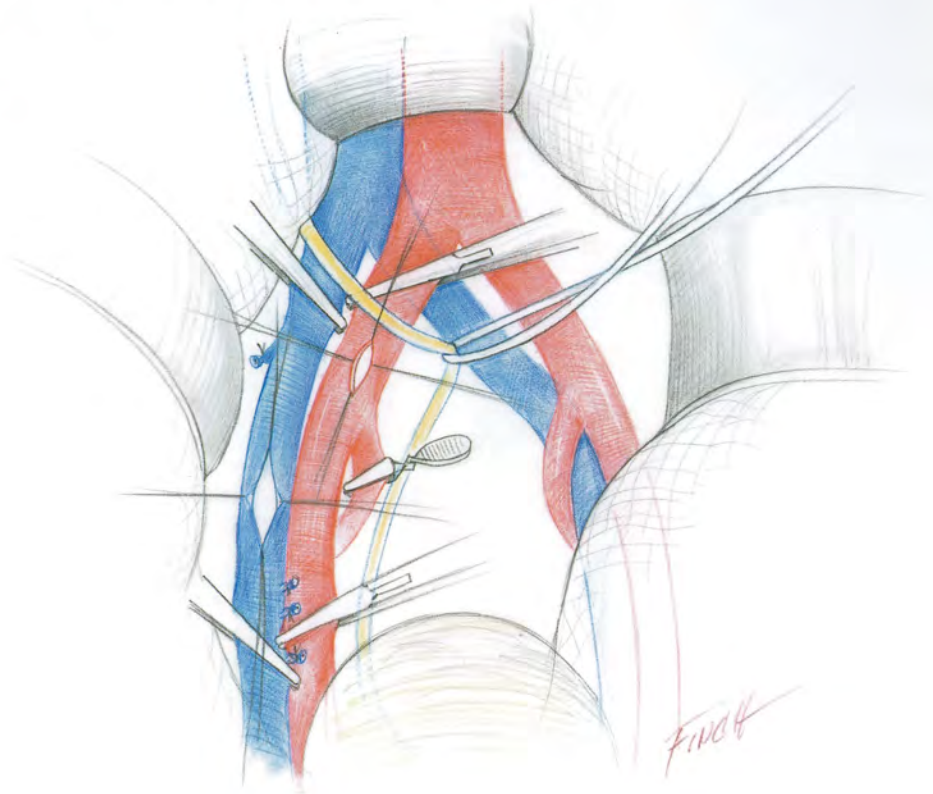


## Recipient Procedures (Plates XIII–XXII)

FIGURE 8.2.2.1. Dissection of the recipient right iliac vessels. The internal iliac veins are ligated and divided. The iliac artery is medial to the vein. The arteriotomy is proximal to the venotomy. The ureter is looped medial to the artery.



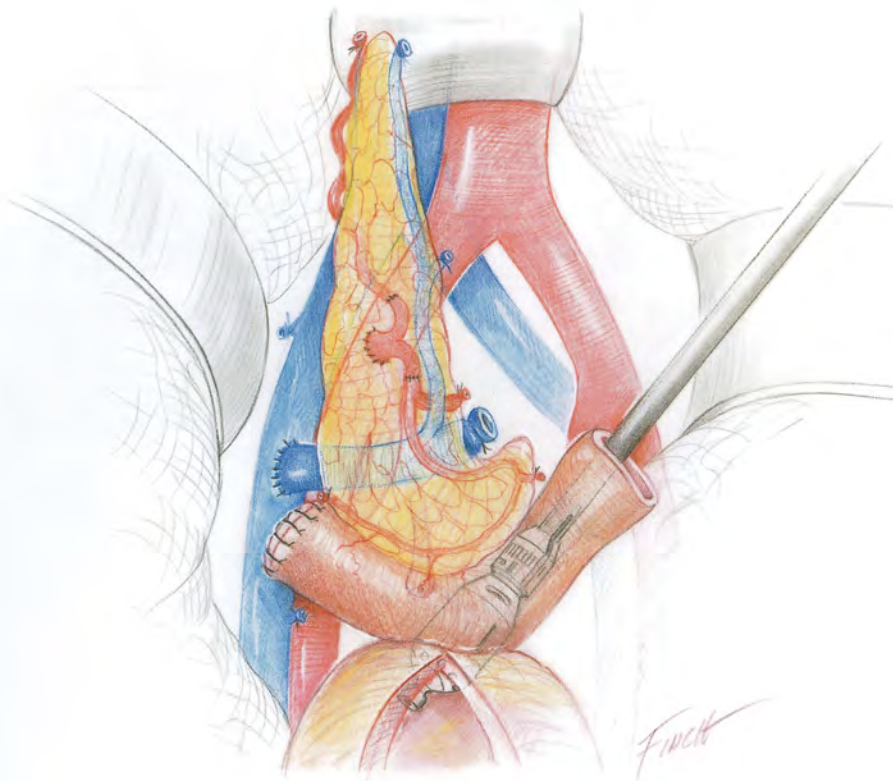


FIGURE 8.2.2.2. (A) Whole-organ transplant with systemic vein and bladder exocrine drainage: The arterial anastomosis (Y-graft) is medial and proximal to the portal vein (without an extension graft) anastomosis. The bladder is opened via an anterior cystotomy and the EEA stapler is inserted through the opened distal end of the graft duodenum. The rod of the stapler is punched through the antimesenteric wall of the duodenum and posterior wall of the bladder; the anvil of the EEA stapler is placed on the stapler rod. The stapler is ready to be fired, creating a circular staple line (duodenocystostomy).

