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Regenerative Liver Surgery - ALPPS and Associated Techniques

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Abstract
Hepatectomy is the only potentially curative treatment of hepatic tumors, but remains challenging in case of multiple, bilobar lesions and those located in the vicinity of the hepatic hilum and hepatic veins. Regenerative liver surgery utilizes the unique ability of the liver to re-grow after tissue loss and vascular deprivation. All concepts subsumed under this term aim to increase the resectability of hepatic tumors by stimulating growth of future liver remnant. Many of these techniques have evolved over the last decades. ALPPS (associated liver partition and portal vein ligation for staged hepatectomy) is an advanced technique combining portal vein ligation and parenchymal transection which gave rise to many variants, all with the common goal of extending resectability. This article reviews techniques currently available for regenerative liver surgery focusing on ALPPS, its mechanisms of liver regeneration, indications, advantages, drawbacks, results and future perspectives.
Key words: regenerative liver surgery, ALPPS, colorectal liver metastases, hepatocellular carcinoma, cholangio-carcinoma