

## 258. ANATOMICAL VARIABILITY OF THE EXTRAHEPATIC BILE DUCTS

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**Introduction.** The extrahepatic bile ducts comprise a canalicular system made up of the common hepatic bile duct, cystic duct and the common bile duct (CBD). The cystic duct may be variable in length and usually join the common hepatic bile duct to form CBD, which passes between the layers of the inferior portion of the hepatoduodenal ligament anteriorly to the portal vein and on the right side of the hepatic artery. CBD is directed inferoposteriorly towards the descending part of the duodenum, where it lodges the pancreatic groove, often covered by a thin layer of pancreas, and finally, it penetrates duodenal wall and either alone, or after joining the main pancreatic duct it opens at the level of the greater duodenal papilla. The main arteries that supply the CBD are branches of the gastroduodenal and the right hepatic arteries. This arterial anatomy is clinically relevant in iatrogenic CBD injury, as compromise of this vascular network can lead to stenosis. Several classifications have been proposed for anatomical variations of the biliary tree. In 1996 Huang et al. proposed a classification based on the right posterior hepatic bile duct insertion and it is primarily used for living donors in liver transplantation. Huang classification includes five groups starting with A1 as the most common and ending with A5 as the least common types.

**Aim of the study.** Analysis of the anatomical variation of the biliary system

**Materials and methods.** This study is based on a references review accessed from PubMed, NCBI, Research Gate and Academia.edu databases.

**Results.** Five anatomical variants of the biliary tree were classified by Huang. Type A1 (right-dominant): the right posterior duct drains into the right anterior hepatic ducts and joins the left hepatic duct to form the common hepatic duct (CHD). Huang type A2 (trifurcation): the right posterior hepatic duct, right anterior hepatic ducts and left hepatic duct join each other in a trifurcation and form CHD. Huang type A3 (left dominant): the right posterior hepatic duct drains into the left hepatic duct and then joins the right anterior hepatic duct to form CHD. Huang type A4 (aberrant right): the right anterior hepatic duct drains into the left hepatic duct and then joins the right posterior hepatic duct to form CHD. Huang type A5 (aberrant right): the right anterior hepatic duct drains into the left hepatic duct and forms CHD. The study included 362 patients (181 males and 181 females): 163 patients had type A1 (right dominant). The prevalence of A1 (right dominant) was 45%, the most prevalent type among the studied patients. Type A2 Huang (trifurcation) was marked out in 78 patients (21.5%). Type A3 Huang (left dominant) was established in 48 patients (13.3%). Type A4 was pointed out in 13 patients (3.6%). There was no patients categorized as type 5. Non-right dominant anatomy was determined in 55% of patients.

**Conclusions.** The anatomical variation of the biliary system presents a relatively increased incidence. A full understanding of the relationships between these structures is imperative for general and hepatobiliary surgeons.

**Key words:** extrahepatic bile ducts, Huang classification, anatomical variants