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Case Report

Hydatid Cyst Complicated by Dilated Bile Duct Treated with Endoscopic Retrograde Cholangiopancreatography (ERCP): A Case Report

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Abstract

Background: Echinococcosis, primarily caused by Echinococcus granulosus, frequently leads to the formation of hydatid cysts in various organs, particularly the liver and lungs. In rare instances, these cysts can rupture into the biliary tract, resulting in complications such as dilation of the Common Bile Duct (CBD) and obstructive jaundice. This study aims to document a rare case of CBD dilation due to the rupture of a hydatid cyst, highlighting the need for tailored diagnostic and therapeutic approaches for this unusual presentation. **The Case:** A 37-year-old male patient presented with abdominal pain, anorexia, and jaundice. Abdominal ultrasonography and computed tomography (CT) scans identified multiple hydatid cysts in the liver, with one ruptured cyst extending into the CBD. An endoscopic retrograde cholangiopancreatography (ERCP) was performed to remove the hydatid cyst membranes, followed by the placement of a stent and irrigation of the biliary ducts. Surgical excision of remaining liver cysts was subsequently conducted. The use of ERCP allowed effective removal of cystic material from the biliary tract, reducing CBD obstruction and alleviating jaundice symptoms. Surgical intervention further ensured the complete removal of hydatid cysts. **Conclusion:** This case highlights that Endoscopic Retrograde Cholangiopancreatography (ERCP) is an effective diagnostic and therapeutic tool for managing biliary complications associated with hydatid disease, particularly the dilation of the Common Bile Duct (CBD). The combination of ERCP with surgical intervention resulted in optimal outcomes for this patient, who presented an uncommon manifestation of echinococcosis.

Introduction

According to studies, the average diameter of the common bile duct (CBD) ranges between 4 and 8 mm, with diameters greater than 7 mm considered abnormal.[1] The prevalence of dilated common bile duct attributable to a hydatid cyst membrane is relatively rare, with limited comprehensive epidemiological data available in the existing literature. Cases of this condition have been documented at a low rate, often presenting as an uncommon complication of hepatic hydatid disease. Notably, approximately 80-90% of patients exhibit fistulae between the biliary system and the hepatic cyst (LHC). Furthermore, significant intrabiliary rupture is reported to occur in 5-17% of patients.[2]

Biliary obstruction can result from any condition that prevents bile flow from the biliary system into the duodenum, such as choledocholithiasis, extrinsic compression (as in cholangiocarcinoma, pancreatic head masses, or papillary tumors), parasitic infections, dysfunction of the sphincter of Oddi, and papillary stenosis, among others.[3] While many factors can cause biliary obstruction, CBD obstruction due to hydatid cyst membranes is considered a rare cause. Intra biliary rupture of hepatic hydatid cysts was first described in the 1860s.[4] These cysts are typically acquired through the ingestion of Echinococcus granulosus eggs, which are commonly found in the feces of infected dogs.[5] Preventative measures include regular

Highlights:

- This case report documents a rare instance of biliary ductal dilation resulting from hydatid cysts, a condition that is under-discussed in current medical literature.
- It emphasizes the diagnostic complexities associated with biliary complications of hydatid cysts, highlighting the importance of advanced imaging and precise differential diagnosis.
- The report underscores the need for a multidisciplinary approach, involving gastroenterology, infectious disease, and surgery specialists, to achieve optimal patient outcomes.
- This case demonstrates the effective use of minimally invasive endoscopic techniques, combined with antiparasitic therapy, as a treatment strategy for biliary obstruction caused by hydatid cysts.
- This study aims to raise awareness of the importance of early intervention and regular follow-up to prevent long-term complications, especially in endemic regions.

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deworming of pet dogs and maintaining good hygiene practices, especially thorough handwashing.