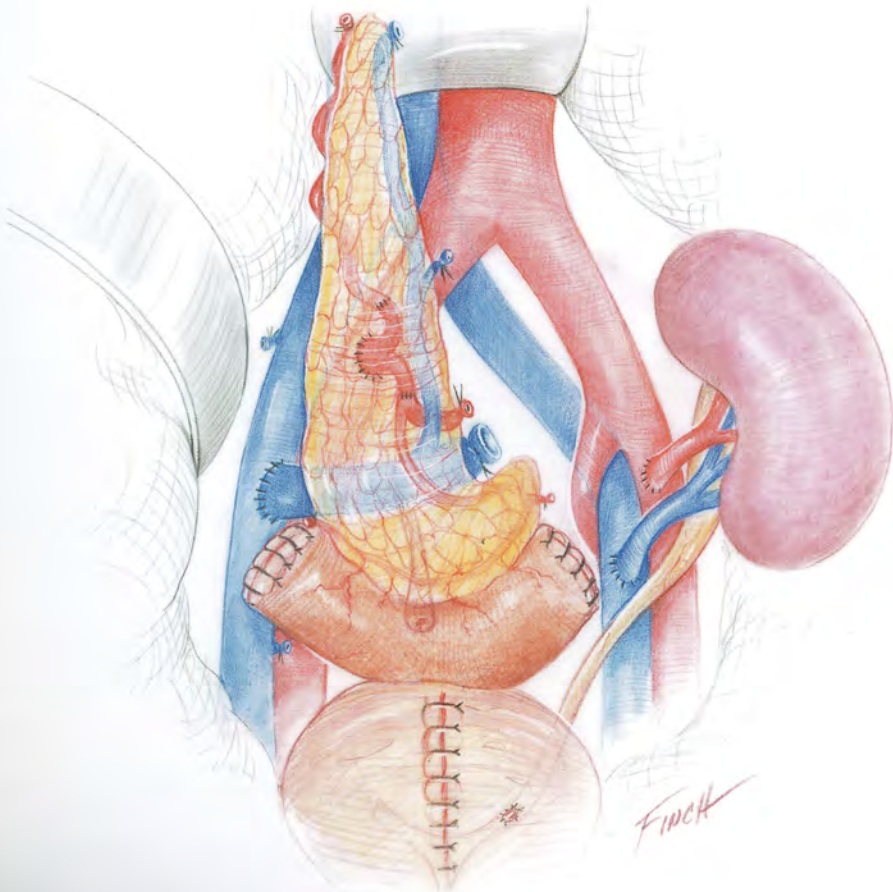


FIGURE 8.2.2.2. (B) Whole-organ transplant with systemic vein and bladder exocrine drainage: Both the pancreas and kidney are placed intraabdominally; the pancreas is on the right side of the pelvis. The donor Y-graft is anastomosed to the recipient common iliac artery and the donor portal vein to the recipient common iliac vein. Both duodenal stumps are oversewn, as is the anterior cystotomy. The donor renal artery and vein are anastomosed to the recipient external iliac artery and vein; the ureter is implanted into the bladder using the Politano-Leadbetter technique.



FIGURE 8.2.2.3. (A) Standard extravesical ureteroneocystostomy according to Lich. The seromuscular layer of the anterolateral surface of the bladder is incised for a length of 3 to 4 cm. The bulging urothelial layer is opened for only 0.5 to 1 cm at the distal end of the incision; the spatulated ureter is anastomosed using 5-0 or 6-0 absorbable sutures in running fashion. The muscle layer is closed over the ureter, thereby creating a submucosal tunnel.

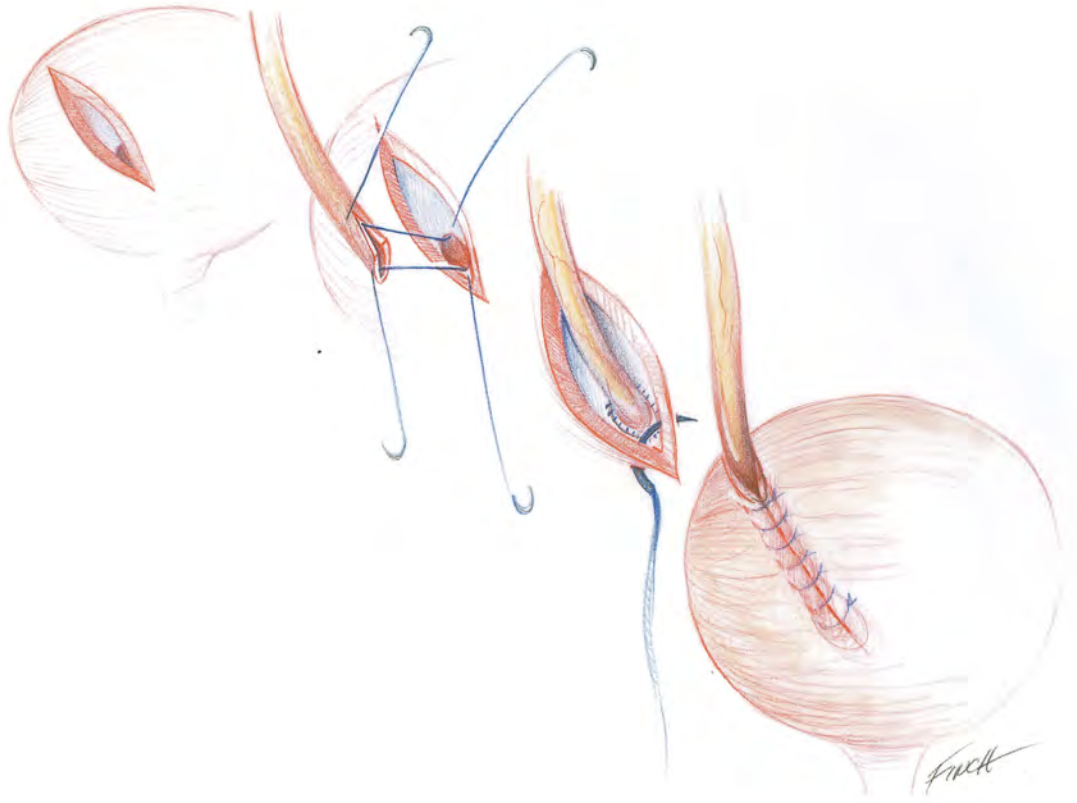
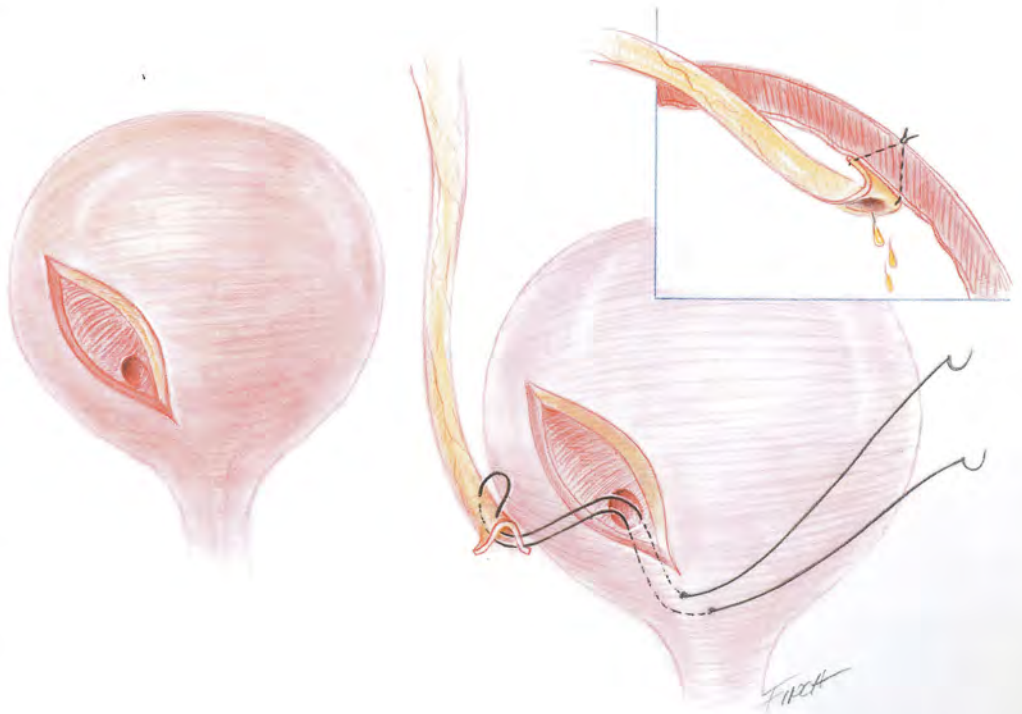


