immediate postoperative period, she developed a slow junctional rhythm which was managed with atrial pacing. One month later, the patient underwent a right hepatectomy for LDLT.

Result: The mild tricuspid regurgitation that was noted in the pre-operative period on echocardiography worsened during the right hepatectomy resulting in a hyperdynamic circulation secondary to back pressure, thus, causing increased bleeding and difficult hemostasis. The patient repeatedly developed junctional rhythm intra-operatively which reverted to sinus rhythm without the need for atrial pacing. The patient required 2 blood transfusions intra-operatively, had an uneventful postoperative course, and was discharged on the sixth postoperative day. There were no further dysrhythmias.

Conclusion: Major hepatectomy in the early post-ASD repair patient has important implications for both the anesthetist and the surgeon. Knowledge of possible risk aids in achieving good peri-operative outcomes in these patients.

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REDUCED LEFT LATERAL SECTOR LIVER TRANSPLANTATION IN CHILDREN UNDER 10 KG—LESS IS BETTER

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Introduction: Living donor liver transplantation (LDLT) in small babies poses surgical challenges such as small caliber inflow vessels, the frequent need for microvascular anastomoses, low portal inflow, and oversized grafts. The latter exaggerates low-flow states, can cause vascular compression and kinking, and may necessitate mesh-aided or staged-abdominal closure. The reported hepatic arterial thrombosis (HAT) and portal venous thrombosis (PVT) rates in such cases are 5–8% and 6–18%, respectively. We review our experience of LDLT in children under 10 Kg, in particular, the use of reduced left lateral sector (RLLS) grafts.

Method: Of 55 pediatric LDLT, 18 were done for <10 Kg babies. Nine received left lateral sector (LLS) grafts and 9 reduced left lateral sector (RLLS) grafts. In our early experience, a cavo-portal transposition was necessary for a graft with graft-recipient weight ratio (GRWR) of 4.1 owing to inadequate portal inflow. After this, we pursued the policy of reduction of large-for size grafts to obtain GRWR <2.5 and/or a portal inflow of at least 100 mL/100 g of parenchyma. Reduction was in situ in the donor (4), bench (3) or in the recipient (2) depending on when the need for it was realized.

Result: A mean of 126 g (range 60–210 g) of the liver tissue was removed by the reduction of nine RLLS grafts.

The median GRWR and postperfusion portal vein flow in the RLLS group were 2.3 (1.5–3.1) and 132 mL/100 g liver tissue. The overall, <10 Kg LLS and RLLS recipient operative mortalities were 3%, 22%, and 0%; HAT rates were 1.8%, 11%, and 0%, and PVT rates were 6%, 22%, and 11%, respectively. The single patient with HA thrombosis died, while all the 3 PVTs were successfully treated at re-laparotomy. Mesh was used for abdominal closure only in the patient with GRWR of 4.1.

Conclusion: Routine reduction of LLS grafts to GRWR <2.5 provides better size-matched livers for children under 10 Kg, results in a low incidence of serious vascular complications, circumvents the difficulties in abdominal closure, and results in excellent patient and graft survival.

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VARIATIONS IN LIVE-LIVER DONOR HILAR ANATOMY AND CLASSIFICATION OF DONORS BASED ON ANATOMIC SUITABILITY

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Aim: The aim was to record hilar arterial, portal and biliary variations in healthy liver donors and to suggest a simple classification of donors that would impact surgical modifications in the graft/recipient and the suitability of donation.

Method: Hilar anatomy was analyzed from pre-operative imaging, and operative details in 501 donor hepatectomies between 2005 and 2010 were recorded. Classifications used were Makuuchi's and Michell's for arterial, Nakamura's for portal and Huang's for biliary. Donors were classified into Class 1 (needed no modifications in graft before implantation), Class 2 (suitable for donation but needed reconstructive modifications in graft/recipient), and Class 3 (were not suitable for donation due to anatomic variations precluding safe donation or implantation).

Result: A total of 501 patients (250 males and 251 females; mean age 33.7 ± 9.84 years), with 440 right lobes and 61 left lobe grafts; 245 (48.9%) patients had standard arterial anatomy, 80 (35.9%) had segment 4 from right hepatic artery (RHA), and 56 (13.1%) had replaced RHA from superior mesenteric artery (SMA). The presence of >2 graft arteries (4 donors) precluded donation. Ninety percent had standard portal vein (PV) anatomy. Six percent had trifurcation and 4% had right anterior portal vein arising from left PV. The presence of 2 PVs required Y graft reconstruction on the bench, but did not preclude donation. Donors with significant crossover, Type E, or some Type D (6 donors) were considered Class 3. Two-hundred and forty-four (55.45%) patients had standard biliary anatomy,

