

Revascularization of the gastro-epiploic artery in pancreas transplant

doi:10.1111/j.1432-2277.2008.00757.x

We read with interest the article on revascularization of the gastro-epiploic artery in pancreas transplants [1], in which the author describes personal experience in 110 consecutive pancreas transplants. We agree that the revascularization of the head of the pancreas is critical in ensuring the viability of the duodenum, and that there are instances where arterial inflow through either superior or inferior pancreaticoduodenal artery is compromised. The author reports the use of the gastro-epiploic artery to provide retrograde flow into the gastro-duodenal artery from the infra-pancreatic superior mesenteric arterial branches.

We have some specific concerns regarding the use of the infra-pancreatic superior mesenteric arterial branches for reconstructing the inflow. The root of the mesentery is highly vascular, containing a leash of vessels originating from the main trunk of the superior mesenteric artery (SMA) posterior to the uncinate process. Dissecting the infra-pancreatic SMA to provide inflow has to be meticulous to ensure that the inferior pancreaticoduodenal artery is spared. This dissection is difficult and time-consuming, as there are multiple branches to be dealt with, and can increase the operative time significantly. Moreover, various authors have described alternative techniques for revascularizing the gastro-duodenal artery, either using a Y graft [2] or using a segment of donor external iliac artery implanted separately [3] or end-side to the splenic artery [4]. Neither of these techniques requires complex dissection during procurement, and both can be performed safely during bench reconstruction. In our series of consecutive 240 pancreas transplants, we have used the latter technique successfully in three cases where the inferior pancreaticoduodenal artery was divided because of a right hepatic artery arising high from the superior mesenteric artery. In one instance, we used the anterior and posterior divisions of the donor internal iliac artery to perform the revascularization procedure. During procurement, the internal iliac artery is carefully dissected ensuring that the anterior and posterior divisions are intact. On the bench, the branches of the anterior and posterior divisions (superior vesical, uterine/deferential, superior gluteal, iliolumbar, lateral sacral etc)

are ligated, and the anterior division is anastomosed end-to-end to the gastro-duodenal artery, the posterior division to the superior mesenteric artery and the external iliac artery to the splenic artery. The recipient of this pancreas had no postoperative complications and has excellent graft function at 12-month post-transplant.

We are also interested in the author's practice of using renograffin (diatrizoate) to perform the on-table angiograms. This ionic contrast agent has been reported to cause endothelial injury following administration [5] (demonstrated by elevated von Willebrand factor levels). This endothelial activation has been shown to have a role in graft thrombosis [6]. We note that the author describes four cases of graft thrombosis in 110 transplants, but none in the grafts undergoing the triple revascularization. We would be interested in the author's opinion on the potential role of this contrast agent in the development of graft thrombosis.

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References

1. Nghiem DD. Revascularization of the gastroepiploic artery in pancreas transplant*. *Transpl Int* 2008; **21**: 774.
2. Socci C, Orsenigo E, Zuber V, *et al*. Triple arterial reconstruction improves vascularization of whole pancreas for transplantation. *Transplant Proc* 2006; **38**: 1158.
3. Thai N, Khan A, Tom K, Basu A, Shapiro R, Fung JJ. Revascularization of the gastroduodenal artery in a pancreas allograft from a donor with a replaced right hepatic artery. *Transplantation* 2005; **79**: 503.
4. Han DJ. Reconstruction of the gastroduodenal artery in pancreatic transplantation. *Transplant Proc* 1996; **28**: 1727.
5. Dehmer GJ, Nichols TC, Li S, Koch GG, Tate DA, Griggs TR. Effects of an ionic and nonionic contrast agent

on von Willebrand factor assessed during coronary angiography. *Am J Cardiol* 1999; **84**: 223.

6. Kessler L, Wiesel ML, Boudjema K, *et al*. Possible involvement of Von Willebrand factor in pancreatic graft

thrombosis after kidney-pancreas transplantation: a retrospective study. *Clin Transplant* 1998; **12**: 35.