Treatment options vary depending on the size, location, and presence of complications associated with the cyst. Recent studies indicate that combining surgery or Percutaneous Aspiration, Injection, and Reaspiration (PAIR) with chemotherapy using benzimidazole drugs—either before or after the surgical procedure—leads to better treatment outcomes. A meta-analysis showed that the odds ratio for these combined treatments is 48 (95% CI: 4–586).[6] With appropriate healthcare, recovery is achievable.

Ultrasonography is the imaging technique of choice for evaluating a dilated common bile duct (CBD).[5] Symptoms of CBD dilation may include pain or discomfort in the upper abdomen, jaundice, anorexia, and elevated serum bilirubin levels.[7] Endoscopic retrograde cholangiopancreatography (ERCP) is utilized for the removal of cyst membranes. Despite the fact that the primary indication for ERCP is choledocholithiasis,[8] it was the only option available in our country for extracting the cyst membranes.

The present study aims to report a rare case of dilated common bile duct caused by a hydatid cyst membrane, which was treated using endoscopic retrograde cholangiopancreatography.[8] Written informed consent was obtained from the patient for the publication of this case report and any accompanying images, ensuring the confidentiality and privacy of the patient's identity and details.

Informed consent for publication was obtained from the patient. This case was documented in 2023 at ARRAHMA Hospital in northwest Syria.

The Case

A 37-year-old man was admitted to the hospital with symptoms of abdominal pain, vomiting, and anorexia for 15 days. He denied any previous medical conditions, surgical history, or substance abuse. The patient reported intermittent fevers, but no cough. He experienced colicky abdominal pain that began a week ago and progressively worsened throughout the week. This was accompanied by nausea, vomiting, fatigue, and a general feeling of malaise. His occupational history included exposure to animals, particularly livestock, which is noteworthy considering the potential zoonotic nature of his condition. Additionally, his dietary history revealed the consumption of undercooked meat, and the patient did not report any changes in the color of his urine or stool.

Upon examination in the emergency department, his vital signs were as follows: blood pressure of 125/85 mmHg, oxygen saturation of 98%, pulse of 95 bpm, and a fever of 38°C.

The physical examination revealed scleral icterus and epigastric abdominal tenderness radiating to the back, with no visible surgical scars. The abdominal ultrasonography showed multiple hydatid cysts within the liver parenchyma, some extending into the common bile duct (CBD) with a maximum diameter of 16 mm. Ultrasound serves as a vital diagnostic tool for detecting hydatid cysts, which identifies real-time visualization of their morphology, size, and topographic relationships, which is crucial for evaluating the extent of the disease. Moreover, it is non-invasive, widely accessible, and aids in distinguishing hydatid cysts from other hepatic lesions, enabling early diagnosis and facilitating treatment planning.

The patient underwent upper abdominal computed tomography (CT) imaging, which revealed a hydatid cyst spanning seven liver segments, along with a hyperechoic density within the common bile duct (CBD), indicative of a ruptured cyst ***(Figures 1, 2).*** The hyperechoic density within the CBD, measuring 12.2 mm, likely represents a ruptured hydatid cyst with biliary communication -a known complication of hepatic hydatidosis with significant clinical implications.

The laboratory tests, as shown in ***Table 1,*** revealed elevated total bilirubin levels, particularly direct bilirubin, which suggests an obstructive etiology, likely due to hydatid cysts lodged within the common bile duct (CBD). The elevated inflammatory markers further support the presence of an underlying inflammatory process, which may result from cyst complications such as infection or cholangitis. Additionally, liver function tests were mildly elevated, indicating impaired hepatic function often associated with biliary obstruction.

In this context, the combination of elevated direct bilirubin, inflammatory markers, and disturbed liver function strongly suggests that intervention is necessary to relieve the obstruction and manage potential complications. Based on these laboratory findings, the decision was made to proceed with endoscopic retrograde cholangiopancreatography (ERCP) to visualize the biliary tree, confirm the diagnosis, and manage the obstruction.