FIGURE 8.2.2.3.(B) Modified single-stitch extravesical ureteroneocystostomy. The seromuscular layer of the anterolateral surface of the bladder is incised for a length of 3 to 4 cm. The urothelial layer is separated from overlying muscle for 3 to 4 mm on each side of the incision. The bulging urothelial layer is opened for 0.5 to 1 cm at the distal end of the incision. A double-armed 3-0 nonabsorbable suture is passed from the outside (opposite the apex of the spatulation) into the ureter and brought through the ureteral tip. Both needles are then passed through the bladder opening and brought through the full thickness of the bladder, emerging 2 to 3 cm distal from the incision. The suture is tied, pulling the ureter into the bladder lumen, occluding the urothelial layer defect, and everting the tip. The seromuscular layer of the bladder is then closed over the ureter using 5-0 absorbable sutures, thereby creating a submucosal ureteral tunnel.



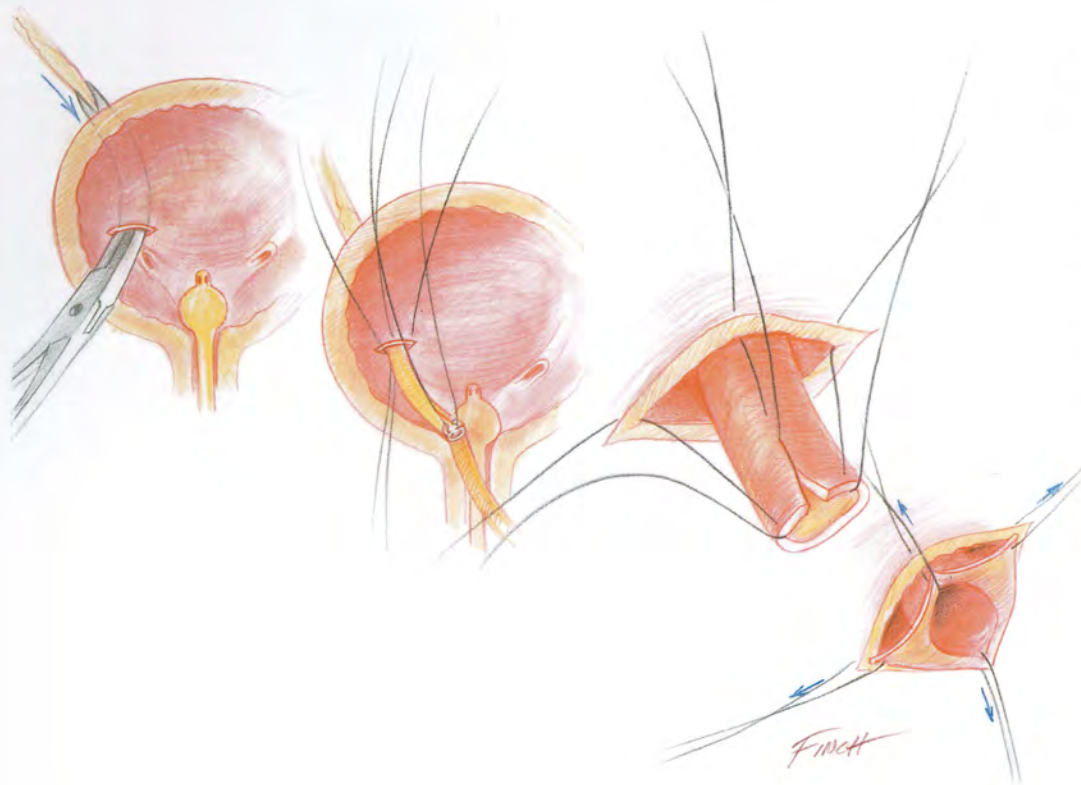


FIGURE 8.2.2.3. (C) Transvesical ureteroneocystostomy according to Politano–Leadbetter. The posterolateral bladder wall is transversely incised, a submucosal tunnel is created for about 2 cm, and, after a right-angle clamp is punched through the bladder, the ureter is drawn through the tunnel. The cut end of the ureter is incised (0.5 cm) and approximated with 5–0 absorbable sutures to the urothelial layer.

