

## Choledochal cyst type I-A: a case report

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### Abstract

Choledochal cysts are cystic dilations that can occur in a single or multiple form in the biliary tree. Cysts can be congenital or acquired and are associated with numerous anatomical abnormalities. The presence of pain in the upper right quadrant of the abdomen, jaundice and palpable abdominal mass form the classic triad that is present in 15% to 45% of patients. We report the case of a 19-year-old woman patient, who she was admitted with abdominal pain in the right hypochondrium, nausea and vomiting, which evolved into jaundice. When seeking medical care, a large liver cyst and cholelithiasis. Imaging exams revealed liver cyst in segments IV-B,V and VI, lithiasis and biliary polyp.

**Keywords:** Choledoch cyst; Abdominal pain; Surgery.

### Introduction

Choledochus cysts are cystic dilations that can occur in a single or multiple form in the biliary tree. Originally named choledochal cyst, it had also been called biliary cyst so that intrahepatic cysts could be included in the classification [1]. They have an incidence of 1:100.00 to 1:500.00, having the world population as a reference, and having a higher prevalence in Asian countries, reaching in most cases

women with a ratio of 3:1 to 4:1.2. However, a series of recent cases have shown equal numbers of cases among adults, which are mostly present in patients before 10 years of age.

Therefore, given the relevance and prevalence of choledochal cysts, this report has the objective of describing the case of a 19-year-old woman patient, whose treatment was the total resection of the bile duct cyst by means of biliodigestive anastomosis.

## Case report

Primarily, we declare that the patient approved the study by signing an informed consent form and the study followed the ethical guidelines established by the Declaration of Helsinki. A 19-year-old woman patient, presented with the chief complaint of "yellow skin". The Patient reported that started having abdominal pain lasting for 3 weeks in the right hypochondrium, in a stabbing pain, unrelated to her usual diet. Also, the patient presented nausea and vomiting with food debris, without the presence of hematemesis.

The patient evolved to jaundice with sclera and only after one week she sought medical care, where an ultrasonography of the total abdomen was performed, which showed a large liver cyst and cholelithiasis. With the worsening of symptoms, the patient was admitted to an emergency service for diagnostic investigation and therapeutic approach. Any other complaint, as well as comorbidities, allergies or previous surgeries, also denied the use of continuous medications, smoking and social drinkers. She reported irregular eating habits, with an excess of complex carbohydrates and saturated fats.

On physical examination, she presented flat abdomen, painful to superficial and deep palpation in the right hypochondrium (RH) and epigastric region, without signs of peritoneal irritation. Also, the patient presented an enlarged liver, palpable at 4/5 cm below the right costal margin.

Laboratory tests were performed. Laboratory analyzes demonstrated the following changes: BT:12.9 BD:11; TGO: 296; GGT: 659; FOSF ALC: 1278. Total abdominal ultrasound showed the presence of a liver cyst (in segments IV-B,V and VI measuring 10.7 cm) and biliary polyp (2.1 cm), confirmed by computed tomography that suggested bile duct (Figure 1).

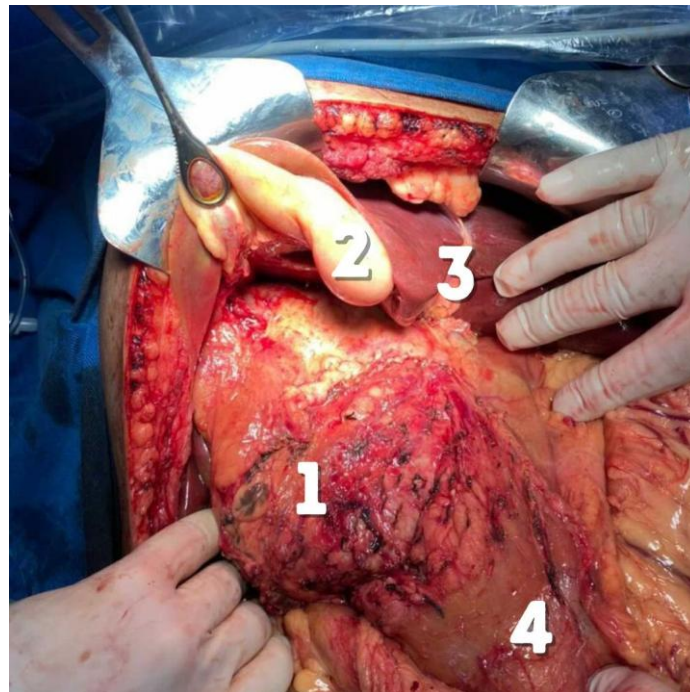
After diagnostic confirmation, pre-operative approval and other routine procedures, surgical intervention for cyst removal was chosen and performed. The surgical procedure started with a right subcostal incision followed by cavity inventory, with dissection and hemostasis adjacent to the dilatation of the common bile duct and hepatic portal vein, for isolation of the cystic duct close to intra hepatic dilatation in the biliary tract (Figure 2).

