Advanced Liver Resection

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Extended hemihepatectomy has become a standard procedure which can be performed with minimal mortality in patients with normal livers in centers with experience in hepatic surgery. At the same time, more patients with complex tumors, extensive tumor load or with highly compromised livers are considered for resection since radical excision offers the only hope for cure. Resection in these patients is a challenge and requires special skills and experience of all specialties involved. Owing to improvements in surgical techniques and in management of patients undergoing extensive liver resection, complex resections are currently undertaken safely.

New strategies such as cooling the liver with in situ or extracorporeal resection enable us to deal with the most difficult liver tumors. Especially tumors invading the origin of the hepatic veins at the level of the suprahepatic vena cava require complete disconnection of the liver from the vena cava. With the ante situm liver resection technique, the suprahepatic vena cava is clamped and cut, allowing the liver to be mobilized anteriorly out of the abdomen without dividing the structures in the hepatoduodenal ligament. Alternatively, for tumors infiltrating the middle hepatic vein at the hepatocaval confluence, a mini-mesohepatectomy provides a parenchyma-sparing mode of 'en bloc' resection.

Neoadjuvant chemotherapy regimens have become increasingly effective in downsizing liver tumors; however, a dilemma is how to deal with metastases that have vanished after chemotherapy. Treatment with intra-arte-

rial chemotherapy using oxaliplatin has led to improved survival in patients in whom missing metastases were not removed. The two-stage liver resection procedure in combination with portal vein embolization or ligation is a useful strategy to treat multiple, bilobar colorectal liver metastases. The combination of resection with local ablative procedures has also expanded the criteria for resection of liver tumors and is now accepted therapy in patients who otherwise are considered unresectable.

Laparoscopic liver resections are increasingly used, also for malignant tumors. In patients with liver cirrhosis and HCC, long-term outcomes of the laparoscopic approach have shown to be comparable with conventional open approach. For hilar cholangiocarcinoma, R0 resection is the most important prognostic factor for survival; however, it requires extended resections with considerable morbidity and mortality. Strategies to reduce the extent of parenchymal resection decrease the risk of postresectional liver failure. Gallbladder carcinoma also requires advanced liver resection. The type of resection depends on involvement of the hilar area or the hepatic bed and may include part of the duodenum or the transverse colon.

These topics have been dealt with during a symposium held in Amsterdam on March 5, 2010. We are very pleased that most of the speakers who joined this symposium have contributed to this special issue dealing with advanced techniques of liver resection.