56 (12.7%) had trifurcation, 71 (16.13%) had right posterior segment duct (RPSD) draining into left hepatic duct (LHD), 66 (14.09%) had RASD draining into LHD, and 7 (1.5%) had RPSD draining into cystic duct. Of the 61 left lobe grafts, 55 (90%) had standard anatomy. Multiple duct openings were seen in 33% patients. The presence of 2 or 3 ducts requiring Roux-Y HJ (12%) or cystic duct (4.2%) usage were considered Class 2. Donors with >3 ducts at hilum or significant duct opening into the opposite lobe precluded donation and were considered Class 3. Overall, on the basis of imaging among 501 donors, 85% were Class 1, 13% Class 2, and 2% Class 3 donors.

Conclusion: Variations in hilar anatomy are a rule rather than exception and require innovative reconstruction. Classification of donors based on anatomic variations has direct implications on the selection of donors and also helps in operative planning.

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WHICH IS BETTER? DUCT-TO-DUCT/ HEPATICOJEJUNOSTOMY/BOTH—IN A RIGHT LOBE GRAFT WITH TWO DUCTS IN ADULT LIVING-RELATED LIVER TRANSPLANTATION

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Background: Even though biliary anatomy variations were used to preclude liver donation in the initial days, it is not uncommon to accept a precious donor with 2 ducts on a right lobe graft in adult living-related liver transplantation (ALRLT). The aim is to study the best option of ductal reconstruction in ALRLT when there are 2 ducts to be anastomosed.

Method: We retrospectively analyzed our series of ALRLT from October 2006 to May 2011. Of 585 grafts, 107 right lobe grafts had 2 ducts to be reconstructed. These were grouped into 3: Group A ($n=71$) who underwent duct-to-duct anastomosis with or without ductoplasty, Group B ($n=8$) who got hepaticojejunostomy with or without ductoplasty, and Group C ($n=28$) who got 1 duct-to-duct and the other hepaticojejunostomy. Outcome in these 3 groups was analyzed. The parameters taken into consideration were bile leak without sepsis and collection, biloma alone requiring early interventions like percutaneous drainage, re-exploration for biliary issue, conversion of duct-to-duct to hepaticojejunostomy, stricture formation, need for late endoscopic, and/or percutaneous intervention and mortality. The data were analyzed using Predictive Analytics SoftWare version 18.

Result: Group A had the majority of patients. Of 71 patients, 17 (23.94%) had bile leaks. Of these, 11 patients were re-explored for biliary sepsis and converted into hepaticojejunostomies, 9 patients underwent early ERCP for bile leaks, 24 (33.80%) patients developed biliary anastomotic stricture for which ERCP and stenting was done and 7 patients required rendezvous procedure. Nine (12.67%) patients expired in the early postoperative period. In Group B, there were 8 patients and 3 (37.5%) of them developed controlled bile leak which settled over 3 weeks, but no other complication or mortality in this group. In Group C, there were 28 patients, but only 2 (7.4%) developed bile leak which improved without any interventions and there were no mortality too.

Conclusion: In our experience, the best option for ductal reconstruction when there were 2 ducts in ALRLT is 1 sectorial duct to the common hepatic duct and the other as hepaticojejunostomy. This method has the least complication rate and best results.

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RIGHT POSTERIOR SECTORAL GRAFT PROCUREMENT IS ALWAYS POSSIBLE IF RIGHT POSTERIOR SECTORAL PORTAL VEIN CAN BE DIVIDED EXTRAHEPATICALLY

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Background: In adult living-related liver transplantation (ALRLT), the availability of donors is limited and encountering a precious donor with difficult anatomy/volumetry is not uncommon. The right posterior sector graft (RPSG) was introduced in ALRLT to overcome the graft-size mismatch when the donor liver had a small left lobe (low remnant volume). The feasibility of RPSG is more dependent on the portal venous anatomical considerations than on the volumetry parameters. This study highlights the importance of the portal venous anatomy in tailoring the type of donor hepatectomy for ALRLT.

Materials and Method: We performed 3 cases of RPSG of 80 consecutive ALRLTs done from January to April 2011. Rest of them was standard right lobe grafts with/without middle hepatic vein or left lobe grafts. A remnant volume of >30%, graft recipient weight ratio (GRWR) >0.7 and the presence of extrahepatic posterior sector portal vein on CT angiography were the important factors in the selection criteria for all the 3 cases. In all 3 patients, the presenting donor was the only donor they had (precious donor). In 2 donors, the standard right lobe graft resulted in a low remnant liver volume. One donor had unfavorable biliary anatomy for right/left lobe grafts giving >2