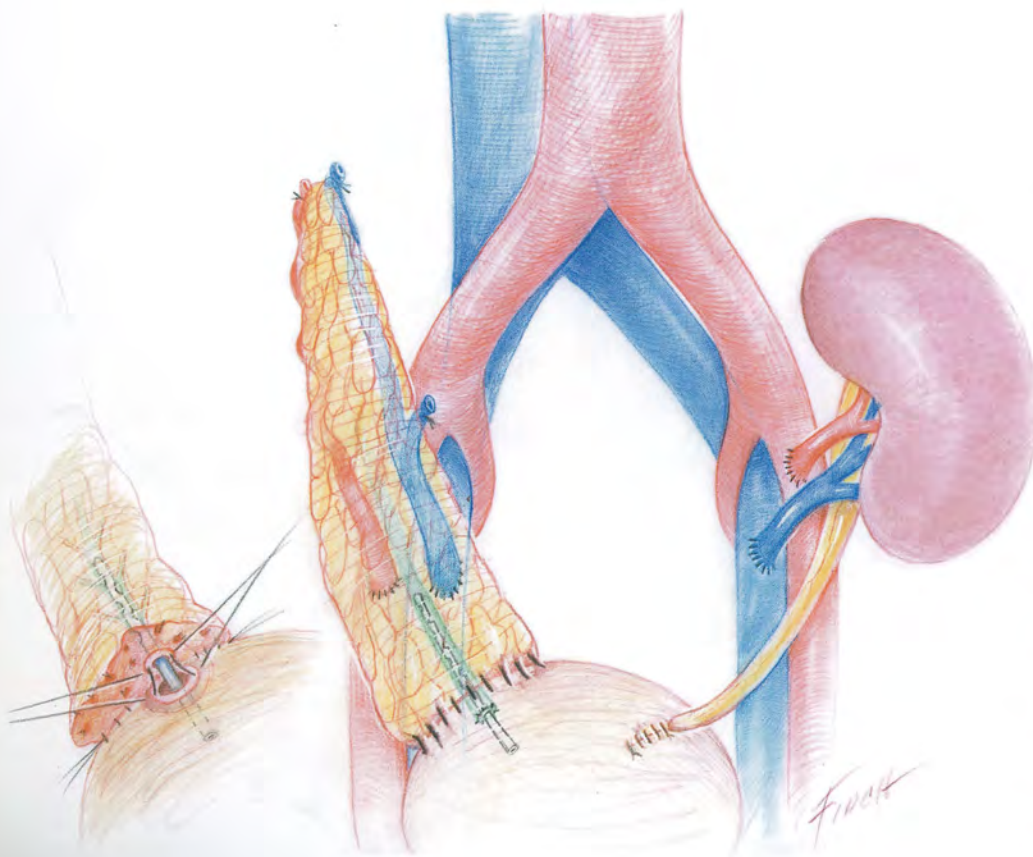


FIGURE 8.2.2.4. Segmental transplant with systemic vein and bladder exocrine drainage. The donor splenic artery and splenic vein are anastomosed end to side to the recipient external iliac artery and vein. The splenic artery anastomosis is lateral and proximal to the splenic vein anastomosis. A two-layer ductocystostomy is constructed: The pancreatic duct is approximated to the urothelial layer (inner layer) using interrupted 7–0 absorbable sutures over a stent (inset). The ureter of the simultaneously transplanted kidney is implanted into the bladder using the extravesical ureteroneocystostomy (Lich) technique.



FIGURE 8.2.2.5. (A) Whole-organ transplant with systemic vein and enteric exocrine drainage: side-to-side two-layer duodenojejunostomy. The pancreas with its vascular anastomoses (donor Y-graft to recipient common iliac artery, donor portal vein to recipient common iliac vein) is implanted in the standard fashion on the right side of the pelvis.

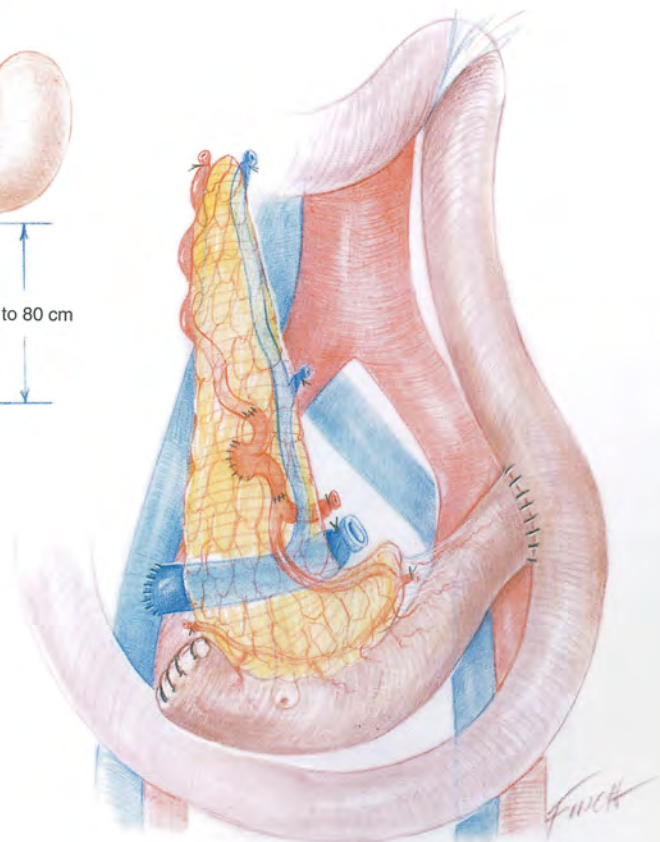


FIGURE 8.2.2.5. (B) Whole-organ transplant with systemic vein and enteric exocrine drainage: end-to-side two-layer duodenojejunostomy using the distal end of the graft duodenum. The anastomosis is located 40 to 80 cm distal to the ligament of Treitz (inset). The pancreas is implanted in the standard fashion on the right side of the pelvis.

