Techniques of robot-assisted kidney transplantation

Seoungjun Lim, Youngmin Ko, Donghyun Kim, Joohee Jung, Hyunwook Kwon, Younghoon Kim, Duckjong Han, Sung Shin

Division of Transplantation, Department of Surgery, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea

Background: This article shows the details of robot-assisted kidney transplantation (RAKT) from a living donor. RAKT was performed with Da Vinci Si.

Methods: The patient was placed supine with the legs parted and in Trendelenburg position. The Da Vinci robot was docked between the legs. Kidney allograft was given from a living donor. Before vascular anastomosis, a kidney allograft was prepared on the back table including insertion of a double-J stent in the ureter. The kidney allograft was wrapped in an ice-packed gauze to lower the temperature during the anastomosis time. A 12-mm port for robotic camera, three 8-mm ports for robotic arms, and a 12-mm port for an assistant were placed. After creating peritoneal pouch for the kidney allograft, dissection of iliac vessels and bladder was performed. Through a 6-cm Pfannenstiel incision, the kidney was inserted into the peritoneal pouch lateral to right iliac vessels. After the external iliac vein was clamped with Bulldogs clamps, a venotomy was given and the graft renal vein was anastomosed to the external iliac vein in an end-to-side continuous manner with a 6/0 GORE-TEX CV-6 (W.L. Gore and Associates Inc., Flagstaff, AZ, USA). After the graft renal vein was clamped, the iliac vein was declamped. Similarly, clamping of the external iliac artery, arteriotomy, arterial anastomosis with a 6/0 GORE-TEX CV-6, clamping of the graft renal artery, and declamping of the external iliac artery were performed. Reperfusion was done and ureteroneocystostomy was performed according to the Lich-Gregoir technique. Jackson-Pratt drain was placed through one of working ports and the peritoneum was closed at a few locations with Hem-o-lok.

Results: Three patients were operated with RAKT. The mean surgery duration was 441 minutes. The mean postoperative hospital days were 7.3 days. The mean of lowest post-operation creatine was 1.38 mg/dL.

Conclusions: RAKT could be an alternative method in kidney transplantation.

Corresponding author: Seoungjun Lim

E-mail: dkhe1986@naver.com

© The Korean Society for Transplantation

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.