Laparoscopic Right Hepatectomy : Surgical Strategy

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Laparoscopic hepatic resection is increasing in number and has led to major anatomical hepatectomy with benefits of minimally invasive surgery. Especially anatomic laparoscopic right hepatectomy is a reluctant operation because of technical difficulties in handling the liver and intraoperative bleeding. Intraoperative bleeding occurs during parenchymal transection, so before parenchymal transection we use an ***extrahepatic Glisson approach*** for inflow control and a ***Hanging maneuver*** for outflow control and guideline of resection.

Let me introduce our procedure.

1. First, Hanging maneuver ; (1) After dissection of the falciform ligament, we exposure the groove between the middle and right hepatic vein (2) After the blunt dissection of the anterior surface of the infrahepatic IVC, we create the space between the anterior surface of the vena cava and the posterior surface of the liver. (3) We placed a cotton tape through the space using Golden-finger dissector for a hanging maneuver.
2. Second, extrahepatic Glisson approach ; (1) After the cholecystectomy, we expose the hepaticoduodenal ligament and the hilar plate was detached downward from the liver parenchyma using blunt dissection with a suction tip (2) We dissected the peritoneum posterior to the right portal pedicle and isolated the right portal pedicle with the cotton tape using Golden-finger dissector similar to the open technique. After the complete isolation of the right portal pedicle we ligated the right portal pedicle using ENDO-GIA (Gold cartilage).
3. We identified resection line along the demarcation line and marked with electro-cautery. Traction suture using rubber band was placed left liver.
4. Liver parenchymal dissection was continued along the demarcation line using the hanging maneuver. Peripheral parenchymal dissection was performed harmonic scalpel and deep portion was dissected with CUSA. Especially during the deep parenchymal dissection of the liver, the bleeding from hepatic veins drain from the middle hepatic vein was reduced using the traction of the cotton tape to the left side. Isolated hepatic veins drain from the middle hepatic vein were ligated with Hem-o-lok and clips.
5. After complete parenchymal transection, the IVC and a short hepatic veins were dissected from the right liver and the right hepatic vein was isolated and divided using ENDO-GIA (white cartilage)
6. The ligaments attached right liver were dissected and small bleeding from cut surface of the left liver was controlled using cautery and fibrin glues and the specimen was retrieved through extended umbilical port incision or Pfannenstiel incision

Reference

1. David A. Geller, MD. The Hanging Maneuver Facilitates Laparoscopic Right Hepatectomy. Ann Surg Oncol (2014) 21:3717–3718
2. M. A. Machado • R. C. Surjan • F. F. Makdissi. Intrahepatic Glissonian approach for pure laparoscopic right hemihepatectomy. Surg Endosc (2011) 25:3930–3933
3. Ying-Jun Chen, Zuo-Jun Zhen, Huan-Wei Chen, et al. Laparoscopic liver resection under hemihepatic vascular inflow occlusion using the lowering of hilar plate approach. Hepatobiliary Pancreat Dis Int. 2014 Oct;13(5):508-12.