FIGURE 8.2.2.5. (C) Preparation of the Roux-en-Y loop for enteric exocrine drainage. The recipient jejunum is divided, using a GIA stapler, approximately 40 to 80 cm distal to the ligament of Treitz at a level that allows construction of a tension-free duodenojejunostomy.

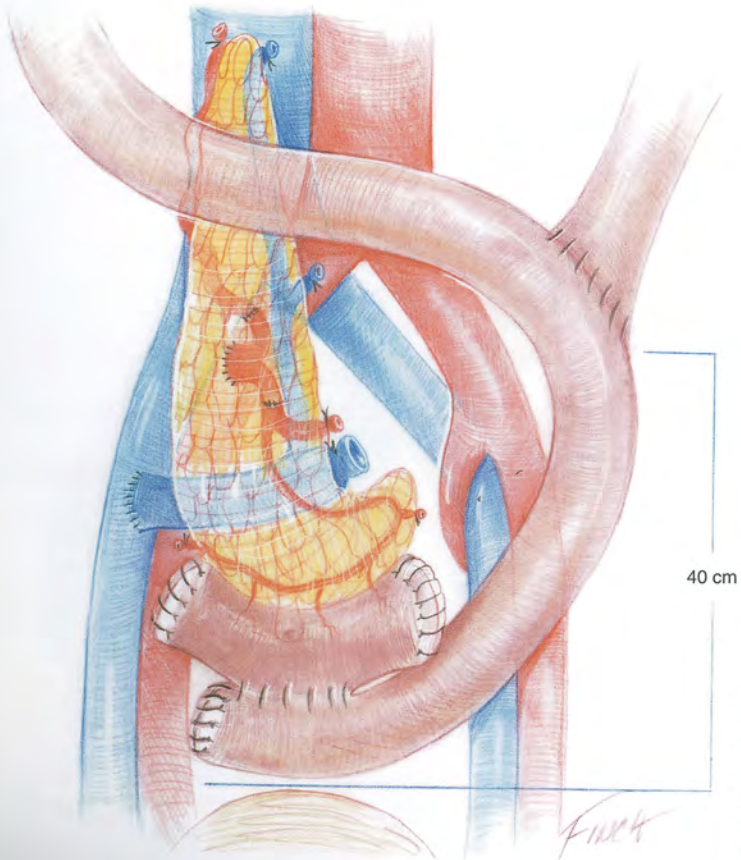


FIGURE 8.2.2.5. (D) Whole-organ transplant with systemic vein and enteric exocrine drainage: Roux-en-Y two-layer side-to-side duodenojejunostomy. The end-to-side jejunojejunostomy is made about 40 cm distal to the duodenojejunostomy. The pancreas is implanted in the standard fashion on the right side of the pelvis.

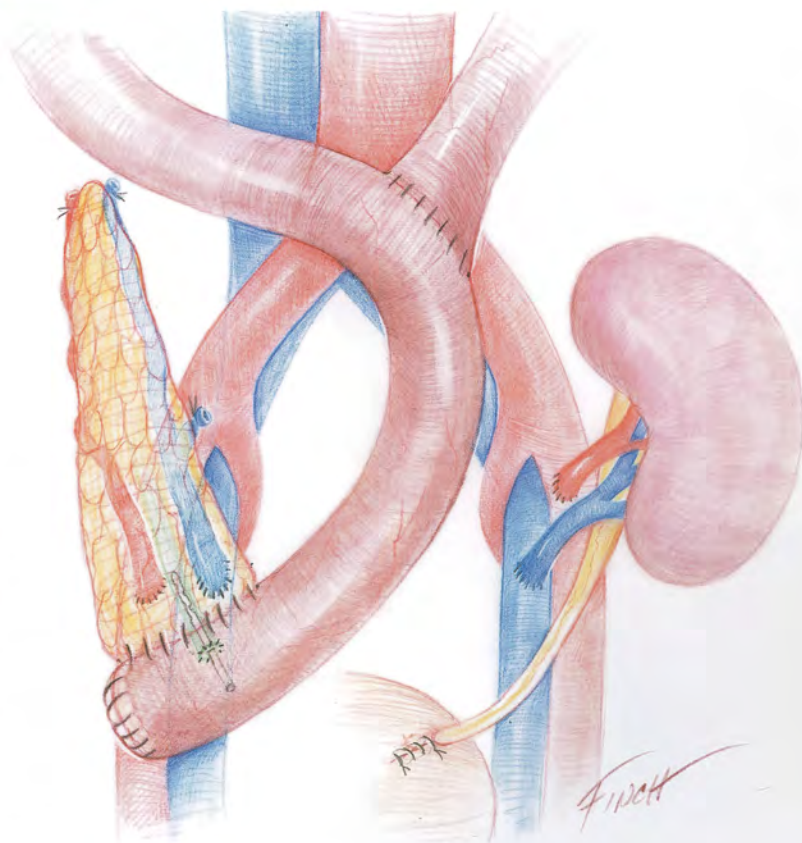


FIGURE 8.2.2.6.

Whole-organ transplant with systemic vein and enteric exocrine drainage (cephalad position). The donor portal vein (with an extension graft) is anastomosed end to side to the recipient common iliac vein or infrarenal cava. The donor Y-graft is anastomosed to the recipient common iliac artery. The arterial anastomosis is medial and distal to the venous anastomosis. A two-layer side-to-side duodenojejunostomy is constructed about 40 to 80 cm distal to the ligament of Treitz (inset).



FIGURE 8.2.2.7. (A) Segmental transplant with systemic vein and enteric exocrine drainage (caudad position). The donor splenic artery and vein are anastomosed end to side to the recipient external iliac artery and vein. The splenic artery anastomosis is lateral and proximal to the splenic vein anastomosis. The two-layer ductojejunojejunostomy to a Roux-en-Y loop consists of an outer interrupted layer and an inner duct-to-mucosa anastomosis over a stent. The end-to-side jejunojunojejunostomy is made about 40 cm distal to the ductojejunojejunostomy. The ureter of the simultaneously transplanted kidney is implanted into the bladder using the extravascular ureteroneocystostomy (Lich) technique.