Cystic membranes were identified through the sphincter of Oddi papilla, prompting deep selective cannulation. The injection of contrast medium confirmed a dilated common bile duct (CBD), and a sphincterotomy was performed on the major papilla ***(Figure 3).*** A stone extraction balloon was passed several times to remove the cystic membranes. During the ERCP, a plastic curved stent was inserted into the CBD to facilitate bile drainage and prevent obstruction ***(Figure 4).***

The plastic stent was chosen for its flexibility and effectiveness in maintaining patency within the biliary system, while allowing for easy removal post-cystectomy. This approach helps minimize the risk of re-obstruction by accommodating the natural curvature of the bile duct.

Physiological saline was injected to clear any remaining cyst fragments and inflammatory secretions. Post-procedure follow-up included monitoring of laboratory tests, particularly liver function and bilirubin levels, to assess the effectiveness of the intervention and ensure the resolution of any obstruction-related issues.

After the procedure, laboratory tests showed significant improvement, and the patient exhibited no signs of abdominal pain, fever, or jaundice ***(Table 2).*** An oral antiparasitic medication, albendazole 400 mg twice a day, was initiated to address any residual parasitic infection and prevent recurrence, with close monitoring of liver function.

The patient was advised to follow up with a gastroenterologist for stent removal after the cystectomy to mitigate the risk of recurrent obstruction.

Table 1. Laboratory Investigations of the Case.

Test	Observed Value	Reference Range
WBC	10 x 10 3 /µL	4.0-11.0 x 10 3 /µL
CRP	55	UP TO 6
Direct bilirubin	5.1	0.0-0.3 mg/dL
Indirect bilirubin	2	0.1-0.7 mg/dL
ALT	162	7-56 U/L
AST	88	5-40 U/L
PT	17	10.0-14.0 seconds
INR	1.3	0.8-1.2
APTT	40	25-35 seconds
ALP	900 U/L	44-147 U/L

Table 2. The Laboratories Tests After Operation.

Test	Observed Value	Reference Range
WBC	5 x 10 3 /µL	4.0-11.0 x 10 3 /µL
CRP	17	UP TO 6
Direct bilirubin	1.3	0.0-0.3 mg/dL
Indirect bilirubin	1	0.1-0.7 mg/dL
ALT	66	7-56 U/L
PT	16	10.0-14.0 seconds
INR	1.1	0.8-1.2
ALP	350 U/L	44-147 U/L
APTT	35	25-35 seconds
AST	70	5-40 U/L

Figure 1. Abdominal CT-Scan Showing A Hepatic Hydatid Cyst Of Segment Vii.

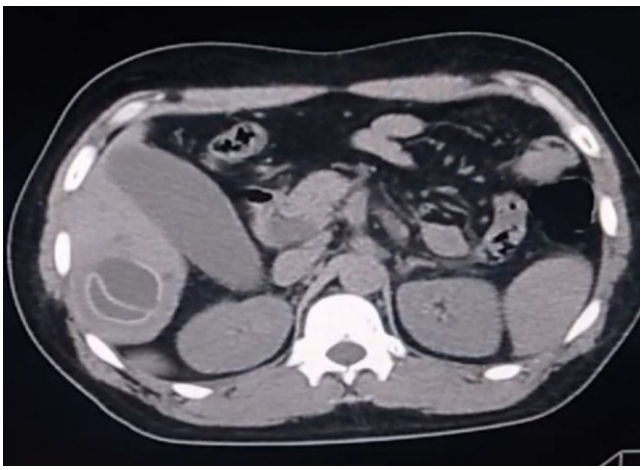

Figure 2. A Ruptured Cyst Within CBD.

