Robot-assisted Laparoscopic Extravesical Cross-trigonal Ureteral Reimplantation With Tailoring for Primary Obstructive Megaureter

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OBJECTIVE To describe a novel, minimally invasive surgical technique, robotic-assisted laparoscopic dismembered extravesical cross-trigonal ureteral reimplantation for primary obstructive megaureter and to report a case series of 13 patients.

METHODS Thirteen patients between the ages of 10 and 96 months who were diagnosed with primary obstructive megaureter underwent robotic-assisted laparoscopic dismembered extravesical cross-trigonal ureteral reimplantation between April 2017 and May 2019. The principle of this technique is performing an extravesical cross-trigonal ureteral reimplantation with intracorporeal tailoring of the ureter. This provides the advantage of achieving a long tunnel mimicking the Cohen cross-trigonal ureteral reimplantation, without performing the open surgical technique and offers the potential benefits of minimally invasive surgery. Surgical technique is described, demographic data and intra- and/or postoperative parameters are reported.

RESULTS Median age was 26 months (IQR 16-60). Median weight was 15 kg (IQR 10.1-31). Median console time was 113 minutes (IQR 90.5-140). Median postoperative stay was 2.5 days (IQR 1.3-3). Median ureteral diameter decreased from 17 mm (IQR 12.5-18.5) to 3 mm (IQR 0-6.5, $P = .001$). Median renal pelvis diameter decreased from 28 mm (IQR 20.5-37.8) to 4 mm (IQR 1.5-5, $P = .005$). Median renal function before surgery was 46% (IQR 24.5-48.5) and following surgery was 42% (IQR 36-42, $P = .700$). Median $T_{1/2}$ decreased from 28 minutes (IQR 19.3-30) to 4.5 minutes (IQR 3-5, $P = .009$). Postoperative complications graded by the Clavien-Dindo classification were apparent in 3 patients (21%). One had grade I complication (fever, resolved spontaneously) and 2 had a Grade II complication (urinary tract infection).

CONCLUSION Robot-assisted cross-trigonal ureteral reimplantation with intracorporeal tailoring is safe, feasible, and reproducible in short-term follow-up. UROLOGY 134: 243–245, 2019. © 2019 Elsevier Inc.

Figures 1-4.

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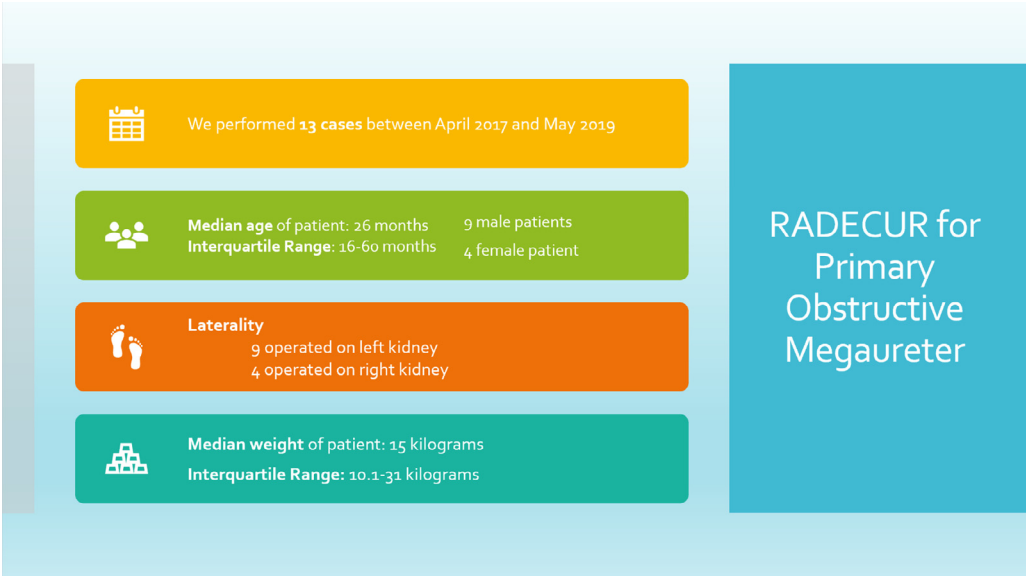

Figure 1. Demographic data of patients in study. (Color version available online.)