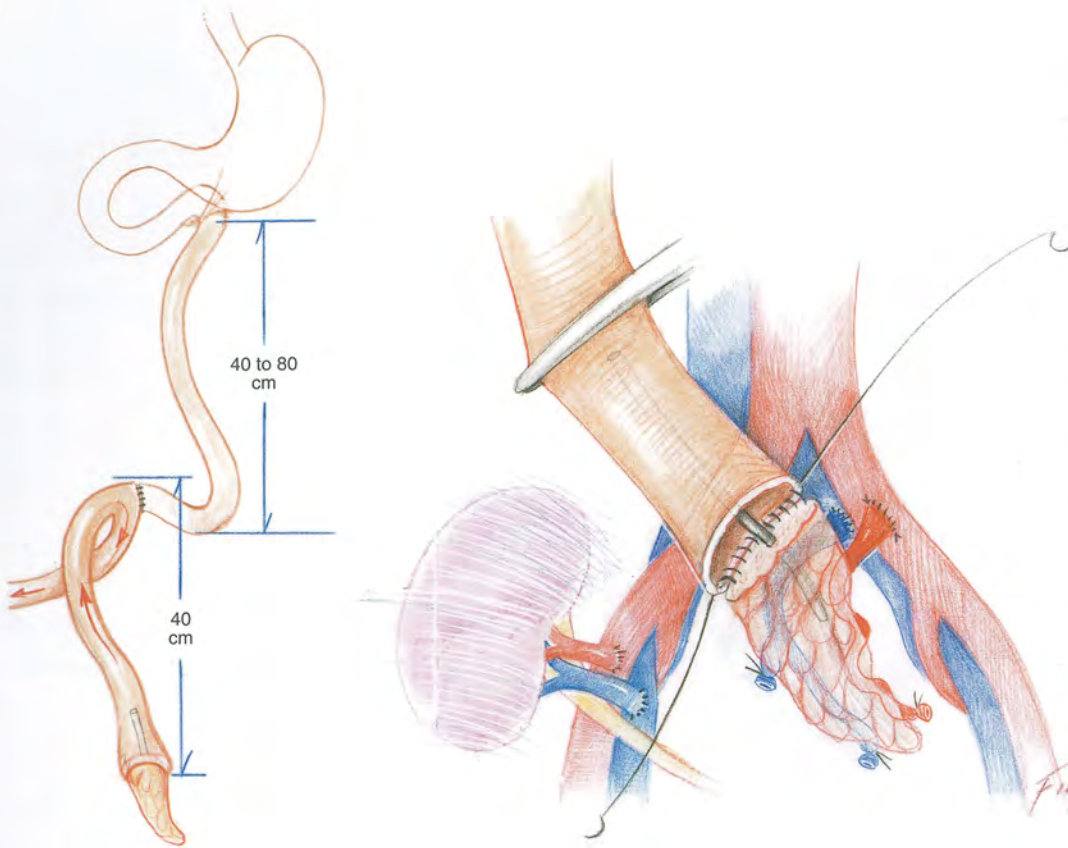


FIGURE 8.2.2.7. (B) Segmental transplant with systemic vein and enteric exocrine drainage (cephalad position). Because of the previous kidney transplant on the right side, the donor splenic artery and vein are anastomosed end to side to the left recipient common iliac artery and vein. The splenic artery anastomosis is lateral and distal to the splenic vein anastomosis. A two-layer Roux-en-Y pancreaticojejunostomy is created and a temporary stent is placed in the pancreatic duct. The Roux-en-Y limb is constructed in the standard fashion 40 to 80 cm distal to the ligament of Treitz; the jejunojejunostomy, 40 cm distal to the pancreaticojejunostomy (inset).

