



Single port robot-assisted transperitoneal kidney transplant using the SP[®] surgical system in a pre-clinical model

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ABSTRACT

Introduction: Minimally invasive surgery has recently gained interest for kidney transplantation. We aimed to describe the step-by-step technique for single-port robotic transperitoneal kidney transplantation using the SP[®] surgical system (Intuitive Surgical, Sunnyvale, Ca) in a pre-clinical model.

Materials and Methods: A male fresh cadaver model was placed in a lithotomy position. A 3cm midline incision was made 4cm cephalad to the belly button. An advanced access platform (GelPOINT, Rancho Margarita, California, USA) was inserted into the abdominal cavity through the incision. A left kidney was obtained for the local procurement organization. Bench preparation of the kidney was performed. Thereafter, the organ was introduced transperitoneal through the Alexis[®] wound retractor. The SP[®] robotic platform was docked and the pelvic fossa was targeted. The standardized steps of robotic multi-arm kidney transplant were duplicated. Primary outcomes such as intraoperative complications, rate of conversion to standard technique and operative times were recorded.

Results: The procedure was technically completed using the SP[®] robotic system without conversion or the need for additional ports. There were no intraoperative complications. The total operative time was 182 minutes, with 35 minutes spent for bench kidney.

Conclusions: Robotic Single-Port kidney transplantation using the SP[®] surgical platform is feasible in a pre-clinical model. The platform could be particularly interesting for multi-quadrant surgery such as auto-transplantation, potentially reducing the time for redocking. Further clinical studies in humans and comparison with standard surgical techniques are warranted.

CONFLICT OF INTEREST

None declared.

ARTICLE INFO

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Available at: http://www.int brazjurol.com.br/video-section/20190191_Garisto_et_al
Int Braz J Urol. 2020; 46 (Video #18): 680-1

Submitted for publication:
March 19, 2019

Accepted after revision:
May 26, 2019

Published as Ahead of Print:
August 10, 2019

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