# Living donor liver transplantation

Living donor liver transplantation

- In 1988, Silvano Raia in Sao Paolo, Brazil, was the first to introduce the concept of LDLT in a child. Although unsuc - - cessful, this was followed by a report of a successful outcome in paediatric LDLT by Russell Strong in Brisbane, Australia. The expansion of LDLT to the adult population began in 1993, when the Shinshu group in Tokyo performed the first success - ful adult-to-adult LDLT . However, adult-to-adult LDLT is not without risks to the donor, with the global mortality risk quoted at 1 in 300–500 for adult donors. Right lobe, left lobe or left lateral segments can be used as grafts depending on the size requirement f or the recipient. Right lobe grafts, which account for 60–70% of the total liver volume, are the most commonly used grafts for adult LDLT ( Figure 89.4 ). The required graft volume is measured by either the graft weight to recipient weight ratio (GRWR) or the ratio of graft volume relative to the standard liver volume of the recipient (GV/ SLV). An ideal GRWR must be >0.8% and/or GV/SLV >35%. The assessment of volume of the graft in the donor is measured by marking the boundaries of the liver lobe on the donor computed tomography (CT) scan manually , but this can also be done more accurately using complex three-dimensional ® software such as MeVis (HepaVision , Bremen, Germany). The remnant liver mass in the donor must be kept to >30% of the whole liver, which allows for safe regeneration and prevents the risk of liver insu ffi ciency in the donor. LDLT is now undertaken in a number of transplant centres worldwide and is relatively common practice in some countries where deceased donation is not practised for cultural or religious reasons, notably in the Far East and South Asia. Over 90% of transplants in the East come from LDLT , whereas in the West over 90% of all LTs are DDLT . With increasing experience and innovation, the graft and recipient survival of adult-to adult LDLT now compare favourably with those of DDLT . If the recipient size is large, a right liver LDLT graft might not give an adequate GRWR. Similarly , if the donor remnant is small, it is not safe for the donation to proceed. To tackle T one innova the problem of inadequate graft size in LDL tive approach is ‘dual-graft liver transplantation’, done mostly in Korea and rarely in other LDLT countries; this approach is to transplant the recipient with two left lobe grafts or one right lobe and one left lobe graft from two living donors. With this approac h, donor safety is maintained and the recipient is transplanted with adequate graft volume. The procedure is technically very demanding and requires massive infrastruc ture where two donor hepatectomies and recipient LT surgery have to take place all at the same time. However, the ethical Claude Couinaud , 1922–2008, French surgeon and anatomist, described the segmental anatomy of the liver in his seminal book chirurgicales . issue of putting two donors at risk simultaneously for one recip - ient’s benefit is contentious. -

Figure 89.4 Adult right lobe living donor liver transplantation (LDLT). (V8) draining into the middle hepatic vein (MHV). (b) A right lobe LDLT graft after implantation showing the reconstructed V5 and V8 using a deceased donor iliac vein graft. (c) A well-perfused right lobe liver graft. Figure 89.5 Ex situ splitting of a donation after brain death liver. (a) Extended right lobe liver graft (Couinaud’s segments I and IV–VIII) prepared for implantation into an adult recipient; (b) left lateral seg ment graft (Couinaud’s segments II and III) prepared for implantation into a paediatric recipient. (a) Hepatic vein cuts showing the segment 5 vein (V5) and segment 8 vein

---

Revision #1
Created 2025-12-31 15:31:52 UTC by Omar Ayman
Updated 2025-12-31 15:31:52 UTC by Omar Ayman