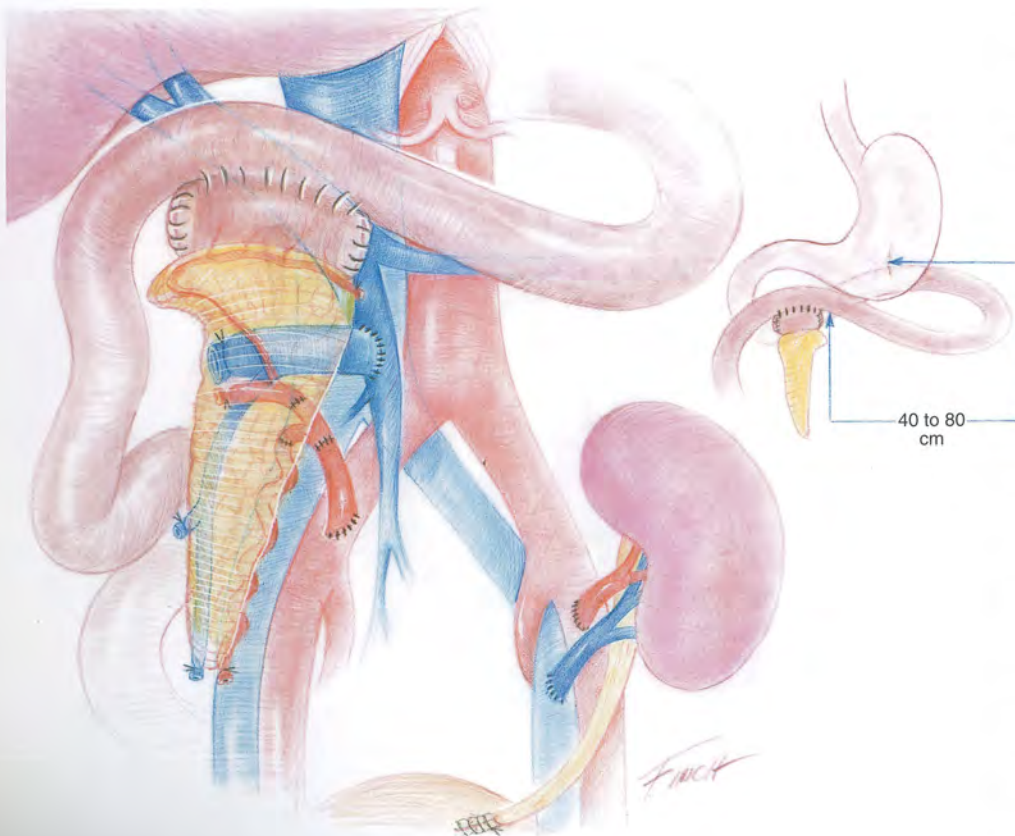


FIGURE 8.2.2.8. Whole-organ transplant with portal vein and enteric exocrine drainage. The pancreas graft overlies the root of the small bowel mesentery, with the duodenal segment below the transverse colon. The donor portal vein is anastomosed end to side to the recipient superior mesenteric vein. The donor Y-graft (with an extension graft) is anastomosed to the recipient common iliac artery through a mesenteric tunnel. A two-layer side-to-side duodenojejunostomy is constructed about 40 to 80 cm distal to the ligament of Treitz. In the final position, the jejunal limb usually lies anterior to the donor duodenum. The simultaneously transplanted kidney is anastomosed to the recipient external iliac artery and vein. The ureter is implanted into the bladder using the extravesical ureteroneocystostomy (Lich) technique.



FIGURE 8.2.2.9. Segmental transplant with duct injection. The donor splenic artery and vein are anastomosed to the recipient external iliac artery and vein. The arterial anastomosis is lateral and proximal to the venous anastomosis. The duct is injected with a synthetic polymer. For ureteral implantation into the bladder, an extravascular ureteroneocystostomy (Lich) technique is used.

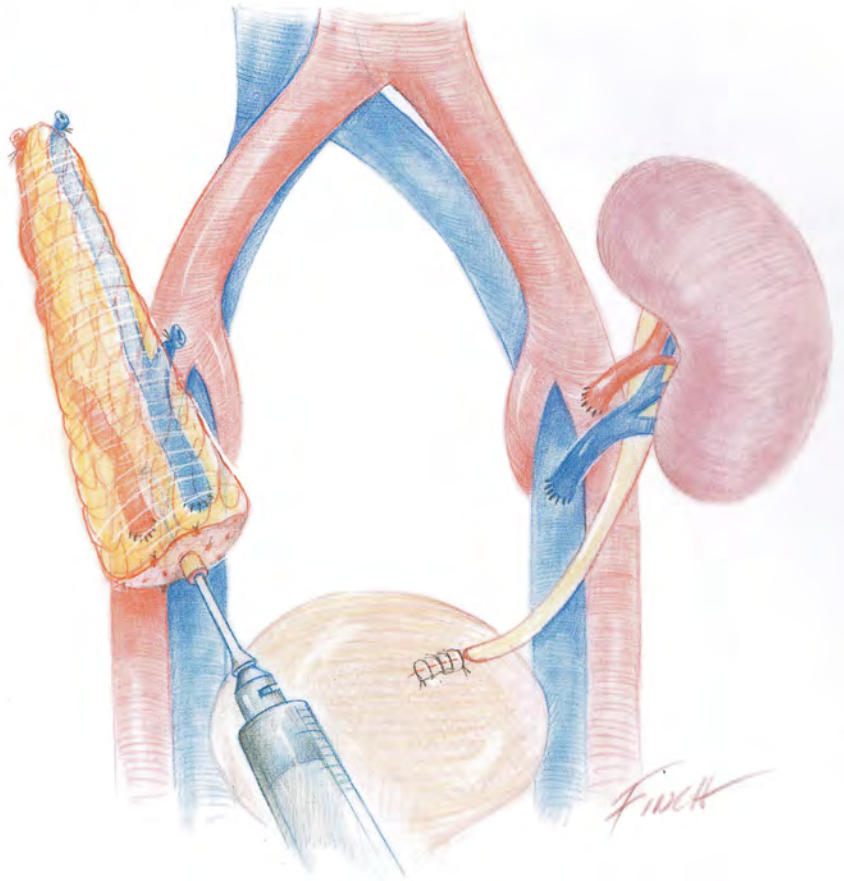


FIGURE 8.2.2.10. Whole-organ transplant with duct injection. Because of the previous kidney transplant on the right side, the whole-organ pancreas graft (without the duodenum) is implanted into the left side; the Y-graft anastomosis is lateral and distal to the portal vein anastomosis. The pancreatic duct is injected with about 10 mL of a synthetic polymer.