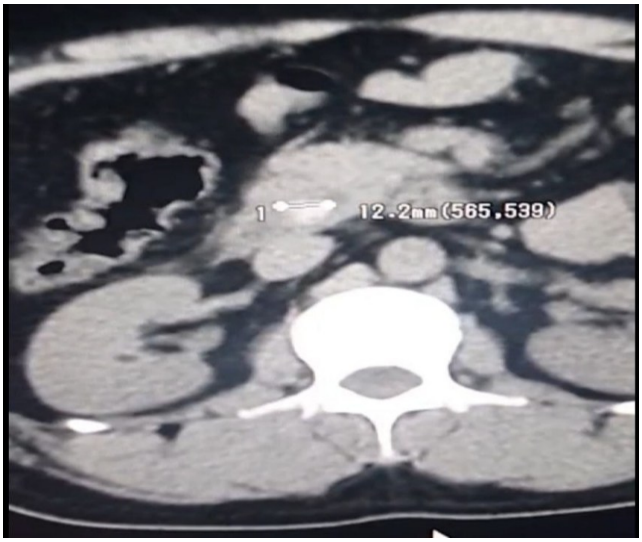

Figure 3. Sphincterotomy of the Hepatic Hydatid Cyst.

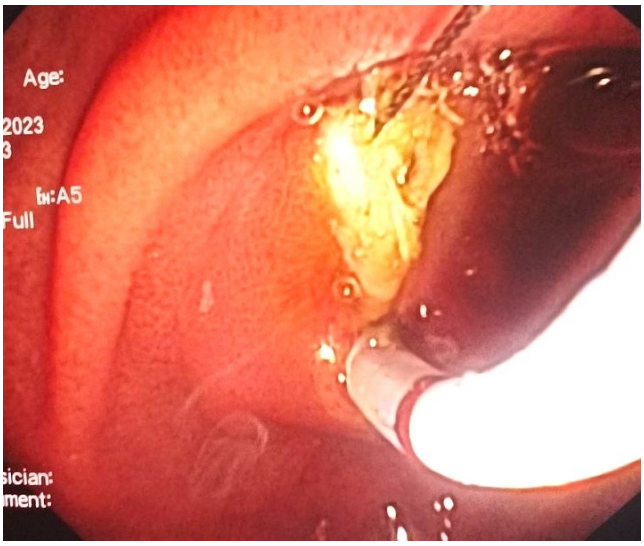

Figure 4. Extraction Parts of Cyst Through Ampulla by Stone Extraction Balloon.

Discussion

Echinococcosis, a zoonotic disease, is prevalent in regions with significant agricultural and cattle production, including the Mediterranean, Southwest, Latin America, the Middle East, China, and Africa.[9] Common complications of this disease include rupture and superinfection, with rupture occurring in 50–90% of cases, typically due to the progressive maturation of the cyst.[10] In our case, rupture occurred within the biliary tracts, leading to dilation of the CBD and the onset of jaundice. This represents a rare complication of hydatid cysts; communicating rupture within the biliary tree is more likely to occur in the central liver segments, particularly in large cysts (up to 80% of hepatic hydatid cysts larger than 7.5 cm) and in advanced stages of the disease.[11]

The spectrum of symptoms varies based on the organs involved, the size and position of the cysts within the affected organs or tissues, and the interactions of the growing cysts with adjacent structures. The patient presented with abdominal discomfort in the epigastric region, anorexia, and the development of jaundice, all of which indicate complications related to the hydatid cyst.[12]

The diagnosis of echinococcosis relies on clinical features, laboratory tests, and radiographic investigations, including ultrasonography, computed tomography (CT), and confirmation through immunodiagnostic testing to detect specific antibodies in the blood.[13] In our case, we utilized ultrasound as the initial evaluation method, which revealed hydatid cysts and a dilated CBD. Subsequently, we chose CT for diagnostic confirmation, which indicated the presence of a ruptured cyst within the CBD ***(Figure 1).***

