



Submission No.: PG03-9412

Session : Postgraduate Course 3 (Liver)

Date & Time, Place : November 16 (Thu), 10:30-12:00, Room 3F-1

Session Title : How do I do(Lap/Robotic RL): Parenchymal division & BD division

Parenchymal transection and bile duct division in laparoscopic right liver lobe operation

Alfred Wei Chieh Kow

Yong Loo Lin School of Medicine, National University of Singapore, Singapore

Living donor liver transplantation (LDLT) has become the standard of care for patients needing liver transplant as a treatment, especially in certain geographies where there is severe shortage of deceased organ donation. Open donor hepatectomy is generally considered the standard approach as it has been shown to provide the best safety profile. While an expert consensus statement recommended that laparoscopic left lateral sectionectomy be the standard approach for paediatric LDLT, laparoscopic right lobe liver donor surgery is still considered experimental. It is one of the most technically challenging procedures in liver surgery and the standard ways of performing this surgery safely in a living donor liver transplantation is still being explored. The procedure requires meticulous care in preserving all the inflow and outflow structures to ensure that the graft is transplantable after it has been taken out from the donor, while ensuring that the future liver remnant of the donor remains intact and functional optimally. This is all performed in the confined space of the right upper abdominal cavity during laparoscopic right liver lobe harvesting. In this talk, the focus of the presentation will be on parenchymal transection and bile duct division. Upon complete mobilization of the right liver lobe and careful dissection and preservation of the right inflow structures (namely the right hepatic artery and right portal vein), liver parenchymal transection can be performed. I routinely used temporary clamp and negative ICG staining techniques to determine the ischaemic line to guide parenchymal transection. IOUS can also be used to locate the course of the middle hepatic vein. I routinely used laparoscopic CUSA to perform the parenchymal division, sometimes complemented by laparoscopic energy devices such as Harmonic or Ligasure. It is crucial to follow the course of MHV and stay on the right of the MHV throughout. At least two-third of the distance of the MHV must be cleared before the bile duct can be isolated safely, in order to reduce risk of injuring the posterior aspect of the MHV near to the hilum. In the course, segment V vein(s) must be isolated, clipped and divided. Haemostasis is crucial at all steps of this operation. This can be achieved by monopolar diathermy on the CUSA device, or bipolar device can also be deployed. In addition, one can also consider the Pringle's manoeuvre to intermittently control the inflow blood supply to reduce blood loss during this surgery. After transecting part of the caudate lobe on the right of the right inflow pedicles, a

Asian Transplantation Week 2023



Nov. 15^(Wed) ~ 18^(Sat), 2023

Conrad Seoul, Korea



blunt tip instrument can be used to sling up the right bile duct. Exact location of BD transection can be performed with the aid of ICG imaging system and/or intra-operative cholangiogram. BD division is done with scissors and all bleeding spots must be secured. The stump of the donor right duct should be sutured in 2 layers (using Prolene 4/0) to ensure no leak is observed. In some centers, this can be performed using Caudate ducts and must be taken care of on both sides to reduce risk of bile leakage complications. The rest of the liver parenchyma can be transected, where segment VIII vein(s) must be isolated, clipped and divided. Both segments V and VIII outflows may be reconstructed at the backtable later on, where necessary. It is also crucial to isolate the Makucci ligament (right hepatocaval ligament), clip and divide it, before the right hepatic vein can be safely isolated and slung as the final structure to be preserved during the organ harvesting process. At this stage, a Pfannestial incision may be made as the graft extraction site, depending on the surgeon's preference.