



# Author's Reply: Pure Laparoscopic Hepatectomy for Tumors Close to the Major Hepatic Veins: Intraparenchymal Identification of the Major Hepatic Veins using the Ventral Approach

Ji Hoon Kim<sup>1,2</sup>

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We appreciate the informative comments by Koichiro Haruki and colleagues on our article “Pure Laparoscopic Hepatectomy for Tumors Close to the Major Hepatic Veins: Intraparenchymal Identification of the Major Hepatic Veins using the Ventral Approach.”

Their discussion emphasizes our ventral approach to the major hepatic veins (HVs) compared to the dorsal approach in left hemihepatectomy and caudate lobe first approach in right posterior sectionectomy [1–4].

A significant advantage of the dorsal approach in left hemihepatectomy and caudate lobe first approach in right posterior sectionectomy is the early identification of the major HVs following exposure of the major HVs during parenchymal transection [3, 4]. These surgical techniques are well suited to expose the major HVs using the unique laparoscopic caudodorsal view.

Furthermore, these approaches avoid split injuries of major HVs due to exposure of the major HVs from the root side to the peripheral side [3, 4].

Nonetheless, these approaches have certain drawbacks. First, it may be difficult to distinguish between the major HVs and other hepatic veins, e.g., the middle hepatic vein and the umbilical fissure vein in left hepatectomy.

Second, when the tumor is exophytic and large, these approaches have a risk of tumor spillage and rupture because these approaches require flipping the left or right lobes of the liver.

Finally, when a tumor is in close anatomical proximity to the major HVs, it is difficult to determine the surgical relationship between the tumor and major HVs using laparoscopic ultrasound which is viewed from the dorsal side of the liver. Laparoscopic ultrasound viewed from the ventral side of the liver is preferred to evaluate the relationship between the tumor and the major HVs.

The improved knowledge and informed choice of suitable surgical approaches may lead to improved surgical outcomes. More robust evidence is needed to determine the optimal surgical approach in various clinical scenarios and ultimately improve patient care [5].

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**Declarations**

**Conflict of interest** Ji Hoon Kim declares no competing interests.

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✉ Ji Hoon Kim  
asist10@hanmail.net

<sup>1</sup> Center for Liver and Pancreatobiliary Cancer, National Cancer Center, 323 Ilsan-ro, Ilsandonggu, Goyang-si, Gyeonggi-do 10408, Republic of Korea

<sup>2</sup> Department of Surgery, Eulji University College of Medicine, Daejeon, Republic of Korea