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Living donor liver transplantation: surgical techniques and innovations

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LIVING-DONOR LIVER TRANSPLANTATION: SURGICAL TECHNIQUES AND INNOVATIONS

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Abstract (Abstract): Living-donor liver transplantation combines the techniques of hepatic resection and transplantation. The principal difference between living donation of liver and resection is the absolute requirement in the former to maintain the integrity of the liver on each side of the dividing line. To do this, the surgeon must retain the vascular supply and drainage of both sides throughout the dissection, up to the moment of graft removal. In this book, Tanaka and colleagues take us through the surgery in a manner that is at once detailed and exciting, through the generous use of magnificent electronic photography.

New and more detailed knowledge of the structure-function relationship of the liver and its segments has been necessary to permit successful living-donor liver transplantation. This textbook begins with the selection and assessment of the organ donor. Radiological volumetric methods are clearly outlined; the estimation of functional reserve of liver segments is formulated. Colourful casts are used to demonstrate the liver's variable segmental anatomy.

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Full text: LIVING-DONOR LIVER TRANSPLANTATION: SURGICAL TECHNIQUES AND INNOVATIONS.

Koichi Tanaka, Yukihiro Inomata, Satoshi Kaihara. Barcelona, Spain: Prous Science; 2003. 134 pages.

US\$125. ISBN 84-8124-202-0

A colleague and I attended a talk about a set of liver transplant experiments in mice, which the speaker had designed to undermine a commonly held immunological belief. My companion (who should have known better) afterward asked me rhetorically, "What's next? Heart transplantation in a tadpole?"

When does the awe-inspiring give way to the commonplace? Technically wonderful surgery is considered ordinary not because it is commonly done but because the holder of this opinion has no image of the technique.

Not long ago, resectional hepatic surgery was followed by the development of orthotopic liver transplantation. Although both techniques have matured into conventional therapy, such services are available only in specialized centres. In Japan, this progression failed to take place because perfused organs from deceased donors were unavailable. Despite laws recently passed that allow for the declaration of brain death, cultural inhibition to organ donation continues to prevent the use there of grafts from deceased donors. Japanese surgeons, in particular Dr. Koichi Tanaka, sought to make up for this deficit by using grafts of partial livers removed from living volunteers.

Living-donor liver transplantation combines the techniques of hepatic resection and transplantation. The principal difference between living donation of liver and resection is the absolute requirement in the former to maintain the integrity of the liver on each side of the dividing line. To do this, the surgeon must retain the vascular supply and drainage of both sides throughout the dissection, up to the moment of graft removal. In this book, Tanaka and colleagues take us through the surgery in a manner that is at once detailed and exciting, through the generous use of magnificent electronic photography.

New and more detailed knowledge of the structure-function relationship of the liver and its segments has been necessary to permit successful living-donor liver transplantation. This textbook begins with the selection and assessment of the organ donor. Radiological volumetric methods are clearly outlined; the estimation of functional reserve of liver segments is formulated. Colourful casts are used to demonstrate the liver's variable

segmental anatomy.

After the chapters dealing with graft retrieval, the authors illuminate recipient hepatectomy and graft implantation with the same ample supply of photographic figures. The excitement upon the reperfusion of a transplant is apparent even to the casual reader.

North American readers may miss any detailed discussion in this book of the nonsurgical issues that surround living-donor transplantation. The results of now over 1500 liver transplants in Japan have proved to their volunteer donors and surgeons alike the value of the procedure in the care of patients with an otherwise fatal disease.

In renal transplantation, an inverse relationship between deceased and living donation has been seen: where deceased donor rates are low, an increase in living donation compensates. The outcome of transplanted kidneys from living donors is superior to that from deceased donors. On the other hand, partial liver grafts from living donors are at greater risk of vascular and biliary complications than whole-organ grafts. They may also be more vulnerable to recurrent disease.

In Ontario, the same inverse relationship is evident between the rates of living and deceased liver donation. This suggests a surgical reluctance to make use of a living donor. Because more people need liver transplants than there are organs (from any type of donor) available, this reluctance is deeply based. It concerns the fear of injury to the healthy donor.

Among the 1500 Japanese donors there has been 1 death. For these volunteers, most of whom are closely related to the recipient, the risks are acceptable in context with the alternative. But in the USA, a single mortality of a donor in a successful liver transplantation program resulted in a public inquiry, program moratorium and considerable discussion in the press - much of which was about as well informed as the jaded comment about transplants in tadpoles. The excellent photography in this book, which matches the complexity of the surgery, will help bridge this gap. As a teaching tool, this well-priced text and its accompanying CD-ROM will be an accessible way to understand the liver.

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