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Laparoscopic orthotopic kidney transplantation and laparoscopic pancreas transplantation: Initial research with a pig model

Objectives: This study was to investigate the feasibility of laparoscopic orthotopic kidney transplantation and laparoscopic pancreas transplantation with a pig model.

Methods: For laparoscopic orthotopic kidney transplantation, the study involved bilateral laparoscopic nephrectomy in pigs. One of 2 kidneys harvested from the first or second nephrectomy was chosen as the donor kidney to be transplanted to the left or right side in the second nephrectomy position. Ten laparoscopic orthotopic kidney transplantations were performed. Three cases laparoscopic pancreas transplantation were finished with pancreatic vein and artery anastomosed end-to-end to the native renal vein and artery respectively, and duodenum anastomosed end-to-side to the duodenum or jejunum. For laparoscopic orthotopic kidney transplantation and laparoscopic pancreas transplantation, the vessels anastomosis techniques were same.

Results: the mean venous anastomotic time was 55 minutes (45–108 minutes). The mean arterial anastomotic time was 21 minutes (15–45 minutes). Four pigs received life supporting auto-renal allografts. Their serum creatinine levels were 163, 210, 285, and 440 $\mu\text{mol/L}$, respectively, at postoperative day 7. Histopathologic examination of the autografts demonstrated normal renal architecture in 2 survival, and acute tubular necrosis in the remaining 8. An immediate viable blood supply was seen in the 3 pancreatic grafts during the operation by the appearance of a bright red color. All the 3 pancreatic grafts had autopsy-proven reliable artery and vein anastomoses.

Conclusions: Our study reinforces the feasibility of laparoscopic orthotopic kidney transplantation and laparoscopic pancreas transplantation in pigs. This study comprised only initial practices; further practice is needed to refine the surgical procedures before clinical use.

Biography

Xiu-Wu Han has completed his PhD from Capital Medical University, Beijing, China. He is the director of Department of Urology, Beijing Chaoyang Hospital, Capital Medical University (western campus), a vice professor Capital Medical University Beijing, P.R. China. He has published more than 40 papers in reputed journals and has been serving as an editorial board member of *repute*. He is coauthor of the book "The Surgery for Kidney Transplantation" (published in Australia).

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