

*Abstract*

# Evaluation of Anatomical Variations of the Common Hepatic Arteries Using Multidetector Computer Tomography (MDCT) Angiography: Clinical Implications in Abdominal Surgical Planning

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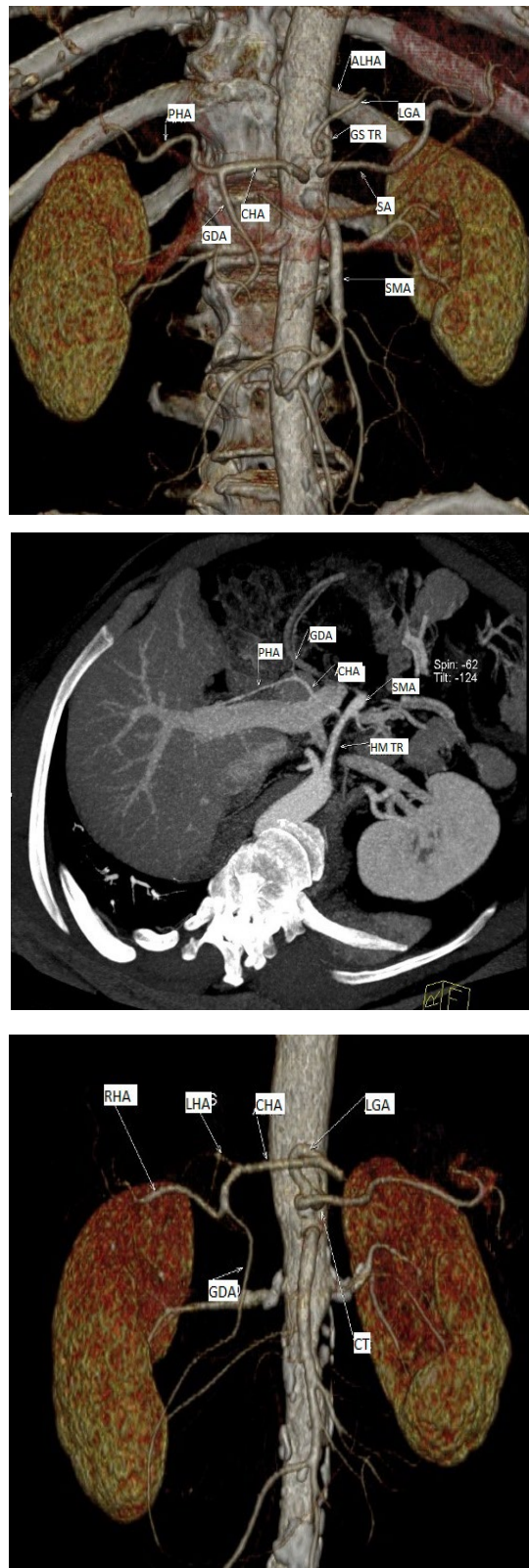
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**Abstract: Introduction:** The aim of this study was to evaluate the prevalence of normal hepatic vascularization and variations in the common hepatic arteries using Multidetector Computed Tomography Angiography (MDCT). These anatomical variations are critical for planning surgical interventions in the upper abdomen, particularly in procedures involving the liver and pancreas. **Materials and Methods:** The study was conducted over a six-year period and included 4,192 patients who underwent MDCT angiography. Selected patients had no history of abdominal organ pathology or vascular anomalies in the supramesocolic compartment. MDCT angiography was performed using a 64-slice system, employing various imaging techniques to visualize the hepatic arteries. **Results:** Out of the 4,192 cases, 800 patients exhibited variations in hepatic arterial anatomy, and 76 cases were identified as having a replaced common hepatic artery (RCHA). These variations were classified based on their origin from the abdominal aorta, the superior mesenteric artery, or the left gastric artery. The study highlighted the importance of recognizing these variations, especially in the surgical context, as they can significantly influence surgical outcomes and the preservation of vascular integrity. **Conclusions:** This large-scale study demonstrates that deviations from the standard anatomy of the hepatic arteries are not uncommon and have significant clinical implications, especially in surgical procedures involving the liver and pancreas. The findings emphasize the need for thorough preoperative imaging to identify these variations, thereby reducing the risk of complications and improving patient outcomes.

**Keywords:** anatomical variations; common hepatic arteries; MDCT

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**Figure 1.** The origin levels of replaced common hepatic arteries. The origin of the replaced common hepatic arteries from: A - the abdominal portion of the aorta; B - the superior mesenteric artery; C - the left gastric artery. Personal case series.