

## An Interesting Intraoperative Decision

ONE NIGHT in March 1984, we were in the process of removing a donor liver for transplantation from a young trauma victim. After some dissection in the porta hepatis, we learned that the potential recipient had an electrocardiogram on admission that showed recent myocardial injury. Because the recipient did not have terminal liver disease, we attempted to place the liver at another center rather than risk further myocardial injury to the patient during the operation. There was no national system of organ sharing at this time, and placement of organs was usually done on an ad hoc basis from surgeon to surgeon. Our attempts in this case were unsuccessful. Having completed most of the dissection in the porta hepatis, we elected to shift gears and transplant the pancreas instead.

I had just returned from Pittsburgh, Pa, where I had read a preprint of the article by Starzl et al<sup>1</sup> on whole organ pancreas transplantation. A few days earlier we had evaluated a 47-year-old man with diabetes and renal failure who lived only a few blocks from the hospital. Although he had extensive coronary artery disease, we thought that a simultaneous pancreas and kidney transplantation might be his best option. He had no preformed antibody that obviated the necessity for a preliminary cytotoxic cross-match. Shortly after the telephone call, he arrived in the operating room. A workup for kidney transplantation had been completed a few days earlier.

We proceeded to complete the donor operation, removing the whole pancreas along with the kidneys instead of the liver. No "back table" preparation of either organ was necessary because the entire dis-

section was performed in situ. Starzl et al<sup>1</sup> had already shown that a short duodenal "bubble," a few centimeters in length, could be transplanted safely, which avoided surgical complications associated with transplantation of a longer segment of small intestine. We also transplanted the spleen to provide a more physiologic blood flow through the organ.

The patient became normoglycemic, and except for developing graft vs host disease, which required removal of the donor spleen, had a benign postoperative course. He did not show signs of rejection for the next 3 months and was normoglycemic, but had a myocardial infarction while riding a roller coaster a few months after undergoing transplantation. He eventually died of the infarction but had normal renal and pancreatic islet function.

In the next 15 months we performed 20 of these procedures with moderate success. Two patients died within the first year, the kidneys functioned in 17, and the pancreas in 15 at the time of publication of the series.<sup>2</sup>

Although the technique of pancreas transplantation evolved in the ensuing years, including the bladder drainage technique introduced by Nghiem et al,<sup>3</sup> we have now come full circle and have adopted the enteric drainage procedure,<sup>4</sup> which avoids the high complication rate associated with duodenocystostomy. Bladder drainage is normally reserved for solitary pancreas transplantation (without simultaneous transplantation of the donor kidney), which permits measurement of the urinary amylase, a decrement of which signals possible rejection.

Today, transplantation of the pancreas with or without the kidney is an accepted therapeutic procedure for patients with type 1 dia-

betes. Results in our center and others have limited mortality and graft success rates that exceed 95% and 85% for the kidney and pancreas, respectively. Starzl's pioneering work in the early 1990s with ta-crolimus, as well as his contributions in developing the operative technique in the early 1980s, paved the way for pancreas transplantation. Sollinger et al<sup>5</sup> stated at a meeting of the American Surgical Association that pancreas transplantation is has the highest long-term success rate of all cadaver organs transplanted.

Perhaps a quotation by Goethe is appropriate: "Whatever you can do, or dream you can do, begin it. Boldness has genius, power, and magic in it."

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