



Anatomical variability of the Cystic Duct about two Cases

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ABSTRACT

The aim is to show through two clinical cases an anatomical variability of the cystic duct. The first clinical case of a patient admitted for endoscopic treatment of the main bile duct lithiasis while cholangiography had objectively dilated the cystic duct over its entire length, it was very low implanted in pre-papillary with the presence of a lacunar image evoking a vesicular infundibulum lithiasis. The second clinical case of a patient admitted for endoscopic retrograde cholangio pancreatography and extraction of a millimetric lithiasis of the main biliary tract visualized on the biliary Magnetic Reasoning Imaging, whereas retrograde cholangiography objectified: a thin main biliary tract and a cystic duct measuring 4 mm, long and low implanted with a doubt on a lacunar image. The anatomical variability of the cystic duct is not uncommon, therefore detailed knowledge of all these anatomical variations is essential to avoid iatrogenic lesions of the bile ducts.

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Introduction

The anatomical variability of the cystic duct is frequent and poses a problem for the gastroenterologist in case of suspicion of biliary lithiasis, and for the surgeon during a cholecystectomy. In addition, failure to recognize such abnormalities can lead to iatrogenic lesions of the bile ducts, which in turn are associated with increased morbidity and mortality.

We will present two clinical cases of two patients admitted for endoscopic treatment of main biliary tract lithiasis, and we discover during retrograde cholangiography a long and low implanted cystic.

Observation N° 01

The patient M.R. is 67 years old, without any particular history, who presented two months before the consultation moderate hepatic colic associated with early post-prandial food vomiting rebellious to symptomatic treatments.

The evolution was marked by the installation of cholestatic icterus with dark urine, colored stools and pruritus, all evolving in a context of apyrexia and conservation of the general state.

The clinical examination was strictly normal. The biological assessment showed cytolysis (ALAT at 3×N, ASAT at 1.7×N), and cholestasis (GGT at 2.5×N, PAL at 2×N, Total Bilirubin at 320 mg/l with indirect predominance).

Morphological assessment, including a Bili MRI, showed a dilatation of the intrahepatic bile ducts and the main biliary tract to 16 mm upstream of a lower bile duct lithiasis measuring 14 mm×8 mm (Figure 1), and a thin-walled gallbladder with a lithiasis measuring 13 mm in diameter.

The patient is admitted to the interventional endoscopy unit for endoscopic retrograde cholangio-pancreatography (ERCP) with possible stone extraction.

Endoscopic retrograde cholangiography showed :

-The main bile duct measuring 7mm in diameter.

A dilatation of the cystic duct with a diameter of 14 mm over its entire length, which was very low implanted in the pre-papillary area with a stop image and doubts about the presence of a calculus at the level of its termination.

-A lacunar image was present, suggesting a lithiasis of the vesicular infundibulum.

ERCP was completed by endoscopic biliary sphincterotomy, with catheterization of the cystic duct and macro dilatation of the area of its termination using a 14 mm balloon (Figure 2), allowing expulsion of an 8 mm long axis lithiasis (Figure 3). The procedure was completed with the insertion of a nasal-biliary drain after catheterization of the main bile duct to facilitate its location during the cholecystectomy. The patient underwent laparoscopic cholecystectomy one week later and the follow-up was simple.



Figure 1. (BILI MRI): Showing dilatation of the main bile duct with lower bile duct lithiasis. (First author : MRABTI SAMIR).

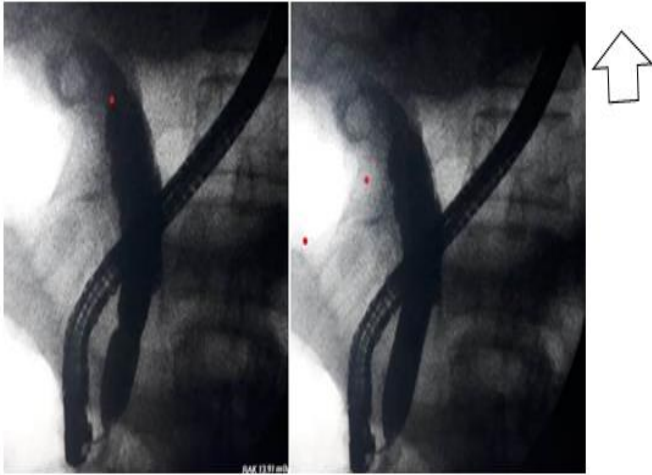


Figure 2. (Retrograde Cholangiography): Catheterization of the cystic duct and macro dilatation of the area where it ends using a 14 mm balloon. (First author : MRABTI SAMIR).

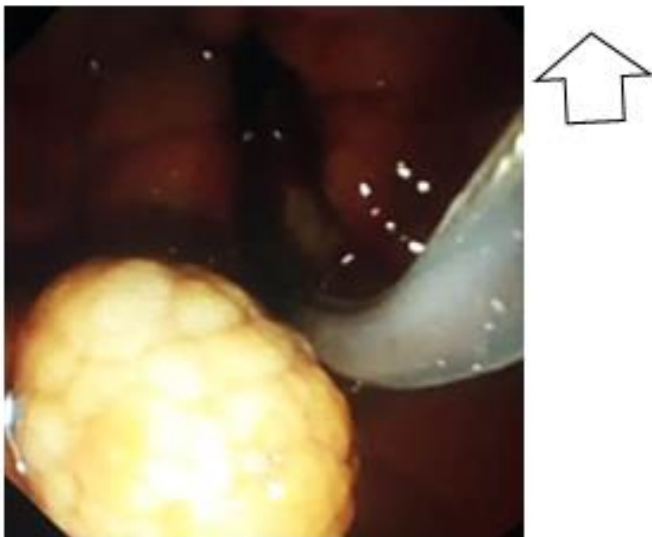


Figure 3. Showing spontaneous expulsion of 8mm lithiasis (First author : MRABTI SAMIR).