	Pre op	Post op	P-value
Median Ureteral Diameter (mm)	17 (IQR 12.5-18.5)	3 (IQR 0-6.5)	P=0.001
Median Renal Pelvis Diameter (mm)	28 (IQR 20.5-37.8)	4 (IQR 1.5-5)	P=0.005
Median Renal Function (%)	46 (IQR 24.5-48.5)	42 (IQR 36-42)	P=0.700
Median Contrast $T_{1/2}$ (minutes)	28 (IQR 19.3-30)	4.5 (IQR 3-5)	P=0.009

Figure 2. Quantitative surgical outcomes. (Color version available online.)

Figure 3. Intra and postoperative data. (Color version available online.)

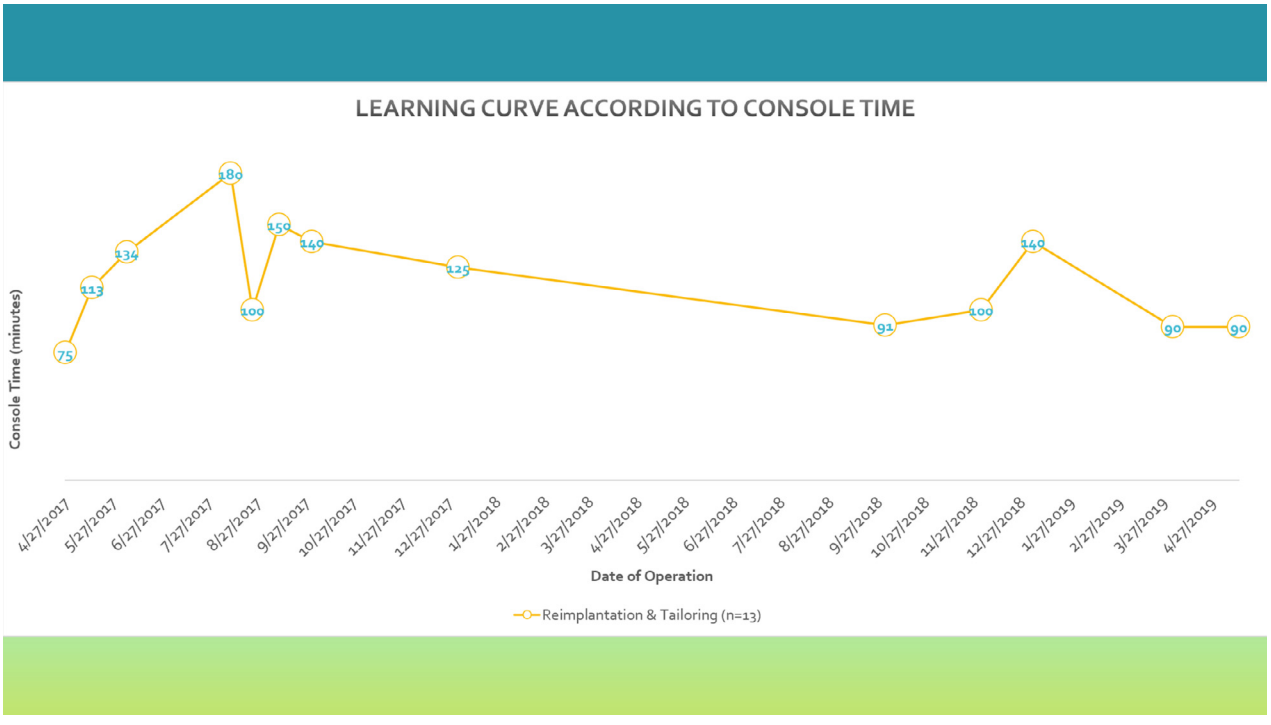

Figure 4. Learning curve according to console time. (Color version available online.)