



## Important Anatomic Variations of Liver for Surgical Resection

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Surgical resection is one of the most effective treatments for HCC. Anatomical resection is usually suggested for better curability and outcome. According to the unique liver anatomy and location of HCC, anatomic resection is not feasible all the time and atypical resection is then suggested.

To achieve an anatomic resection of the liver, detailed knowledge of the liver anatomy is necessary. With the aid of CT scan and MRI, the liver anatomy can be studied non-invasively in detail for almost every patient. Although there are many anatomical variations of the hepatic artery, portal vein, hepatic vein, and biliary system, however, most of the variations do not affect the decision of an anatomic resection of HCC. The only one important principle to decide whether anatomic resection is feasible is the existence of independency of anatomic structure of the liver unit, such as right and left lobe of the liver, to be resected. If the blood supply, blood drainage and bile drainage can be sacrificed without affecting the other parts of liver, then anatomic resection can be performed. In the other way, if the sacrifice of blood supply or drainage of one unit of liver compromised the viability of the other parts of liver, then it is not suitable for an anatomic resection. Such important variations include: (1) right anterior sector vessels come from left liver; (2) drainage of right posterior or anterior bile duct into left CHD; (3) separated venous drainage of segment 78 from segment 56, etc..

Though at most of the time, anatomic variations do not affect the decision of a HCC resection. However, catastrophic result may happen if such a significant variation is ignored. Such liver anatomic variation is even more significant in live donor liver surgery. So, for every patient, it is important to evaluate the liver anatomy before the operation is planned.