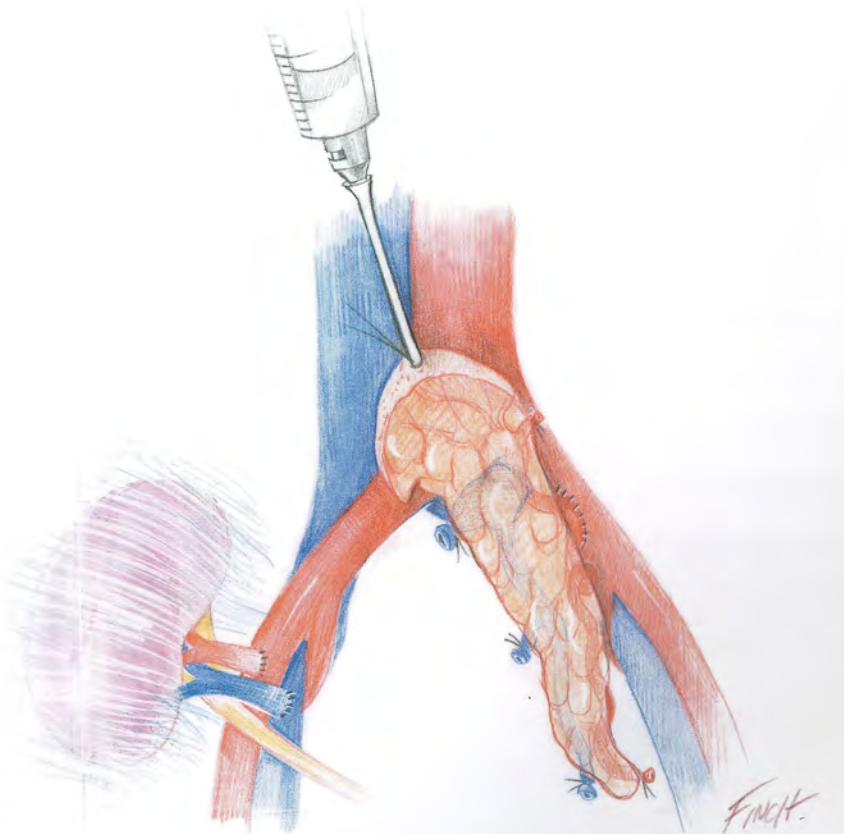


FIGURE 8.2.2.11. Split-pancreas transplant with systemic vein and bladder exocrine drainage. The neck of the pancreas is divided above the portal vein using ligatures. The proximal segment (pancreatic head with duodenum) receives its blood supply via a Carrel patch encompassing the celiac artery and superior mesenteric artery; venous drainage is via the portal vein. (The orifice of the splenic is oversewn.) The distal segment (body and tail of the pancreas) receives its blood supply from the splenic artery and vein. The proximal segment is implanted on the right side of the pelvis in the standard fashion and a duodenocystostomy is created. The distal segment is also implanted on the right side and a ductocystostomy is created.

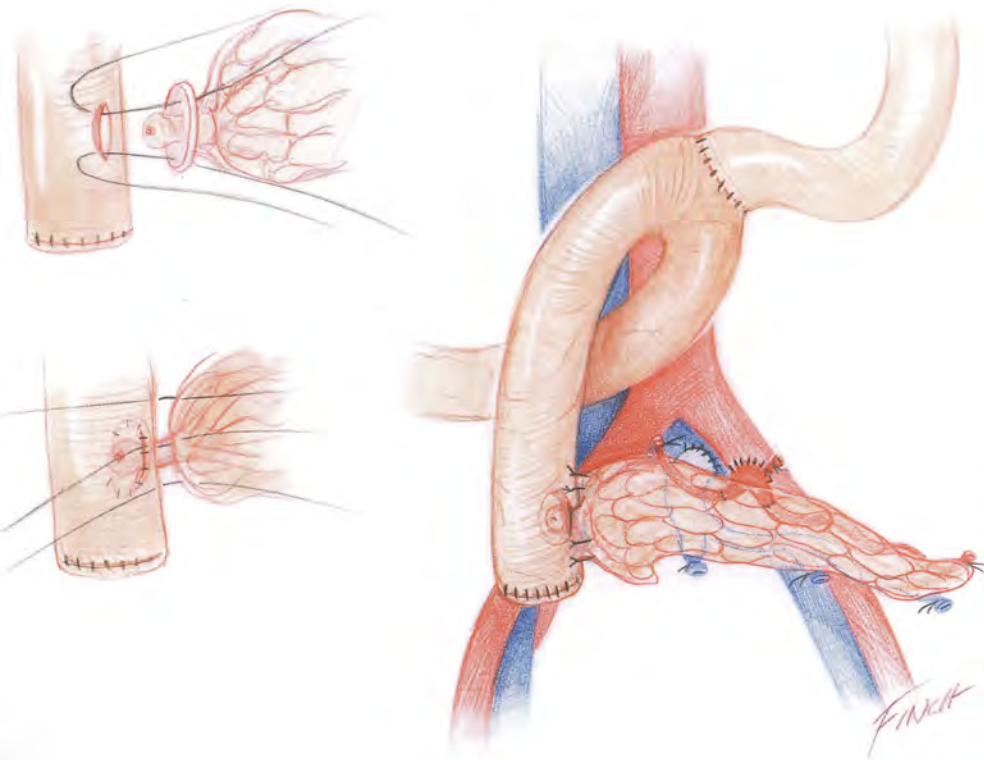
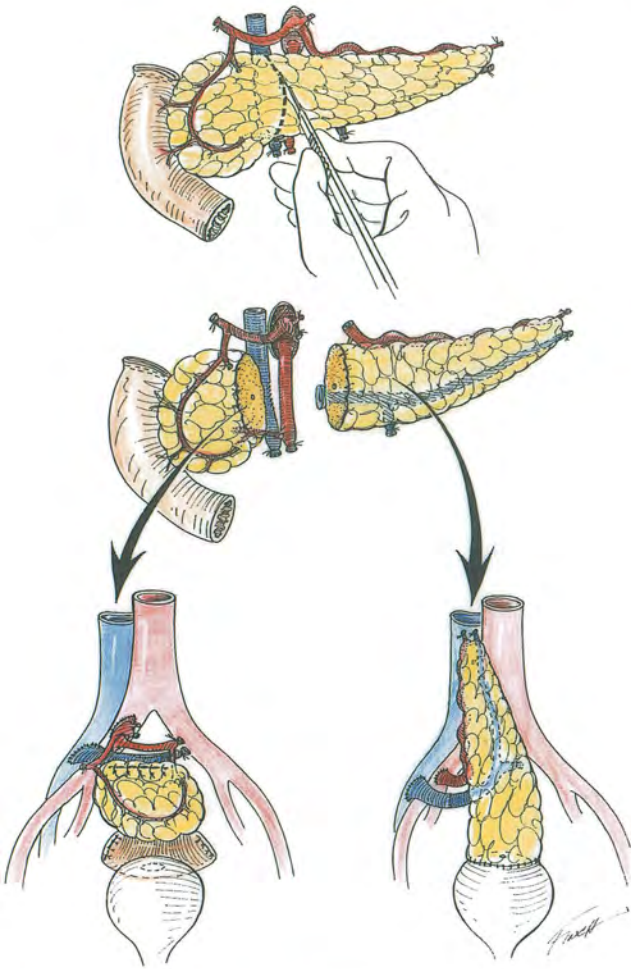


FIGURE 8.2.2.12. Duodenal button technique with systemic vein and enteric exocrine drainage. In this case, the whole-organ pancreas graft with a small rim of duodenum is implanted on the left side of the pelvis. The duodenal cuff is anastomosed to a Roux-en-Y loop with an inner interrupted layer and an outer running layer. The jejunojunctionostomy is made about 40 cm distal to the duodenojejunostomy.