

# Assessment of Intestinal Preservation Injury and Duodenal Rejection in a Multivisceral Allograft Transplantation Model in the Pig

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**B**ECAUSE of the donor shortage, multiorgan harvesting is becoming a common procedure. Multiorgan preservation techniques are easier and safer, and aortic retrograde infusion of cold preservation solution is the usual method for preserving the abdominal organs.<sup>1</sup> However, many authors believe that the pancreas and the small bowel may be injured by high volumes of preservation solutions.<sup>2,3</sup> Although no randomized studies have been conducted, multiorgan preservation techniques have been used for intestinal, pancreatic, and multivisceral transplantation with either low or high volumes of preservation solution with good results for the bowel and the pancreas.<sup>4,5</sup> Other authors have emphasized the importance of aortic perfusion pressures for the intestinal graft.<sup>6</sup> Conversely, few multivisceral cluster transplant procedures have been per-

formed in humans and animals.<sup>7-9</sup> Thus, there is little information about duodenal rejection in this model.

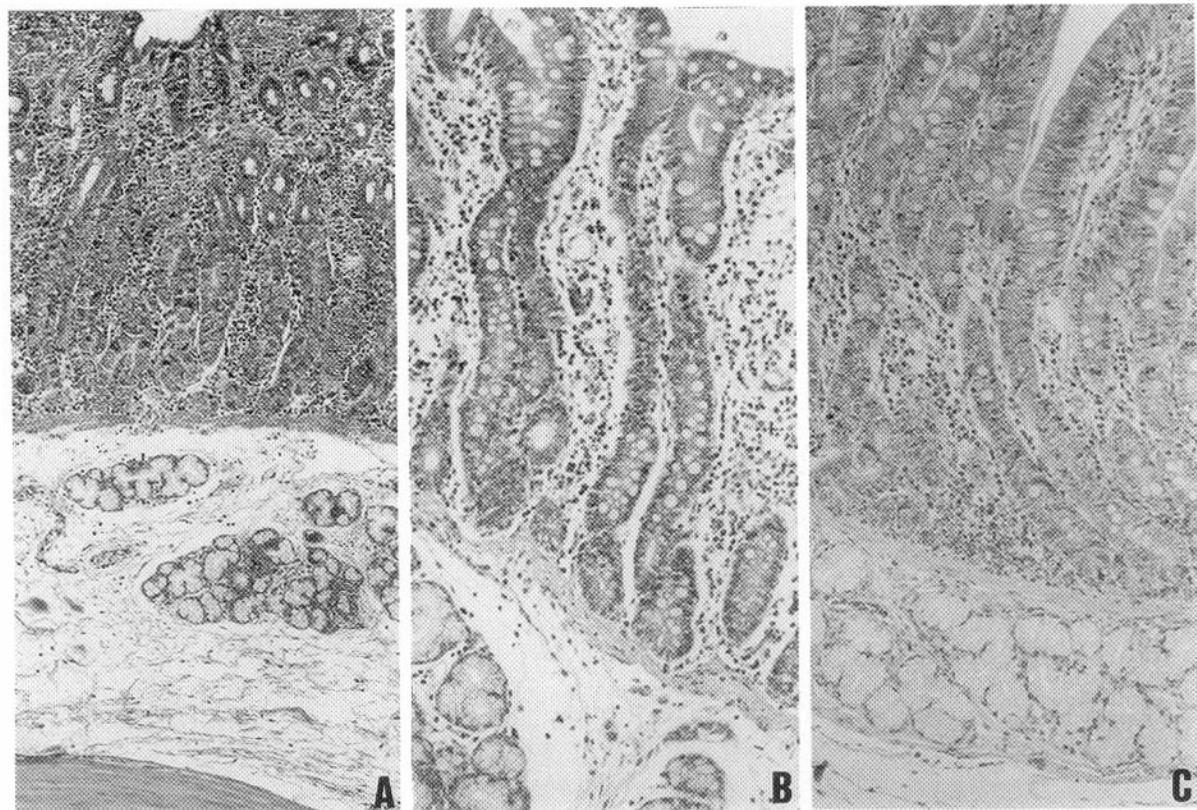
## MATERIALS AND METHODS

Intestinal preservation injury and the natural history of duodenal rejection were pathologically studied in 44 pigs (25 to 40 kg) orthotopically allografted with an en bloc liver-duodenum-pancreas transplant according to a surgical technique previously reported.<sup>10</sup> The grafts were cooled to 4°C with 3 L of Euro-Collins

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**Fig 1.** (A) Submucosal edema and apex villous lesion in an animal with survival under 12 h (H-E,  $\times 95$ ). (B) Edema in the lamina propria and no villous lesions in the duodenum in an animal surviving 20 h (H-E,  $\times 150$ ). (C) This pig survived 36 h and showed normal duodenal anatomy.