Methods of parenchymal liver resection

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The continuing evolution of a variety of laparoscopic instrument and device has been gradually applied to the laparoscopic hepatectomy in many countries. Recent experience has persuaded us that there are great potential benefits derived from laparoscopic hepatectomy and much has been learned about patient selection, the grade of surgical difficulty with respect to tumor location, and the required instrumentation. Among these efforts, various ways of hepatic parenchymal transection with mechanical devices have been attempted and continuing to innovate to perform safe laparoscopic hepatectomy important technologic developments and improved endoscopic procedures are being established equipment modifications. For safe laparoscopic hepatectomy, it is important to have all necessary equipment. The intraoperative laparoscopic ultrasonography, ultrasonic dissection, laparoscopic coagulation shears, endolinear staplers, bipolar sealing device and saline enhanced monopolar sealer are essential. Once resection is started from the liver surface, exposed small vessels and biliary structure less than 2mm in diameter are coagulated with laparoscopic coagulating shears or ultrasonic surgical system. In cirrhotic patient, the use of combination microwave or radiofrequency ablation (pre-coagulation) with laparoscopic coagulating shears obtains satisfactory hemostasis during liver parenchymal transection. However, deep layer liver transection should be carefully done by ultrasonic dissection, crush clamping method with recent developed bipolar sealing device. Finally the large vessels should be transected by clipping or stapling devise. Recent advance technology and technique made feasible and safe to perform TAH and it can be increase TAH clinical cases in any type operation and different location of liver resection although critical determinant for success and safe laparoscopic hepatectomy is through familiarity with the relevant laparoscopic instruments and equipments. Laparoscopic hepatectomy is expected to develop further as a new surgical instrument, equipment and method, which improves patients' quality of life.