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A case of a right accessory hepatic duct diagnosed during a Whipple procedure

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ABSTRACT

INTRODUCTION: Although anatomic variations of the bile tract are relatively common and can be present in about 28% of patients, existence of an accessory right hepatic duct that confluence on the common bile duct is quite rare.

PRESENTATION OF CASE: We present a rare case of a caucasian 78-years-old patient, with accessory right hepatic duct which was diagnosed intraoperatively. The patient was submitted to Whipple procedure due to a mass in the head of pancreas. Intraoperatively, an accessory right hepatic duct that merged with the common bile duct was found, and a double bilio-intestinal anastomosis was performed.

DISCUSSION: Definition of accessory hepatic duct, requires the existence of a main right hepatic duct, otherwise the definition of “accessory” is inconclusive. In our case the accessory right hepatic duct drained the posterior segments of the right hepatic lobe.

CONCLUSION: A detailed mapping of the biliary tree is essential in patients that will undergo major interventions of the hepatobiliary system. Common and rare variations of the biliary tree should be known prior to any intervention to avoid intraoperative difficulties or complications.

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1. Introduction

Right and left hepatic duct converges at the liver to constitute the common hepatic duct (CHD). The right hepatic duct (RHD) drains the right segment of the liver (V, VI, VII, VIII), while the left hepatic duct (LHD) drains segments II, III and IV that constitute the left liver. Normal constitution of biliary confluence is reported in 72% of patients [1]. Anatomical variations of the intra-hepatic and extra-hepatic biliary tree are common and can be found in almost 28%. We present a rare case of an accessory right posterior sectoral duct that merges into the common bile duct that recognized intraoperatively during a Whipple procedure, found in 16% of patients [2]. This case report is in line with the SCARE criteria [9]

2. Case report

A 78-year-old caucasian male patient presented at the Emergency Department with painless obstructive jaundice. Laboratory blood tests revealed increased values of total bilirubin (14.41 mg/dL), direct bilirubin (10 mg/dL), ALP (397 mg/dL) and γ -GT (1104 mg/dL). The patient submitted for diagnostic reasons to an upper and lower abdominal CT scan. The CT scan revealed a mass in the pancreatic head with mean diameter about 2 cm, dilatation of the main pancreatic duct, and coexisting paraortic and gastroduodenal lymph nodes of 6 mm maximum diameter that were possibly infiltrated (Fig. 1). The clinical, laboratory and imaging findings suggested obstructive jaundice due to pancreatic head tumor and the oncological council decided that Whipple procedure is the most appropriate treatment for the patient. Unfortunately, intraoperatively was found that the mass infiltrated the upper mesenteric artery and the portal vein and couldn't be excised. Therefore, a palliative operation was performed in order to ensure adequate drain of the biliary tree and to prevent future obstruction of the gastrointestinal tract. More specifically a cholecystectomy was performed alongside with a biliary-intestinal anastomosis, and hemigastrectomy with gastrointestinal anastomosis. However, during the biliary-intestinal anastomosis, a right accessory hep-

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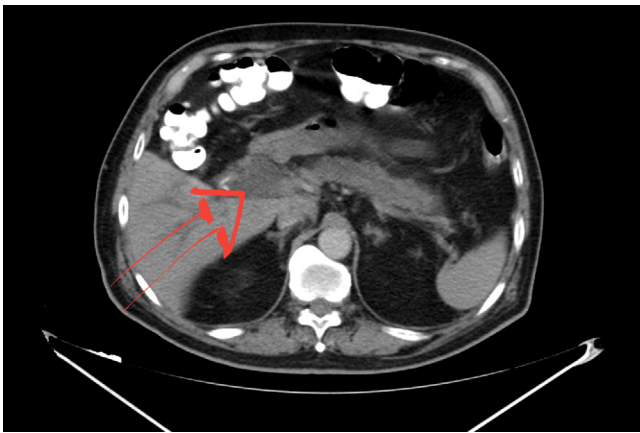


Fig. 1. Preoperative abdominal computed tomography scan (CT). A mass with maximal diameter of 2 cm is present in the head of pancreas (arrow).

atic duct was found which drained posteriorly to the common bile duct, and consequently a double gastrointestinal anastomosis was performed.