Followed by fundus-cystic deperitonization of the gallbladder, which did not present changes until reaching the main biliary tract cyst. Subsequently, the identification of the cyst duct was performed and performing a section of the proximal biliary tract with total resection of the bile duct measuring approximately 10X12 cm (Figure 3) together with the gallbladder and then sending the material for histopathology, showing the final appearance after removal of the cyst, before performing a biliodigestive anastomosis (Figure 4). A liver- jejunal biliodigestive anastomosis was also

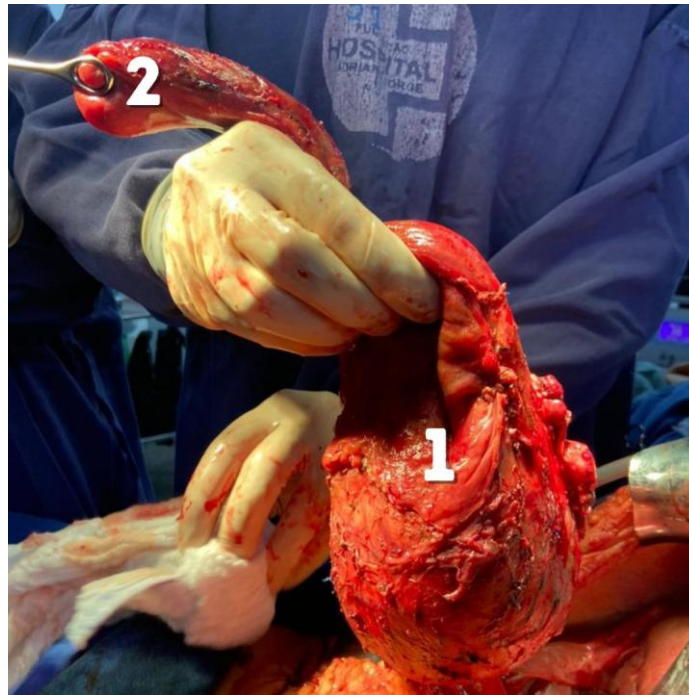
performed, lateral end with Caprofyl 4-0 in continuous Roux-en-Y suture.



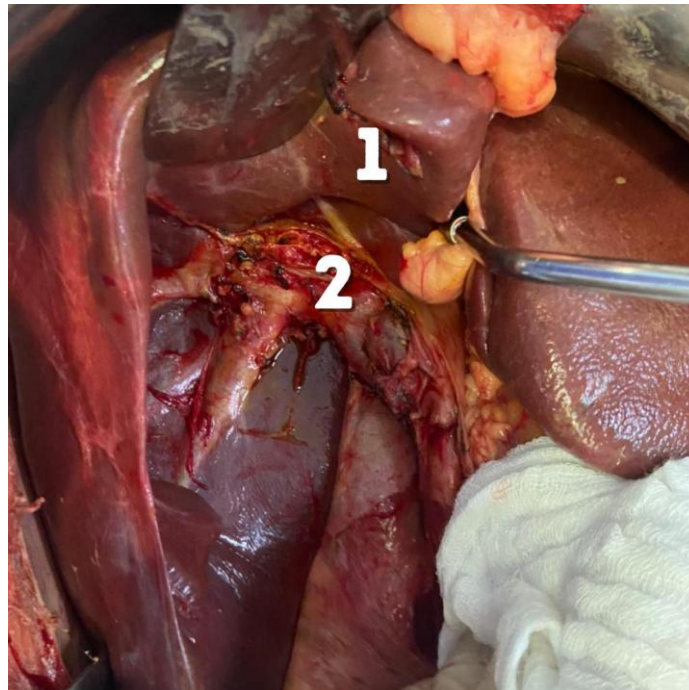
**Figure 1.** Computed Tomography (TC) imaging showing bile duct cyst (Todani type I-A). The Indicator in question shows the cystic lesion in the topography of the Hepatic Ileum in close contact with the Hepatic border.