Abdominal ultrasonography effectively visualized the characteristic cystic structures in the liver and assessed their extension into the CBD, contributing to a comprehensive evaluation of the disease's extent and guiding subsequent management decisions. Furthermore, CT imaging offers precise visualization of the biliary system, facilitating an accurate assessment of CBD dilation. It also enables the identification of key characteristics of the hydatid cyst membrane, including size, location, and morphology, which are crucial for selecting optimal treatment strategies.[14] Magnetic resonance cholangiopancreatography (MRCP) is significant for its ability to visualize the biliary tree without the need for ionizing radiation or contrast injection, making it an ideal choice for patients with suspected biliary complications. MRCP can accurately delineate the anatomy and identify obstructions, providing crucial information for management.[15] Due to limitations in our local healthcare infrastructure, we primarily rely on available modalities such as ultrasound and CT, which are essential for diagnosing and managing hydatid cyst complications. Unfortunately, despite MRCP being a powerful non-invasive tool for evaluating biliary obstruction with its detailed imaging capabilities, is unavailable in our region.

The optimal treatment for this case involved the removal of the ruptured cyst through ERCP, which is now the primary diagnostic and therapeutic approach for primary hydatid cysts in the biliary tree.[16] A balloon and basket catheter were employed to extract a significant portion of the membranes and daughter capsules from the CBD, following an endoscopic sphincterotomy. After emptying the hydatid membranes and large daughter cysts, the CBD was irrigated with saline to wash out the smaller daughter cysts and hydatid fragments. The day after the procedure, the patient's condition improved significantly, and laboratory tests showed marked improvement, approaching normal levels.

The importance of performing ERCP when there is uncertainty regarding cysto-biliary communication has been emphasized. This approach is supported by Bayrak and Altıntas (2019), who advocate for preoperative ERCP in cases involving elevated liver enzymes, cholangitis, and biliary duct dilation.[17] Such recommendations align with established guidelines that endorse ERCP for clarifying biliary anatomy and effectively managing complications. Notably, preoperative ERCP has proven successful in over 80% of cases for endoscopic sphincterotomy and the removal of biliary daughter vesicles. ERCP alone can sometimes cure patients without the need for surgery, as evidenced in approximately 25% of cases in various studies.[18]

Open surgery, including partial cystectomy, has traditionally been the treatment for hydatid cysts with biliary complications, particularly in cases with large biliocystic fistulas. However, it carries a morbidity risk of around 20%, with specific complications such as biliary fistulas and infections occurring in approximately 16% of cases. The mortality rate associated with this surgery is around 1.5%. Factors like large cyst size, location in the liver dome, and cystobiliary fistulas increase the likelihood of complications. The choice between radical and conservative approaches significantly affects both morbidity and mortality outcomes.[19]

Laparoscopic surgery, while less invasive, is typically reserved for patients with accessible cysts (type I-III) and has been shown to result in lower recurrence and morbidity rates compared to open surgery. A 10-year retrospective study reported a 3.3% recurrence rate and fewer complications, such as biliary leakage, for

laparoscopic procedures, making it a safer and effective option for selected cases of hepatic hydatid disease.[17,18,20] After the successful ERCP, oral antiparasitic medications such as albendazole or mebendazole should be initiated to address any residual parasitic infection and to prevent recurrence.[21] These medications inhibit the parasite's ability to absorb glucose, eventually causing its death. The dosing, duration, and potential side effects of these medications should be discussed based on the patient's liver function and response to treatment. Regular monitoring of liver enzymes is crucial during treatment with albendazole due to its potential hepatotoxicity.[22]

Regular follow-up imaging, such as ultrasound or CT scans, is crucial for monitoring cyst recurrence and identifying potential obstructions. Liver function tests should also be assessed to facilitate the early detection of biliary complications.

Routine imaging, including ultrasound or MRI, is recommended to evaluate for residual cysts, particularly in the liver and bile ducts. Serial abdominal ultrasounds and liver function assessments can help track treatment effectiveness and detect complications, such as bile duct obstruction or infection, at an early stage. Surgical intervention may be indicated in the following scenarios:

- Residual Cysts: if cysts persist after ERCP or if oral medications do not effectively resolve the hydatid cysts, surgical removal or percutaneous drainage may be necessary.
- Liver Abscess or Infection: infection of the cysts, known as suppuration, may require prompt surgical intervention, which can be performed laparoscopically or through open surgery.
- Large Cysts: cysts that are too large for ERCP treatment alone or that carry a significant risk of rupture may necessitate surgical intervention to prevent further complications.

