Liver surgery: Take-home points for the general surgeon

MOREL, Philippe, MAJNO, Pietro


Available at:
http://archive-ouverte.unige.ch/unige:35076

Disclaimer: layout of this document may differ from the published version.
Abstracts and Congress Topics

5. Gemeinsamer Jahreskongress der Schweizerischen Gesellschaft für Chirurgie und der Schweizerischen Gesellschaft für Thorax-, Herz- und Gefässchirurgie
Jahrestagung der Schweizerischen Gesellschaft für Senologie


5e congrès annuel commun de la Société Suisse de Chirurgie et de la Société Suisse de Chirurgie Thoracique et Cardio-Vasculaire
Congrès annuel de la Société Suisse de Sénologie

swiss knife 2007; special edition
Liver surgery: Take-home points for the General Surgeon

Philippe Morel, philippe.morel@hcuge.ch
Pietro Majno, pietro.majno@hcuge.ch

The management of patients with liver cancer, after becoming a recognized speciality, has now moved to the era of a compulsory multidisciplinary approach: no patient should be considered incurable or unresectable until assessed by a specialized team.

Liver resections
Mortality has decreased to less than 1%, and complete removal of all known disease can be obtained even in patients with advanced tumours. Anatomical structures such as the hepatic veins and small bile ducts, once forbidden, are now accessible for resections and reconstructions thanks to the techniques used in segmental liver transplantation, and the almost bloodless field offered by controlled central venous pressure anaesthesia and ultrasonic scalpels.

The present limitations are the small volume of the residual liver (a risk zone is reached when the remnant represents less than 30%-35% of the total functional liver mass), a diminished hepatic functional reserve, such as in patients with cirrhosis, steatosis or chemotherapy-induced parenchymal changes, and the foreseeable need for repeat resections in patients with advanced disease. These limits can be overcome by strategies promoting the preoperative hypertrophy of the future liver remnant, (pro-generative techniques such as portal vein embolisation, or two-step hepatic resections), its intraoperative protection, and parenchymal-sparing, ultrasound guided, radical hepatic resections.

The roles of chemotherapy and of radiology
Chemotherapies of colorectal liver metastases can now reach response rates up to 80% thanks to new molecules, such as irinotecan, oxaliplatin and monoclonal antibodies. Very effective, albeit unconventional, strategies such as upfront neoadjuvant systemic treatment followed by liver resections and by resection of the colorectal primary last, allow curative operations in patients with synchronous metastases previously considered only for palliative care.

The disadvantages of such treatments, besides chemotherapy induced liver changes, are the risk that the smaller lesions can no longer be localized and excised (remaining as foci of persistent disease) and the impaired healing and regeneration associated to some treatments. Therefore, a „window of resectability”, when chemotherapy has to be interrupted and surgery performed at the point of the maximum overall gain, has to be identified from start, and its opening has to be closely monitored. This adds a new dimension of complexity in the planning of the resection.

Imaging techniques are evolving rapidly, and MRI with ferromagnetic agents for hepatocellular carcinoma, and MRI with hepato-specific agents and PET CT for colorectal metastases have become indispensable. On the diagnostic side, mapping of the disease from the time of presentation has to be obtained with sophisticated and consistent imaging, and must serve as the basis to plan the liver resection. On the interventional side, portal vein embolisation is used to hypertrophy the future remnant liver, and percutaneous ablation techniques can be used to control the growth of ipsilateral lesions and to tag metastases at risk of disappearing with neoadjuvant treatments.

New technologies
Wide resections, sacrificing vascular territories for the sake of surgical simplicity, can no longer be admitted in an era of patients with more severe disease coming to surgery, and of more frequent need of repeat hepatectomies. More accurate vascular mapping can be obtained with three-dimensional reconstructions and segmentation techniques. Augmented reality and virtual surgery approaches, integrated to robotic-assisted resection in the near future, offer a new tool to meet the challenges of modern liver surgery.