

Upper Abdominal Exenteration With Liver Replacement: A Modification of the "Cluster" Procedure

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WE have reported a new "organ cluster" operation for tumors of the bile duct, pancreas, or duodenum with secondary involvement of the liver.¹ The extirpation was of the ascending and transverse colon, pancreas, duodenum, spleen, liver, and part or all of the stomach. A cluster of cadaveric organs consisting of the liver, pancreas, and duodenum was transplanted into the empty space.

The major limitations of this technique have been the difficulty of finding appropriate organ donors, the difficulty of the operation, and the complexity of postoperative care. Considering the fact that, of the organs being replaced, only the liver is indispensable, an alternative was developed in which the same resection was performed, but only the liver was transplanted. Two patients have been treated in this manner.

CASE REPORTS

Case No. 1

The first recipient is a 41-year-old man who had cirrhosis secondary to B virus hepatitis, a hepatoma which had invaded the portal vein, and massive bleeding from esophageal varices. An upper abdominal exenteration was performed.¹ The left gastric artery and one third of the stomach were preserved (Fig 1). A liver of the same blood type (B) was placed orthotopically during veno venous bypass.¹ The hepatic arterial blood supply was reconstructed from the celiac axis, and the native superior mesenteric vein was anastomosed end to end to the donor portal vein (Fig 1). Reconstruction of the gastrointestinal tract was with a Billroth II anastomosis. Choledochojejunostomy was used for biliary reconstruction (Fig 1). The liver graft, sent to us by a transplant surgeon in a distant city, had primary nonfunction and was replaced with an O blood type liver 3 days later. The patient recovered promptly, was discharged from the intensive care unit, and resumed oral intake 6 days after the second transplant.

Case No. 2

The second patient is a 37-year-old man with a neuroendocrine tumor that originated from the body and tail of the pancreas, with multiple metastases to the liver. In addition, both adrenal glands were invaded by direct extension. An upper abdominal exenteration was performed which included both adrenal glands and the total stomach. A liver of the same blood type was placed orthotopically with the same technique (Fig 2). The hepatic arterial blood supply was provided with an iliac arterial graft implanted into the suprarenal aorta at the site where the recipient celiac axis was removed. Gastrointestinal tract reconstruction was with esophagojejunostomy. Biliary reconstruction was with choledo-

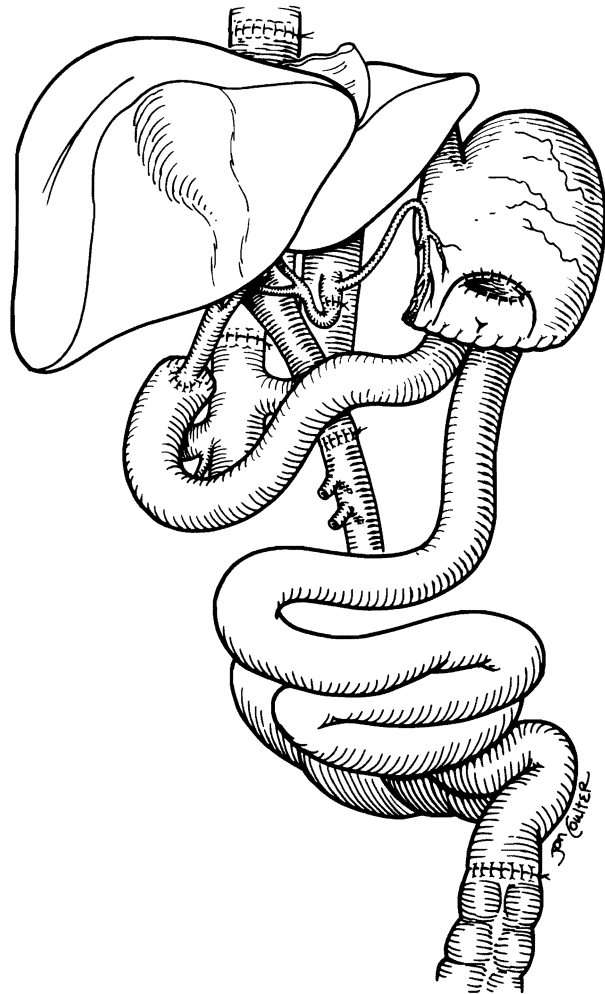


Fig 1. Reconstruction in case no. 1.

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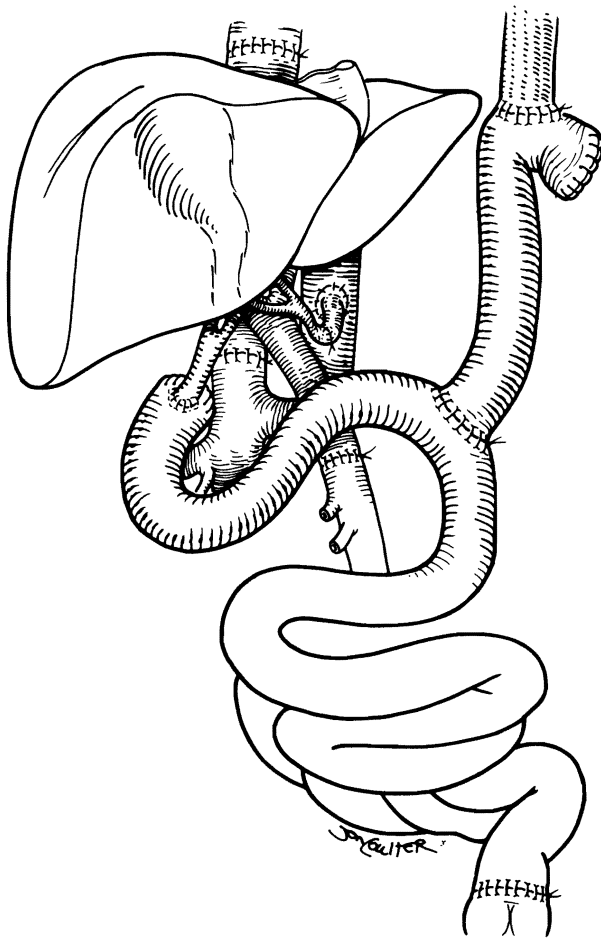


Fig 2. Reconstruction in case no. 2.

chojejunosomy (Fig 2). The patient stayed in the intensive care unit for 2 days, and resumed oral intake 2 days after surgery.

RESULTS AND DISCUSSION

The surgical margins were free of tumor in both cases. Both patients require approximately 40 IU of regular insulin daily and are receiving oral pancreatic enzymes with each meal. They have two to six formed stools per day.

Immunosuppression has been with CyA, azathioprine, and prednisone. Therapeutic CyA levels in the two patients are maintained with 32 and 20 mg/kg/d of oral CyA, respectively. These oral doses are almost twice those usually required for liver recipients, and probably represent malabsorption. Function of the liver grafts is normal in both patients.

This alteration of the original cluster procedure is being developed as a more pragmatic operation, but at the expense of rendering the patient apancreatic. Malabsorption has not been a serious clinical problem thus far, although it may have influenced CyA doses. The day-to-day treatment of diabetes mellitus has not been difficult. Both patients have been trained to do home blood glucose monitoring and insulin adjustment. If management of the iatrogenic diabetes mellitus proves difficult, pancreas transplantation at a more favorable moment remains an option.

REFERENCE

1. Starzl TE, Todo S, Tzakis A, et al: *Ann Surg* 210:374, 1989