Educating patients about warning signs, such as jaundice and abdominal pain, is essential for ensuring timely intervention. By establishing a comprehensive follow-up care plan, we can improve patient outcomes and proactively address potential complications.

Conclusion

The presented case highlights the importance of considering hydatid cysts as a potential cause of a dilated common bile duct. The successful management of this condition using ERCP demonstrates the efficacy of minimally invasive procedures in treating such cases. ERCP allows direct access to the biliary system, facilitating the removal of hydatid cyst membranes or obstructive debris. As a minimally invasive technique, ERCP provides a safer alternative to surgical interventions for complications arising from biliary dilation due to hydatid cyst membranes, resulting in reduced surgical risks and expedited postoperative recovery.[16] Moreover, ERCP not only effectively addresses these complications but also minimizes patient morbidity and promotes quick recovery.

By highlighting this approach, we advocate for its implementation in similar contexts, ultimately enhancing patient outcomes in challenging healthcare environments. It is also crucial to emphasize the significance of a multidisciplinary approach that encompasses clinical suspicion, appropriate imaging modalities, and timely intervention to achieve optimal patient outcomes in cases of dilated common bile duct secondary to hydatid cyst membranes.

Summary – Accelerating Translation

Echinococcosis, a parasitic infection, manifests as the development of hydatid cysts in various organs, including the liver and lungs, leading to multiple complications such as cyst rupture and subsequent infection. This study presents a rare case of obstructive jaundice caused by the rupture of a hydatid cyst into the biliary system, resulting in common bile duct dilation. A 37-year-old male presented with symptoms of abdominal pain, anorexia, and jaundice.

Ultrasound and Computed Tomography (CT scan) confirmed the diagnosis, then Endoscopic Retrograde Cholangiopancreatography (ERCP) was performed to remove hydatid cyst membranes, insert a stent, and irrigate the biliary system with saline. Followed by surgical intervention to remove the remaining hydatid cysts. Although ERCP is primarily used for diagnostic and therapeutic purposes in evaluating a dilated common bile duct (CBD), this case demonstrated its successful application in treating hydatid cyst rupture, a rare occurrence.

This case emphasizes the importance of considering hydatid cysts as a potential cause of a dilated CBD. The successful management using ERCP underscores the value of minimally invasive procedures in treating such cases. A multidisciplinary approach, involving clinical suspicion, imaging modalities, and timely intervention, is essential for optimal patient outcomes when managing CBD dilation due to hydatid cyst rupture.

حالة توسع القناة الصفراوية بسبب كيسة مائية

مقدمة

تعتبر القناة الصفراوية المشتركة جزءاً أساسياً من الجهاز الهضمي، حيث تنقل الصفراء من الكبد إلى الأمعاء لتسهيل هضم الدهون. قد يحدث في بعض الحالات، توسع غير طبيعي في القناة، مما يشير إلى وجود مشكلة طبية قد تكون خطيرة. إحدى الأسباب المحتملة لتوسع القناة هي **الكيسات المائية**، وهي أكياس تكون مملوءة بالسائل وتتكون نتيجة عدوى طفيلية.

ما هي الكيسات المائية؟

الكيسات المائية هي أكياس تحتوي على سائل، و تنجم غالباً عن العدوى بطفيلي يُعرف باسم **المشوكة الحبيبية**، ومصدره عادة من الكلاب وبعض الحيوانات الأخرى. يمكن أن تتشكل الكيسات في الكبد أو الأعضاء الأخرى عندما يتعرض الإنسان لهذا الطفيلي، مما يؤدي إلى الضغط على الأنسجة المحيطة، بما في ذلك القناة الصفراوية.

