

Origin Of Left Accessory Hepatic Artery From The Left Gastric Artery

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Abstract : In recent years there has been an increase in number of transplantation surgeries, especially live donor liver transplantation in the western countries. So, anatomical variations of Hepatobiliary vessels gained special attention from anatomists, Gastroenterological surgeons and Interventional radiologists. We report a case of the accessory hepatic artery that arise from the left gastric artery, entered the liver at an independent site from the portahepatis to supply the left lobe of the liver. Transplantation of such livers with multi vascular pedicles may pose a challenge during anastomosis of these accessory hepatic arteries of the donor liver to the nearby arteries of the recipient.[Chudhari ML et al NJIRM 2013; 4(2) : 173-174]

Key Words: Hepatic artery; Liver transplantation; Hepatobiliary surgeries; Multivascular pedicles

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Introduction: Common hepatic artery is a branch from the celiac trunk of the abdominal aorta. After the origin, common hepatic artery passes laterally to reach the upper surface of the first part of the duodenum, where it divides into gastroduodenal artery and hepatic artery proper. The hepatic artery proper ascends upwards in the right free margin of lesser omentum, anterior to the portal vein but medial to the bile duct. After reaching the portal hepatis the hepatic artery proper divides into right and left hepatic arteries, which supply the physiological right and left lobes of the Liver¹. Accessory hepatic arteries present potential bleeding risks during Hepatobiliary surgeries and complicate liver transplantation procedures. Therefore, it is important to take note of aberrant arteries to increase the success rates of safe Hepatobiliary surgeries.

Case Report : During the regular dissection classes for first year medical students of Gujarat Adani Institute of Medical Sciences Bhuj, an embalmed female cadaver of 70 years old showed a variation in the hepato biliary vasculature. The dissection was carried out according to the instructions of Cunningham's manual of practical anatomy². Photographs were taken after complete dissection with a high resolution camera. The celiac trunk origin was normal; it gives left gastric artery, splenic artery and common hepatic artery. An accessory branch arises from the left gastric artery and entered the visceral surface of the left lobe of the liver at a site independent from

the portal hepatitis (Fig 1). The common hepatic artery passed laterally to the upper surface of the first part of the duodenum giving rise to the right gastric artery and hepatic artery proper before dividing further laterally into supraduodenal artery and gastroduodenal artery.

Fig 1: AHA-Accesory Hepatic Artery, LGA-Left Gastric Artery,CHA-Common Hepatic Artery. SA-Splenic Artery, CT-Celiac trunk, GDA-Gasroduodenal artery, RHA-Right hepatic artery, LHA-Left hepatic artery, SA-Splenic artery



Discussion: Hepatobiliary variations are of concern to Gastroenterological surgeons and Interventional radiologists. Several types of variations such as an accessory hepatic artery, replaced hepatic arteries and additional branches are the reported anatomic variations of this region. There are also reports of the right

hepatic artery arising from the left gastric artery^{3,4}

An accessory branch arises from the left gastric artery and entered the visceral surface of the left lobe of the liver as a site independent from the portal hepatitis⁵

The left hepatic artery or accessory left hepatic artery may arise from the left gastric artery and since they lie in the lesser omentum, surgeons must be careful while dividing the lesser omentum to reach gastro esophageal junction. The left accessory hepatic artery in the present case is at risk of injury during mobilization of the stomach, as it lies in the lesser omentum¹. However, accessory hepatic artery may also be advantageous in some instances. Due to the proximity of the right hepatic artery to the bile duct, bile duct cancer usually spreads to the right hepatic artery but the further distance between accessory hepatic artery and bile duct implies that these vessels will be spared in cancers of bile duct¹.

The biggest clinical study that was reported by J.R. Hiatt et al⁶. Hepatic artery variation: in our study we find type 2 variation. A replaced or accessory left hepatic artery arises from the left gastric artery.

The presence of the accessory hepatic arteries further poses complications in the transarterial chemoembolization procedure for patients with hepatocellular carcinoma⁷.

Furthermore, accessory hepatic arteries provide collateral circulation in case of thrombosis of the main hepatic artery.

Conclusion: The left gastric artery can provide accessory arteries that may be an important source of blood supply to the left lobe of the liver. These variations present as potential bleeders during Hepatobiliary surgeries and liver transplantation procedures.

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Conflict of interest: None

Funding: None
