香港中文大學
THE CHINESE UNIVERSITY OF HONG KONG

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Press Statement by the Faculty of Medicine of
The Chinese University of Hong Kong

**A quantum leap in liver surgery in Hong Kong -
Live-related liver transplantation in children**

Organ transplantation is the ultimate surgical operation. By far, liver transplantation is technically the most difficult involving not only 4 to 5 anastomoses but also metabolic and haemostatic problems. In children, liver transplantation poses additional difficulties when compared with adults because of their frailty and small size. Nonetheless, doctors at the Chinese University of Hong Kong have successfully performed a live-related liver transplantation in a three-year old girl on 28 May 1993. This achievement represented a number of milestones in the medical history in Hong Kong:-

1. the first liver transplant in a child
2. the first reduced-size liver transplantation
3. the first live-related liver transplantation.

We believe this is the first of its kind in South East Asia.

The first liver transplant in a child dated back to 1967 when a cadaveric child liver was unsuccessfully transplanted to another child. Because of the insurmountable shortage of children cadaveric liver donors, the operation has never become popular. To solve the huge problem of donor shortage, reduced-

size liver transplantation from adult donors was then introduced in 1984. This involves cutting the adult liver down to the correct size before transplantation. Even with this technical advance, children still die from terminal liver failure while waiting for transplantation from lack of donors. This is especially true in Asia because of cultural reasons. Live-related liver transplantation was therefore introduced in which a close relative, usually one of the parents, donates part of his or her liver to the child. The first successful live-related liver transplantation was carried out in 1989, only four years ago. To date, there are only a few centres in the world which are able to perform such a formidable operation and in total there have been less than 100 such transplants.

Our patient is a three-year old girl who suffered from extrahepatic biliary atresia. A Kasai's portoenterostomy operation was performed at 10 weeks of age. Immediate bile drainage was achieved post-operatively and the child thrived well for the subsequent 2 $^{1}/_{2}$ years. By March this year, however, she developed overt signs of liver decompensation and her bilirubin climbed up to a dangerous level. She was therefore put on the waiting list for urgent cadaveric liver transplantation. During this period, her condition rapidly deteriorated and no cadaveric liver donor was forthcoming. Both parents then volunteered to donate part of their liver to save their child.

The operation, which started at 9:00 am on 28 May 1993, consisted of 4 main parts:

1. Donor partial hepatectomy;
   (Removal of half of the father's liver)

2. Bench surgery to prepare the liver graft;
   (Tailoring the liver to suit the child)

3. Recipient hepatectomy;
   (Total removal of the child's diseased liver)

4. Recipient liver transplantation
   (Joining of the father's liver to the child)

The donor hepatectomy poses a great technical challenge in that a major operation was performed on a normal healthy person and therefore the surgeons have to work under enormous tension to ensure success. In addition, the blood flow to the liver graft has to be preserved till the very end of the operation. This impedes the mobilisation of the graft segment and increases the risk of bleeding. The difficulty during bench surgery is to get a precise match of the donor and recipient liver size. The recipient operation was made difficult by previous surgery and recurrent inflammation which had resulted in dense abdominal adhesions around the liver. The final phase of the procedure required meticulous anastomosis of very small-sized vessels and bile duct which necessitated the use of optical magnification.

With the success of this operation, we have entered a new era of paediatric hepatobiliary surgery in Hong Kong. First, this offers a solution to the lack of liver donors for children with terminal liver disease. Second, we at the Prince of Wales Hospital are now able to provide, for the first time, a full spectrum of surgical options in the management of children with biliary atresia. Third, we have put Hong Kong amongst the few leading centres in the world which are capable of performing a successful live-related liver transplantation.

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Issued on behalf of the Faculty of Medicine of the Chinese University of Hong Kong by the University's Information Office.

For press enquiries, please call Mrs. May Leung of the Faculty of Medicine at 6362623 or Mrs. Shirley Kwok of the Chinese University's Information Office at 6097294.