]. Only 14 cases were compiled, with fistu-

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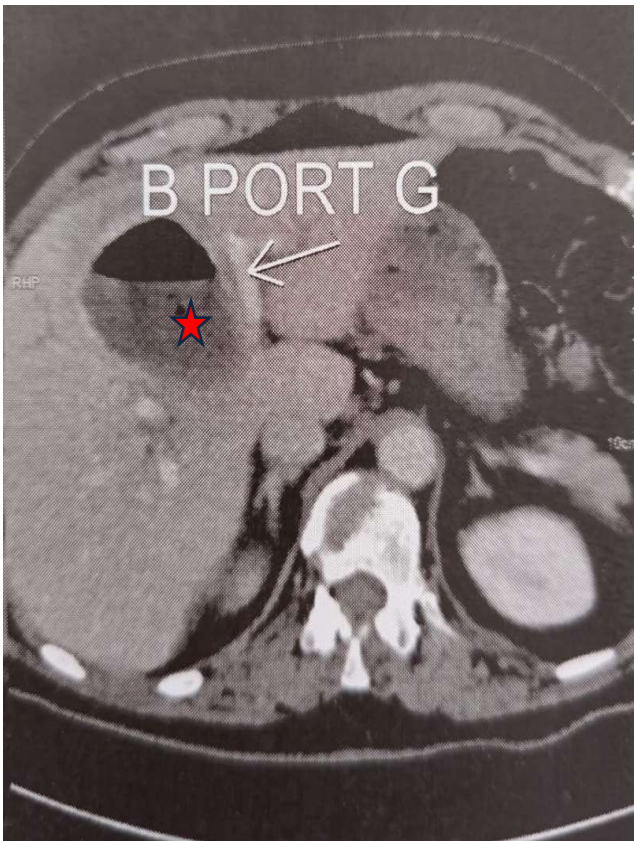


Fig.1. CT scan showing an 8 cm hydatid cyst (red star) with air bubbles inside.

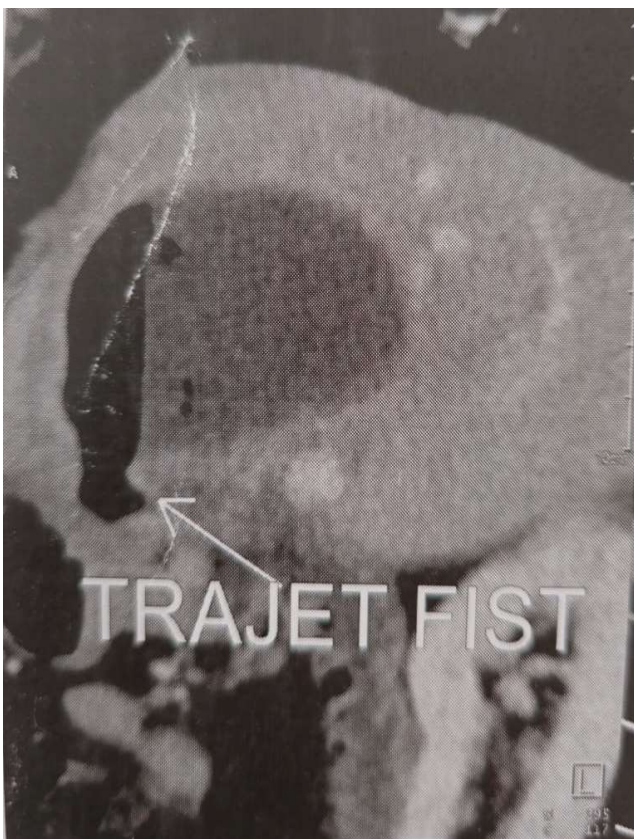


Fig.2. CT scan showing the fistula (white arrow) between the hydatid cyst and the first duodenum.

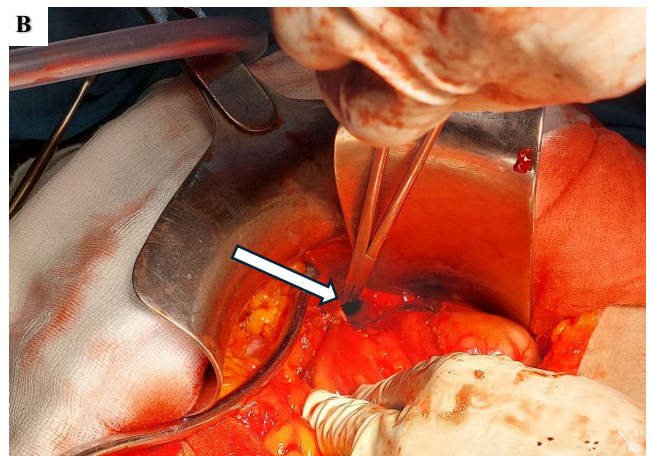
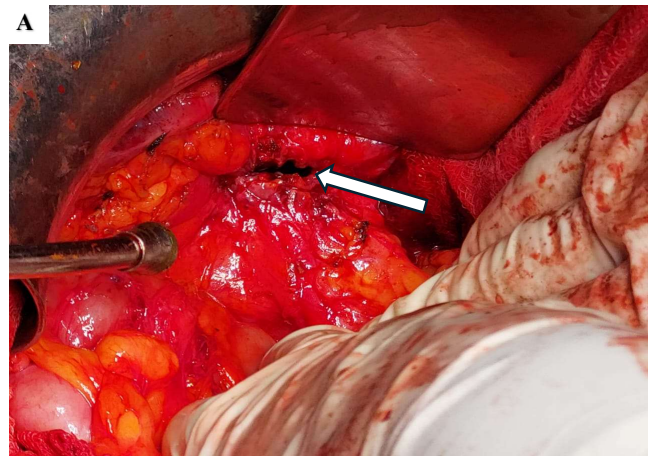


Fig.3. A-B: Per operative images of the cysto-duodenal fistula (white arrow).