Observation N°2

The patient is Mr. E, 68 years of age, hypertensive under well monitored conversion enzyme inhibitor, hysterectomized in 1999, who has been presenting for two months moderate hepatic colic associated with food vomiting without jaundice evolving in a context of apyrexia and conservation of the general state. The objective clinical examination showed a sensitivity of the right hypochondrium.

The biological assessment was strictly normal, except for a slight isolated elevation of GGT (to 1.6×Normal).

Bili MRI showed moderate dilatation of the main bile duct to 10 mm and of the proximal intrahepatic bile ducts, with the presence of a millimetre lithiasis of the lower bile duct. The gallbladder has a sludge with no obvious lithiasis image. The patient was admitted for ERCP for possible stone extraction.

Retrograde cholangiography has objectified :

- A main bile duct measuring 8 mm in diameter
- A cystic duct measuring 4 mm, long and low, implanted with doubt on a lacunar image (Figure 4).

An endoscopic biliary sphincterotomy was performed, the passage of a biliary extraction balloon at the level of the main bile duct and the cystic duct did not bring back any calculus.

The patient was put on antibiotics, she benefited one week after a cholecystectomy; the suites were simple.

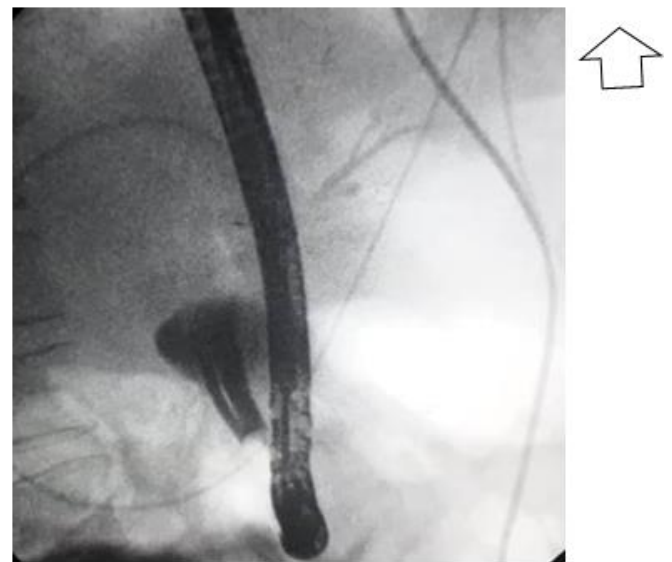


Figure 4. (retrograde cholangiography): VBP and long and low cystic duct implanted. (First author : MRABTI SAMIR).

Discussion

The anatomical variability of the extrahepatic bile ducts is important for both the gastroenterologist and the surgeon to know in order to avoid iatrogenic trauma to the bile ducts [1-2]. The cystic duct is usually 2-4 cm long and contains prominent concentric folds known as Heister's valves. The cystic duct frequently has a tortuous or serpentine course. The normal diameter of the cystic duct is variable, ranging from 1 to 5 mm.

The implantation of the cystic duct is extremely variable [3]. Classically it joins at the level of the common hepatic duct below the upper biliary convergence in 58% to 75% [4-5]. There are three forms of ectopic cystic duct insertion:

- A low cystic duct implanted in 9% of cases.
- A median cystic duct implanted in 10% to 17% of cases.
- Or a long cystic duct that remains parallel to the common hepatic duct in 1.2% to 25% of cases

On the other hand, the complete absence of the cystic duct is very rare. [7]

In the study by Khamiso et al, [8] they found that 4.33% of their patients had a short cystic duct, 2.67% had a long cystic duct and 0.67% had an accessory cystic duct.

In the study of Sah et al, [10] they found 11 patients who had an abnormal cystic duct termination, indeed, 1.49% (n=5) of the patients had a long cystic, 1.2% (n=4) had a short cystic and 0.6% (n=2) had aberrant cystic duct abnormalities. Most cases of short cystic duct were due to severe fibrosis and impaction of a lithiasis at the neck of the inflamed, chronically contracted gallbladder [11].

These anatomical variabilities were revealed in all patients during cholecystectomies, however, in our study we demonstrated a long, low cystic duct implanted during retrograde cholangiography in a patient who is admitted for endoscopic treatment of a biliary lithiasis.

In a study identical to ours, Jung-Ta Kao recruited 3546 patients over a six-year period admitted for management of main bile duct lithiasis, and found that 5.4% of patients had a long, low cystic duct implanted. [12]

Conclusion

The anatomical variability of the cystic ductal termination is not rare. For this reason, detailed knowledge of all these anatomical variations is essential in order to avoid any iatrogenic lesions of the bile ducts.

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