The patient's postoperative course was uneventful and he was discharged from the hospital the 7th postoperative day. Two weeks later a magnetic resonance cholangiopancreatography (MRCP) was performed for diagnostic reasons which confirmed the intraoperative diagnosis. MRCP revealed the course of the right accessory hepatic duct and defined that the accessory duct drained the posterior segment of the right lobe (VI, VII) (Fig. 2).

A year after the operation the patient is under chemotherapy without obstruction of the bile tree.

3. Discussion

Definition of an accessory right hepatic duct, requires the existence of a main right hepatic duct, otherwise the definition of "accessory" is inconclusive [3,4]. Searching the relative bibliography in Pubmed and Scopus can confirm that this anatomical variation is quite rare. According to published studies, such as Matsunaga et al. [5], there are four types of right accessory hepatic duct, and our case is described in 5%. Some other authors like Nakamura et al. [6] and Varotti et al. [7], classify six types of anatomical variations, and our case is identified in only 2,6% of the cases. A recent study performed by Ishii et al which evaluates the accessory hepatic ducts preoperatively, proposes a five type classification (I–V) of an accessory hepatic duct. In this study right accessory hepatic duct that drains in the common bile duct anteriorly was found in

only one case (2%) [8]. All the above mentioned data suggest that right accessory hepatic duct is a relatively rare normal variation of the biliary tree, that may possess a significant role during liver interventions.

4. Conclusion

Although some of the variations of the intra- and extra-hepatic biliary system may be relatively rare, in patients that will undergo major interventions in the hepato-biliary-pancreatic region a pre-operative thorough knowledge of the biliary system by MRCP or DIC-CT may prevent intra- or postoperative complications.

Conflict of interest statement

No conflict of interest.

Sources of funding

No sponsors to declare.

Ethical approval

Ethical approval is not needed for this case report as patient consent and we are not trialing a new device.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contributions

- A. Study design/planning: Konstantinos Manesis, Dimitrios N. Kalliouris, Efstathios Nikou.
- B. Data collection/entry: Konstantinos Manesis, Christianna Oikonomou, Petros Bouboulis.
- C. Preparation of manuscript: Konstantinos Manesis, Dimitrios N. Kalliouris.
- D. Literature analysis/search: Konstantinos Manesis, Dimitrios Filippou, Panagiotis Skandalakis.
- E. Funds collection: Konstantinos Manesis.

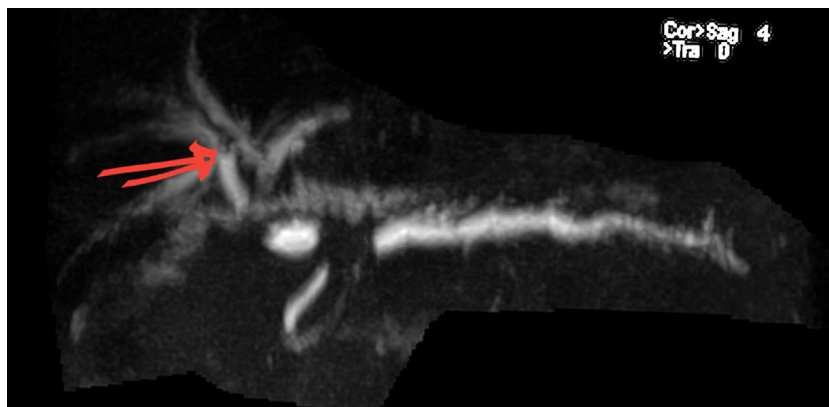


Fig. 2. Postoperative magnetic resonance cholangio-pancreato-graphy scan (MRCP). The right accessory hepatic duct (arrow) drains the anterior segment of the right hepatic lobe.

Registration of research studies

N/A.

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