

Can Laparoscopic Major Liver Resection Be Generalized?

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Recently the indications and application of LLR have been changed a lot since its introduction. In early stage, only tumorectomy was possible, and major liver resection, such as right and left hepatectomy, has been challenging procedures. With encouraging post-operative outcomes after LLR, there have been pioneering attempts to apply this procedure to more difficult cases. Therefore, LLR including major resection is more frequently performed recently. Previous limitation of laparoscopic approach to posterior and superior parts of the liver has been overcome with recent accumulation of experiences as well. Liver resection in the vicinity of major vascular structures, such as the hilum, major hepatic veins and IVC, is still not indicated in laparoscopic procedure. However, with the accumulation of the experiences, a dozen of cases, which are close to major vessel have been performed with laparoscopic liver resection. When we perform liver parenchymal resection close to major vascular structures, there is high risk of injury to these vessels, which may cause massive bleeding, even in open surgery. Laparoscopic surgery has similar risks of unwanted mishaps as in open surgery and furthermore control of bleeding is more difficult due to limitation of freedom which is inherent in laparoscopic procedure.

To minimize unwanted bleeding is performing anatomical liver resection as possible. In anatomical liver resection, the liver parenchyma is straightly transected under the guidance of the ischemia line after selective ligation of a portal pedicle supplying the section or segment where the tumor is located. In several series, anatomical liver resection has been shown to be more advantageous in performing parenchymal transection

and reducing bleeding. In addition, it has theoretical advantages of high survival outcomes after resection of HCC by eradicating all portion of liver supplied by portal pedicles. However, anatomical liver resection except left lateral sectionectomy still remains difficult to perform with laparoscopic procedure. Laparoscopic CUSA is useful in detecting important anatomical structures and decreasing the risk of injury to these structures that is more likely to occur after blind application of ultrasonic shears. In conclusion, the limitation of LLR will be overcome if advanced techniques of LLR will be more widely applicable and more experiences will accumulate.

References

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