Asian Transplantation Week 2023

Nov. 15(Wed)~18(Sat), 2023
Conrad Seoul, Korea

Submission No.: CS09-9332
Session : Concurrent Symposium 9 (Liver)
Date & Time, Place : November 18 (Sat), 09:00-10:30, Room 6F-1
Session Title : Pediatric LDLT

General technical consideration in PED LDLT

Nam-Joon Yi
Seoul National University, Republic of Korea

Pediatric liver transplantation (LT) is always challenging to the pediatric LT surgeon especially during the immediate postoperative period. Because of deceased donor organ shortage, it is difficult to get a size-matched graft. Consequently, according to the Korean Network (https://www.konos.go.kr/konosis/index.jsp) for Organ Sharing database (2022), the most popular organ source in Korea is the living donor (60%) followed by the split-liver transplantation donor (30%). Unfortunately, size mismatch occurs because the small pediatric recipient's abdominal cavity is small considering a large and thick graft from an adult donor, even in the case of the left lateral section (LLS). Additionally, important vascular structures of the infantile portal vein (PV), hepatic vein (HV), and inferior vena cava (IVC) are usually smaller compared with the vascular stumps of an adult liver graft. To overcome size mismatching in infants using adult partial liver grafts, several variant left lateral section (vLLS) grafts have been introduced. Kitajima et al. reported that LLS graft thickness reduction improved both short-term and long-term outcomes in living donor liver transplantation (LDLT) compared with a nonanatomically reduced LLS graft. However, vascular size mismatching especially in the HV and PV remains an issue in pediatric LT for small children. During the follow-up period, regeneration and rotation of the left graft to the right side is an additional issue for pediatric recipients. Usually, left liver regeneration directs to the empty space in the right side. Rotation to the right side of a left-sided graft leads to stretching and kinking of especially the HV and PV in adult as well as pediatric recipients. Sometimes this type of left graft rotation leads to a twist or compression of the IVC. Therefore, this positioning issue still remains in small children even with reduced vLLS grafts with a matched thickness. In our center, since 2015, a vLLS graft was placed in an empty space on the right side after a total hepatectomy, so called dextroplantation (Figure). The graft left hepatic vein (LHV) was anastomosed to the IVC using the extended right and middle HV stumps, not to the recipient LHV, and the PV was reconstructed using a modified simple oblique ellipsoid anastomosis. There are still debates on surgical techniques for hepatic artery and biliary reconstruction. Herein, the general technical issues in pediatric LDLTs will be reviewed. **References** 1) Kasahara M, Sakamoto S, Sasaki K, Uchida H, Kitajima T, Shigeta T, et al. Living donor liver transplantation during the first 3 months of life. Liver Transpl 2017;23:1051-1057. 2) Kitajima T, Sakamoto S, Sasaki K, Narumoto S,

Kazemi K, Hirata Y, et al. Impact of graft thickness reduction of left lateral segment on outcomes following pediatric living donor liver transplantation. Am J Transplant 2018;18:2208-2219. 3) Fukuda A, Sakamoto S, Sasaki K, Narumoto S, Kitajima T, Hirata Y, et al. Modified triangular hepatic vein reconstruction for preventing hepatic venous outflow obstruction in pediatric living donor liver transplantation using left lateral segment grafts. Pediatr Transplant 2018;22:e13167. 4) Hong SK, Suh KS, Kim HS, Yoon KC, Ahn SW, Kim H, et al. Pediatric living donor liver transplantation using a monosegment procured by pure 3D laparoscopic left lateral sectionectomy and in situ reduction. J Gastrointest Surg 2018;22:1135-1136. 5) Ahn SW, Yi NJ, Kim HC, Ahn HY, Hong SK, et al. Dextroplantation of left liver graft in infants. Liver Transpl 2022;27:222-230. 6) Hong SK, Yi NJ, Chang H, Ahn SW, Kim HS, et al. The rate of hepatic artery complications is higher in pediatric liver transplant recipients with metabolic liver diseases than with biliary atresia. J Pediatr Surg 2018;53:1516-1522. 7) Hong SK, Yi NJ, Yoon KC, Kim MS, Lee JG, et al. Outcomes of pediatric liver transplantation in Korea using two national registries. JCM 2020;9:3435.