

Transpapillary Cystic Duct: A Rare Novel Genetic Variant

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Introduction

- Pathogenesis of cholecystitis entails blockage of the cystic duct resulting in inflammation up-stream from the site of obstruction.
- Stones are often the cause of this obstruction, and can often enter the bile duct, causing bile duct obstruction.
- Cystic duct often merges with the common hepatic duct in the extrahepatic but non-pancreatic portion.
- We present a case where the patient's cystic duct opened directly at the ampulla.

Case Report

- A 68-year-old female presented to the ED with abdominal pain, nausea, and vomiting.
- Laboratory testing revealed normal AST, ALT, and Alkaline phosphatase. However, elevated bilirubin was noted.
- Ultrasound imaging revealed findings of cholecystitis.
- MRCP (**Figure A**) revealed normal common bile duct, and a dilated cystic duct with a filling defect consistent with a stone. Interestingly, the MRCP also revealed cystic duct insertion close to the ampulla.
- During laparoscopic cholecystectomy, an intraoperative cholangiogram (**Figure B**) with contrast injection into the cystic duct was performed, revealing multiple filling defects in the cystic duct with contrast draining into the small bowel through the papilla.

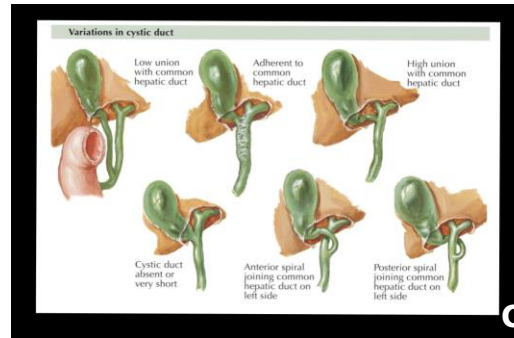
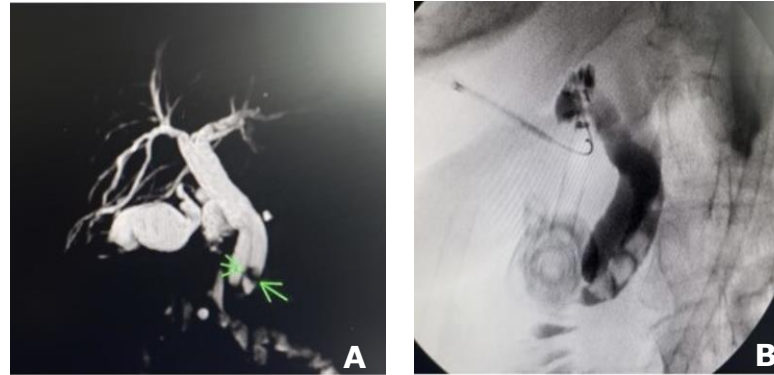


Figure A: MRCP demonstrating a normal common bile duct, a dilated cystic duct with a filling defect consistent with a stone, and cystic duct insertion close to the ampulla.

Figure B: Multiple filling defects in the cystic duct with contrast draining into the small bowel through the papilla seen on intraoperative cholangiogram during laparoscopic cholecystectomy.

Figure C: Known anatomical variations in the cystic duct [1].

Conclusion

- Emphasized within this case report is the importance of recognizing anatomical variants and considering these in the differential to help understand unusual clinical presentations of biliary pathologies.

Case Report (continued)

- ERCP with cholangioscopy confirmed the cystic duct opening into the ampulla.
- Treatment entailed using the spyglass scope to clear the cystic and bile duct.

Discussion

- The treatment for cholecystitis often is a cholecystectomy.
- Typically, the cystic duct take-off arises off the CBD and ampulla of Vater.
- Anatomical variants of the cystic duct take-off are common (**Figure C**). However, a cystic duct opening directly at the ampulla is exceedingly rare, and these patients are susceptible to a complicated cholecystectomy [2].
- Pre-operative imaging, such as MRCPs, and pre-operative procedures, such as ERCPs, can successfully be utilized to identify anatomical variants in unusual clinical presentations of biliary pathologies before surgical intervention.

References

- [1] Netter, F. H. (1972). Variations In Cystic Ducts. In The Ciba Collection of Medical Illustrations - volume 3: Digestive system, part III - liver, biliary tract and pancreas (p. 23). essay, CIBA Pharmaceutical Company.
- [2] Yu, J. J., Morell, M., Lee, J. G., & Imagawa, D. K. (2017). A case report on a rare anatomic variant of cystic duct insertion. *Journal of surgical case reports*, 2017(7), rjx131.