

Submission No.: PG01-5365

Session : Postgraduate Course 1 (Liver)

Date & Time, Place : November 17 (Thu), 08:30-10:00, Room 3F-1

Session Title : Living donor Hepatectomy (Video session)

Right Lobe Graft (Robot)

Gi Hong Choi

Severance Hospital, Yonsei University, Republic of Korea

In this lecture, I'd like to introduce operative techniques of robotic donor right hepatectomy. The donor is positioned supine with 15 degree reverse Trendelenburg. A total of 5 trocars were used: one 12-mm trocar was placed on the right side of the umbilicus for the camera; a second 12-mm trocar was placed at a supraumbilical location as an assistant port; and three 8-mm trocars were placed at the right flank, left side of the umbilicus, and left flank area. When the Xi system is used, the camera port is changed from 12mm to 8mm port. The operation started with dissection from the falciform ligament to the suprahepatic inferior vena cava (IVC). After cholecystectomy, the right hilum is exposed by the upward traction of the cystic stump using Cardiere forceps, which can facilitate safe dissection of all kinds of vascular structures for right graft. The right hepatic artery and the right portal vein are encircled with a vessel loop, respectively. The division line of the right portal vein, just the right side of the portal bifurcation is marked using a prolene suture. Because the portal bifurcation anatomy is gone after the division of the bile duct, two large hem-o-loks are applied just right side of this marking, which can effectively prevent the stenosis of the donor left portal vein. After the safe dissection of the right hilum, the right liver starts to be mobilized. Cardiere forceps mounted on the third arm tracts the right liver upwardly by a step-by-step manner, which can make the right liver effectively mobilized and make a stable working space at the posterior side of the right liver. Initially, the right liver was fully mobilized and the IVC was also dissected as much as possible during the mobilization. The IVC ligament was ligated and divided at this stage. In addition, hanging maneuver was applied using a home-made device. A short catheter was placed between the RHV and MHV and Hanging maneuver was made, which facilitated transecting the caudate lobe. However, the classic approach was very challenging in donors with either a large graft or adhesion between the liver and the adrenal gland. Sometimes, the long-standing traction by Cardiere forceps made focal ischemic area or hematoma at the graft. Therefore, the techniques for liver mobilization was changed and the standardized procedures are as follows. The right liver is mobilized as much as possible, not completely. During the mobilization, the IVC is not dissected except the inferior portion. The IVC is dissected with an anterior approach after the completion of parenchymal transection. The right hepatic vein and then the IVC ligament are divided using a vascular stapler at the final stage of the operation. The

ATW 2022

Nov. 17^(Thu)~19^(Sat), 2022

CONRAD SEOUL, Seoul, Korea

remaining attached coronary ligament is divided. The parenchymal transection is the most challenging procedure because the robotic systems has limited instruments. In our experience, parenchymal transection is the time consuming procedure and needs a steep learning curve. For safe parenchymal transection, we developed the rubber band traction method. ICG segmentation technique also can guide the exact anatomic plane during parenchymal transection. Harmonic scalpel on the left hand and endo-wristed Maryland bipolar forceps are used for parenchymal transection. During the initial stage, the rubber band can make an optimal tension for transection. But, Cardiere forceps on the third arm should be used to make an effective exposure and optimal tension. During parenchymal transection, V5 and V8 are ligated using a medium or large sized hem-o-lok clips. Before transecting the caudate lobe, the right bile duct and the hilar plate is ligated using a large hem-o-lok clip under the guidance of ICG cholangiogram and divided. The stump of the right bile duct is reinforced using a prolene running suture. The caudate lobe and IVC are transected and dissected using endo-wrist Maryland bipolar forceps. After the complete transection of the liver parenchyma, the graft is placed into a plastic bag through the umbilical port. The pfannenstiel incision is made with the peritoneum intact. The hepatic artery and the right portal vein are divided after the ligation with a medium or large hem-o-lok clips. The right hepatic vein and the ICV ligament are divided using a vascular stapler. The graft is retrieved through the pre-made pfannenstiel incision. The bleeding is completely controlled and a fibrin glue is applied on the surgical field. The falciform ligament is repaired by a few sutures. A drain is inserted through the port side at the right upper quadrant.