**Figure 2:** Isolated cystic duct and great dilation of extrahepatic bile ducts. 1-Cist 2- Gall Bladder 3- Liver. 4- Stomach.



**Figure 3.** Cyst dissection after sectioning at the level of the confluence of the hepatic ducts. Total resection of the bile duct measuring approximately 10X12 cm. 1-Cist. 2- Gall Bladder.



**Figure 4:** Final appearance after removal of the cyst, before performing a Biliodigestive anastomosis. 1- Liver. 2- Sectioned Liver Ducts.

## Discussion and Conclusion

The first clinical description of a patient with bile duct cyst was presented in 1852, and the cause of its appearance is still discussed in the literature.

The classic triad of this finding in patients is usually composed of abdominal pain, jaundice and a palpable mass. However, most patients have only one or two of these elements.<sup>3</sup> Biliary cysts can also be found incidentally during imaging exams performed in asymptomatic patients for other reasons that are still unknown [3]. The importance of diagnosing bile duct cysts results from the complications inherent to its evolution: risk of biliary obstruction, cholangitis, malignant degeneration, spontaneous or traumatic rupture of the cyst, progressive biliary cirrhosis and portal hypertension [4].

Biliary cysts are classified according to location, extent, and shape. In 1959, were presented two cases of bile duct cyst, analyzed 94 other patients described in the literature up to that time, proposing the first classification that included only extrahepatic dilations [5]. Later, in 1977, Todani's classification included two new types, its differential being the inclusion of patients with intra-hepatic dilatation. Currently, the most used Todani's classification adopts the characterization by the following types:

- Type I: They are described as cystic or fusiform lesions of the

extrahepatic biliary tree with three subtypes: I-a characterized by a cystic dilatation; I-b focal segmental dilation; I-c fusiform dilation.

- Type II: They are described as a diverticular lesion of the extrahepatic biliary tree.
- Type III: It presents as cystic dilatation of the intraduodenal part of the common bile duct.
- Type IV: divided into IV-a, which presents as multiple intra- and extra-hepatic dilations, and IV-b with multiple extra-hepatic dilations.
- Type V: represents Caroli's disease with multiple dilatation of the intrahepatic bile ducts.

Therefore, after classification, the main diagnostic tool in adults is Computed Tomography (CT). However, Rectograde Endoscopic Cholangiopancreatography (ERCP) and Magnetic Resonance Imaging (MRI) are more accurate. Some authors cite liver and biliary tract ultrasound as an efficient method of choice, as it is a non-invasive test, has a low cost and a sensitivity of 97% [6]. However, the latter is not indicated for choledochal cysts types III and V of Todani, due to the location of these lesions.

In conclusion, type I choledochal cyst, as reported in this case, is a rare disease in adults, despite being the most frequent type in Todani's classification, presenting itself asymptotically or more frequently with nonspecific

symptoms, requiring broad knowledge of the medical team involved. Therapeutic options depend on the classification and with the objective of avoiding complications of pancreatic-biliary reflux. The treatment indicated and most described in the literature is based on the following: resection of the bile duct, followed by Roux-en-Y hepatojejunostomy.

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