

Right Sided Donor Hepatectomy – How I Do It

Samsung Medical Center, Sungkyunkwan University

Choon Hyuck David Kwon

The two main key principles I consider in donor hepatectomies, whether in right livers or left, are 1) the safety of the donor and 2) do less harm to the donor. Due to the first reason, although laparoscopic has a minimal incision and thus concurs with the second principle, I do not consider laparoscopic liver resection for right side, since to my belief, it bears an increased risk when using laparoscopic approach, thus resulting in a more invasive procedure to the donor. In order to meet both principles, I have routinely adopted minimal incisions for donor hepatectomies since 2 years ago. Here I describe small surgical tips I use to make a minimal incision possible without hampering donor safety.

Incision

About 15 cm sized subcostal was tried during the initial period of the program, but currently, I'm using an upper midline incision of 15~18 cm long. The main reason to this change is the easier accessibility to the right hepatic vein at the end of the parenchymal dissection, which is often the most dangerous step of right hepatectomy, offering an enhanced safety compared to subcostal incision.

Right Side Mobilization

The liver is mobilized in the same fashion as in conventional right hepatectomy for resections in tumors. However because of restricted surgical field with minimal incision, it is crucial to mobilize gently. A malleable deaver retractor is often very helpful in mobilizing the liver step by step. Also, I insert the surgical pad to protect the intestine after completing mobilization since the friction caused by the pad

forces the operator to apply excessive traction or compression to the organ in order to obtain adequate surgical field. A gentle push of the spleen downward helps make space for the left sided liver to be pushed into the left upper quadrant of the liver, a crucial step in obtaining a good field when dissecting near the right side of the IVC.

Liver Resection

Liver resection is done using CUSA with an electrocautery nose cone and a bipolar assisted by the first assistant. I dissect the parenchyma at the exact anatomic transection plane irrespective of the anatomical position of the MHV because I believe that minor biliary leakage comes from not following the exact plane or from a missed caudal branch. For this same reason, although I routinely coagulate most of the small branches that lies in the transection plane, I always ligate small branch when approaching the caudate lobe.

Bile Duct Transection

3D MR cholangiogram and probing usually gives the operator sufficient information as to where to cut exactly. After finishing the parenchymal transection, a long Kelly clamp is inserted underneath the whole remnant Glissonean sheath left over after dissecting the hepatic artery and the portal vein, and probing is done through the cystic duct. When the probe cannot be inserted through the cystic duct, a small 1~2 mm incision is made at the anterior area of the common bile duct 1~2 cm below the bifurcation area. Transection of the bile duct without dissecting the Glissonean sheath offers the best blood circulation to the thin

fragile bile duct, decreasing the possibility of biliary stricture in the recipient. Part of the Glisson is used in the recipient when anastomosing the bile duct. The bleeding cut surface of the Glisson sheath is controlled using continuous or interrupted prolene 6-0 sutures.

Donor hepatectomy requires the utmost surgical technique to prevent any possible mishaps. It is the surgeon's responsibility to offer the donor the safest and least invasive surgical technique possible and I believe that an upper midline minimal incision offers both.