25th Annual Scientific Meeting
Malaysian Society of Transplantation

Split Cadaveric Liver Transplantation: A New Hope for Limited Graft

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OBJECTIVE Discussion on the feasibility of split liver transplantation (SLT) in Malaysia to address the problem of increasing demand of liver transplant with limited donor.

METHOD Case report of two split cadaveric liver transplantations involving 4 recipients at Selayang Hospital in 2021-2022.

CASE REPORT

1st SLT: 18th Oct 2021

A young adult cadaveric donor's liver were split ex situ in the Selayang Hospital, after procuring the graft from Melaka Hospital. The liver was split into right lobe graft which was given to the teenage recipient aged 13 years old, where the left lateral lobe liver was send to Tunku Azizah Hospital (HTA), Kuala Lumpur and implanted into a 1- year- old infant. The 13- year- old boy had the diagnosis of auto-immune hepatitis overlapping with primary sclerosing cholangitis, he was discharged 1 month after the liver transplant. The 1-year-old infant was having liver cirrhosis due to biliary atresia post-Kasai procedure. She passed away after 12 hours post-transplantation due to excessive bleeding.

2nd SLT: 9th Feb 2022

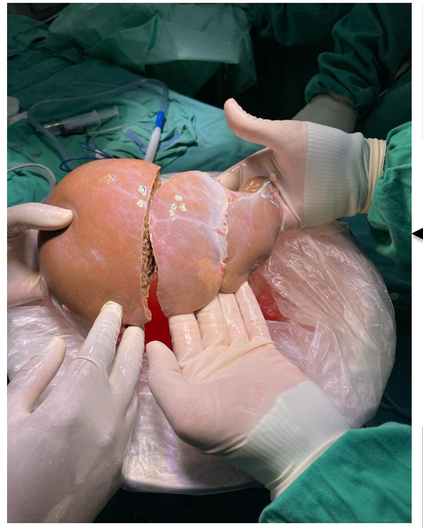
The liver was procured in Selayang hospital, doing in situ split into left lateral segment and extended right lobe. The extended right lobe was implanted into a 37- year- old female who had recurrent pyogenic cholangitis and liver cirrhosis. The left lateral segment was given to a 3-year- old girl with liver cirrhosis post-Kasai procedure. The adult patient was discharged home at Day 14 without complications, while the paediatric patient still had functioning graft at Day 35, but was still warded due to lung complications.

DISCUSSION

The graft shortage due to scarcity of donor is common. This is especially true in children where size-matched liver grafts are rare. Therefore, the split liver transplantation is proposed enabling transplantation of one donor liver into two recipients- one child and one adult. SLT is a technically demanding procedure, as the complication rate post SLT is 66.7% as compared to 45.1% in whole liver transplant.[1] Particularly the early biliary complications are more common in SLT due to the cut liver surface. There are several risk factors for complication post SLT were identified, it includes urgent SLT, recipient body weight ≤ 6 kg, donor age > 50 years old and cold ischaemic time with HR= 1.07 per hour.[2] In situ splitting is usually preferred as it can help to reduce cold ischaemic time. In our cases, with in situ split, and by doing all procedures (organ procurement for adult and paeds recipient) within a centre contribute to the success of transplantation for both adult and paediatric recipients. However the in situ splitting will prolong the organ procurement time and make it not practical in most of the cases. Despite all obstacles and problems, generally SLT can produce a comparable result with standard whole liver transplant.[3]

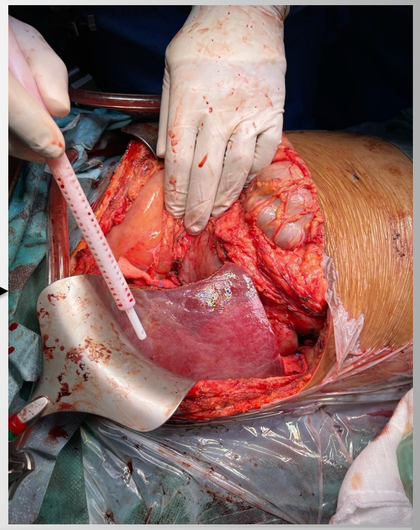
CONCLUSION

Split liver transplantation (SLT) is a valuable procedure to help the issue of limited graft. However, more resources such as ICU bed capacity, trained surgical team and operation theater slot would be required to aid the successful SLT programme.



The donor liver was split into left and right hemiliver to be implanted into two recipients' body.

The right hemiliver was implanted into the adult recipient body.



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