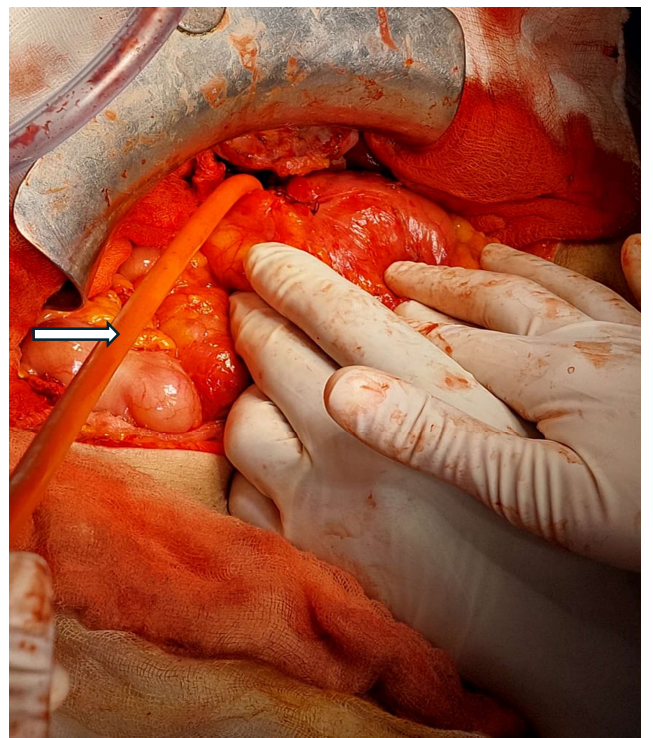


Fig.4. Per operative image showing the Pezzer drain (white arrow) placed in the duodenal.

-lization being the most described complication (86%) [5]. The liver was the most reported site, accounting for 78% of cases; other locations included the kidney, pancreas, and paraduodenal area [5].

Despite being a troublesome complication, its diagnosis is often missed during the preoperative period. In fact, its detection rate using CT scan was only 40% [5]. Upper digestive endoscopy is more effective in detecting this abnormal communication (66%), but it is usually not performed in the absence of suggestive symptoms [5].

A high index of suspicion should be maintained in the presence of suggestive complaints such as vomiting, dyspepsia, or the discharge of hydatid material through the anus. Most importantly, the diagnosis should be approached promptly during surgery to allow for appropriate measures to be taken.

Treatment should address both issues: the hydatid cyst and the duodenal wall defect following fistula disconnection. En bloc resection is hazardous and inappropriate due to the benign and non-immunizing nature of this disease.

In cases of large or complex defects, managing duodenal perforation presents challenges, as there is a wide array of surgical procedures available. A meta-analysis of 25 studies, including two randomized controlled trials, compared eight different surgical techniques in terms of postoperative outcomes [6]. None demonstrated clear superiority. Therefore, the choice of treatment should be tailored to the location of the perforation, the degree of duodenal tissue loss, the patient's hemodynamic stability, and the expertise of the operating surgeon [6].

Consent of patient

Patient's written informed consent was obtained to participate in this study.

Consent for publication

Written informed consent was obtained from the patient for publication on this case report and any accompanying images.

Conflict of interest

The authors have no conflicts of interest to declare.

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Authors' contributions

HT: Conception and design. MBS: Administrative support. BZ: Provision of study materials or patients. WM: Collection and assembly of data. KS and MAM: Data analysis and interpretation. Manuscript writing: All authors. All authors have read and approved the final manuscript.

References

- [1] Onka B, Benmoula FZ, Traore WYM, Mohamed DA, Khouchoua S, Nassar I, et al. A rare case: Spontaneous gastric fistula from a hydatid cyst of the liver. *BJR Case Rep.* 2021;7(6):20210087. <https://doi.org/10.1259/bjrcr.20210087>
- [2] Nunnari G, Pinzone MR, Gruttaduria S, Celesia BM, Madeddu G, Malaguarnera G, et al. Hepatic echinococcosis: clinical and therapeutic aspects. *World J Gastroenterol.* 2012;18(13):1448-58. <https://doi.org/10.3748/wjg.v18.i13.1448>
- [3] Saidani A, Saad S, Belhadj A, Rakkeh H, Kammoun M, Chebbi F. Surgical management of a hepatic hydatid cyst fistulized into the duodenum: A case report. *Int J Surg Case Rep.* 2021;88:106518. <https://doi.org/10.1016/j.ijscr.2021.106518>
- [4] Essaber H, Ihab Y, Jroundi L, Laamrani FE. Hepatic hydatid cyst fistulized in the duodenum: Extremely rare complication. *Radiol Case Rep.* 2021;16(12):3920-2. <https://doi.org/10.1016/j.radcr.2021.09.038>
- [5] Vázquez AM, Fragua RL, de la Fuente-Aguilar V, Beneite-Mascaraque P, Bergua-Arroyo S, Fernández-Riesgo M, et al. Hydatidosis and duodenum: A systematic review of the literature. *HPB.* 2021;23:S198. <https://doi.org/10.1016/j.hpb.2020.11.496>
- [6] Clinch D, Damaskos D, Di Marzo F, Di Saverio S. Duodenal ulcer perforation: A systematic literature review and narrative description of surgical techniques used to treat large duodenal defects. *J Trauma Acute Care Surg.* 2021;91(4):748-58. <https://doi.org/10.1097/TA.000000.00003357>

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