

# Maximum Sharing of Cadaver Liver Grafts Composite Split and Domino Liver Transplants

*Linhares Furtado, Fernando Oliveira, Emanuel Furtado, Batista Geraldés, Aurélio Reis, Joaquim Viana, Carlos Bento, Helena Vieira, and Silvia Neves*

Shortage of cadaver donors is a well-known problem for the long lists of patients awaiting organ transplants. The waiting lists for liver transplantation in the four units of Portugal are overcrowded. Besides the usual hepatic pathologies in Europe and America, Portugal has some hundreds of patients with familial amyloidotic polineuropathy (FAP) for whom the sole hope of stopping the progression of the disease is liver transplantation.

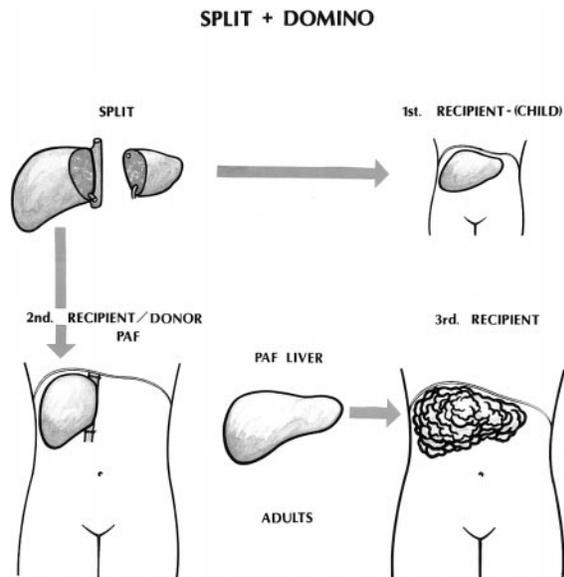
Except for the production of an abnormal protein that is responsible for the amyloid deposition in the nervous tissues and in several organs (kidney, heart, etc.), their livers are anatomically and functionally normal.

The clinical picture of FAP takes 20 to 30 years to appear and another 10 to 14 years to become fatal. This was why, in 1995, we started offering the native livers retrieved from FAP patients undergoing transplantation to other patients with malignancies, with no chance of being accepted in any one of our four units for cadaver graft transplantation.

This sequential or domino liver transplantation has been applied to 20 patients in our unit without any complication attributable to the technical peculiarities of this procedure.

In 2 of those cases, we split the cadaver grafts before starting the domino transplants (Fig. 1). The left lateral segments were transplanted into 2 children (a 28 month old with biliary atresia and a 4 year old with Allagille syndrome), whereas the right lobes were implanted into 2 FAP patients (both aged 37 years). The hepatectomies in these 2 FAP patients were performed according to the technical requirements first described by us.<sup>1</sup> Then, their livers were implanted into 2 patients (1 57 year old with post-hepatitis C cirrhosis, and 1 61 year old with hemochromatosis/cirrhosis, diabetes, and four coronary bypasses). Thus, 6 patients could receive transplants from only two cadaver livers.

These procedures require hard work, adequate selection, and perfect logistics. For safety, at least four qualified surgeons must be available to perform the harvesting, the splitting, and the three consecutive transplantations with the hepatectomy



**Figure 1.** A cadaveric liver graft is split (upper left). The left lateral segment is transplanted into a child (upper right) and the right lobe is used for transplantation in a familial amyloidotic polineuropathy patient (lower left). Finally, the liver of this patient provides a living donor graft for a third patient (lower right).

*From the Transplant Unit, Hospital of the University of Coimbra, Portugal.*

*Address reprint requests to A.J. Linhares Furtado, MD, PhD, Director of the Transplant Unit, HUC, 3000 Coimbra, Portugal.*

*Copyright © 1999 by the American Association for the Study of Liver Diseases*

1074-3022/99/0502-0013\$3.00/0

in the FAP patient in the best condition for the use of the liver and for the safety of the patients. Because two of our four main surgeons are usually responsible for the emergency department 1 or 2 days a week, we have been able to implement this strategy only twice so far.

Although 4 of those patients were particularly difficult cases, all 6 patients are well at 1 year and 3

months after transplantation for the first and second group, respectively.

## References

1. Furtado A, Tomé L, Oliveira FJ, Furtado E, Viana J, Perdigoto R. Sequential liver transplantation. *Transplant Proc* 1997;29:467-468.