توسع القناة الصفراوية المشتركة

يُعرَّف توسع القناة المشتركة بأنه زيادة غير طبيعية في قطر القناة، وغالباً ما يكون ناتجاً عن انسداد أو انضغاط من بنى مجاورة. يتراوح قطر القناة الصفراوية الطبيعية بين 4 إلى 8 مم، وأي زيادة في هذا القياس يشير إلى مشكلة طبية.

الأعراض والعلامات السريرية

تشمل الأعراض المرتبطة بتوسع القناة الصفراوية:

الرعاية الداعمة: تشمل الرعاية الداعمة التحكم في الأعراض، مثل تخفيف الألم، ومراقبة اليرقان والغثيان، مع إمكانية تعديل النظام الغذائي.

المتابعة والمراقبة: يجب على المريض بعد الإجراءات العلاجية المطبقة له، الخضوع لفحوصات دورية لمراقبة حالة القناة الصفراوية والتأكد من عدم عودة الكيسات أو حدوث مضاعفات. وتشمل التصوير بالموجات فوق الصوتية أو التصوير المقطعي المحوسب لتقييم حالة الكيسة والوظائف الصفراوية.

الوقاية: تشمل الوقاية زيادة الوعي حول المخاطر المرتبطة بالكيسات المائية والعدوى الطفيلية، مع التأكيد على أهمية النظافة الشخصية وتجنب تناول الطعام غير المطبوخ جيدًا.

الحالة السريرية:

هدف الدراسة:

تهدف هذه الدراسة إلى توثيق حالة نادرة لتوسع القناة الصفراوية المشتركة بسبب تمزق أحد الكيسات المائية ضمن القناة ومنع مرور الصفراء، مع تسليط الضوء على الحاجة إلى مقاربات تشخيصية وعلاجية مخصصة لهذه الحالة الغير العادية.

الحالة السريرية:

راجعنا مريض ذكر يبلغ من العمر 37 عامًا بشكوى من ألم في البطن، وفقدان الشهية، واليرقان. أظهرت الفحوصات بالموجات فوق الصوتية للبطن والتصوير المقطعي المحوسب (CT) وجود عدة أكياس مائية في الكبد، مع كيس واحد ممزق إلى القناة الصفراوية المشتركة (CBD). تم إجراء **تنظير راجع للطرق الصفراوية والبنكرياسية** (ERCP) لإزالة أغشية الكيسة المائية، ثم تم بعد ذلك وضع دعامة وغسل القنوات الصفراوية. وبعد ذلك تم إجراء استئصال جراحي للأكياس المتبقية في الكبد.

النتائج:

سمح استخدام ERCP بإزالة فعالة للكيسة ومحتوياتها من القناة الصفراوية، مما قلل من انسداد القناة الصفراوية المشتركة وخفف من أعراض اليرقان. كما ضمنت التدخلات الجراحية الإزالة الكاملة للأكياس المائية

الاستنتاج:

تسلط هذه الحالة الضوء على أن **التنظير الراجع للطرق الصفراوية والبنكرياسية** (ERCP)هو أداة تشخيصية وعلاجية فعالة لإدارة المضاعفات الصفراوية المرتبطة بمرض الكيسات المائية ، لا سيما توسع القناة الصفراوية المشتركة (CBD) . أسفر إجراء التنظير الراجع للطرق الصفراوية والبنكرياسية (ERCP) مع التدخل الجراحي عن نتائج مثالية عند هذا المريض.

الخاتمة

تمثل حالة توسع القناة الصفراوية المشتركة بسبب كيسة مائية تحدياً طبياً، لكن من خلال الفهم الجيد للأعراض، وطرق التشخيص، والعلاج المتاحة، يمكن تحقيق نتائج إيجابية. استخدام التقنيات الحديثة مثل التنظير الراجع للطرق الصفراوية يُظهر كيف يمكن معالجة هذه الحالات بشكل فعال، مما يحسن من نوعية الحياة للمرضى.

- **ألم في الجزء العلوي الأيمن من البطن:** قد يكون هذا الألم مزمناً أو متقطعاً، ويمكن أن يترافق مع تناول الأطعمة الغنية بالدهون.
- **غثيان وإقياء:** قد تكون هذه الأعراض متكررة، خاصة بعد تناول الطعام.
- **اصفرار الجلد والعينين (اليرقان):** يحدث بسبب ارتفاع مستويات البيليروبين في الدم نتيجة انسداد القناة الصفراوية.
- **فقدان الشهية:** مما قد يؤدي إلى فقدان الوزن.
- **حمى**: قد تظهر في حالة وجود عدوى مرتبطة.

التشخيص

يتم استخدام عدة تقنيات لتشخيص حالة توسع القناة الصفراوية المشتركة الناجم عن كيسة مائية، منها:

- **الفحص السريري:** يبدأ الطبيب بفحص المريض لتقييم الأعراض والعلامات السريرية. يتم قياس درجة الحرارة، وضغط الدم، وفحص البطن للبحث عن علامات الألم أو الانتفاخ.
- **التصوير بالموجات فوق الصوتية (Ultrasound):** تُعتبر هذه التقنية من أوائل الخطوات في تشخيص الكيسات. تُستخدم الموجات فوق الصوتية لإظهار الكيسات في الكبد أو الأعضاء المجاورة، وتساعد في تقييم حجمها وموقعها.
- **التصوير المقطعي المحوسب (CT Scan):** يُعتبر الفحص بالتصوير المقطعي المحوسب أكثر دقة في تحديد حجم الكيسات وموقعها، كما يوفر معلومات عن التأثيرات المحتملة على الأعضاء الأخرى.
- **التصوير بالرنين المغناطيسي (MRI):** يُستخدم عندما يكون هناك حاجة لمزيد من التفاصيل حول الأنسجة المحيطة، خاصة عند الشك في وجود مضاعفات.
- **تحليل الدم:** يُمكن أن تشير التحاليل المخبرية إلى وجود عدوى أو التهابات، بما في ذلك فحص مستويات البيليروبين، ووظائف الكبد.
- التدابير العلاجية:

تتطلب حالة توسع القناة الصفراوية المشتركة الناجم عن الكيسات المائية تدابير علاجية دقيقة، تعتمد على حجم الكيسة، وموقعها، والأعراض التي يعاني منها المريض. أهم التدابير العلاجية الرئيسية لهذه الحالة:

التنظير الراجع للطرق الصفراوية والبنكرياسية (ERCP): يُستخدم لتشخيص وعلاج توسيع القناة الصفراوية. يتم إدخال أنبوب مرن مزود بكاميرا لتحديد موقع الكيسة أو الانسداد، مع إمكانية إزالة الكيسة أو وضع دعامة لتحسين تدفق الصفراء، يمكن القيام بذلك أثناء هذا الإجراء.

الجراحة: في الحالات التي تكون فيها الكيسات كبيرة أو تسبب مضاعفات، قد تكون الجراحة المفتوحة أو بالمنظار ضرورية لإزالة الكيسة بالكامل.

العلاج الدوائي: يشمل العلاج بالمضادات الحيوية، في حالة وجود عدوى مصاحبة، يمكن وصف مضادات حيوية لعلاج العدوى. و**العلاج المضاد للطفيليات**، في حالة الإصابة بالطفيليات (مثل **داء الكيسات المائية**)، يُمكن استخدام أدوية مثل الألبيندازول أو الميبندازول.

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Conflict of Interest Statement & Funding

the authors assert that there are no conflicts of interest pertaining to this study. No author possesses any financial, personal, or professional relationships that could potentially influence the outcomes or interpretations of the research.

Author Contributions

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