

Laparoscopic Flap Pyeloplasty in a Child With Ectopic Pelvic Kidney

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INTRODUCTION

Ureteropelvic-junction-obstruction (UPJO) occurs in 22% to 37% of ectopic kidneys.⁽¹⁾ Laparoscopic dismembered pyeloplasty (LDP) is an acceptable treatment for UPJO in pediatric patients with orthotropic kidneys.^(2,3) Laparoscopic flap techniques have less favorable results than LDP in adult patients with orthotropic kidneys.⁽³⁾ To our best knowledge, laparoscopic flap pyeloplasty of UPJO has not been previously reported in pediatric patients with pelvic kidneys. We report laparoscopic treatment of UPJO due to high insertion in a child with a pelvic kidney.

CASE REPORT

A 7-year-old girl with mild right flank and lower abdominal pain since 4 months ago presented to our center for further evaluation. Her weight was 20 kg, and she had a history of one episode of lower urinary tract infection 3 years ago without recurrence. Physical examination was unremarkable, except presence of mild periumbilical tenderness

and a palpable mild tender mass in the same area which was a pelvic kidney. Laboratory data, including renal function tests, urine analysis, and culture were normal. Abdominal ultrasonography revealed left malrotated kidney and right pelvic kidney with severe hydronephrosis and normal ureter. Intravenous urography (Figure 1), voiding cystourethrography, retrograde pyelography, magnetic resonance urography, technetium-99m diethylenetriaminepentaacetic acid (^{99m}Tc-DTPA) renal scan, and diuretic renography revealed UPJO of right ectopic kidney with normal bladder (Figure 1). The patient underwent laparoscopic pyeloplasty.



Figure 1. Right pelvic kidney with hydronephrosis due to ureteropelvic-junction-obstruction is seen. LK indicates left kidney and U; ureter.

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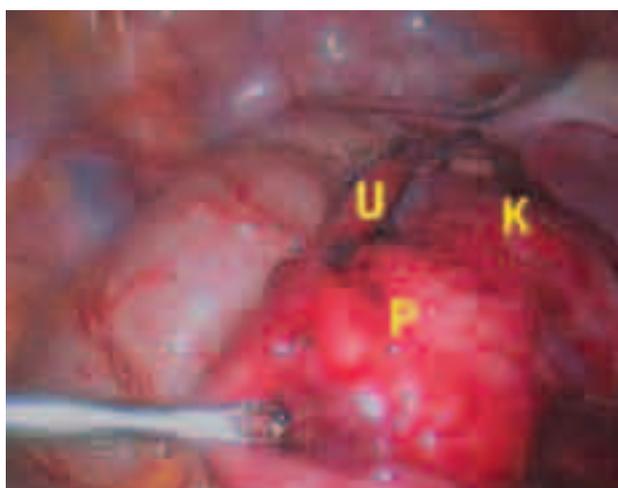


Figure 2. Dilated pelvis (P) with adjacent ureter (U) is seen. K indicates kidney.

TECHNIQUE

Operation was performed under general anesthesia in supine position via transperitoneal approach by four 5-mm trocars. One trocar was held in the superior umbilicus for laparoscopic lens and three 5-mm (working ports) trocars were placed in the right and left midclavicular lines at levels of umbilicus and left anterior axillary line. After insufflating CO₂ and visualizing abdomen, the pelvis of the right kidney was detected in the pelvic area. After incising posterior peritoneum covering the pelvis, ureteropelvic junction as well as dilated and malrotated pelvis were detected easily (Figure 2). Ureteropelvic junction position was high inserted, but because the inferior portion of the pelvis was near the



Figure 3. The created flap (F) is sutured to spatulated ureter (SU) over a double-J ureteral stent. LC indicates left colon and O; omentum.

lower pole infundibulum and there would be some tension and also risk of injury to the lower pole infundibulum if we tried for Y-V plasty, we decided to repair obstruction by flap technique. Harvested flap about 3 cm in length and 1 cm in width was developed from the pelvis to the lower pole infundibulum and directed downward near spatulated ureter. After holding a double-J stent by antegrade technique, anastomosis was done over a double-J stent in 2 layers using 5-0 vicryl suture (Figure 3). After closure of flap and the pelvis, peritoneum was closed and a tube drain was held in the field. Whole operation time was 140 minutes and there was not any intra and post operative complication.

RESULTS

Drain and Foley catheter were removed on the 4th postoperative day and the patient was discharged

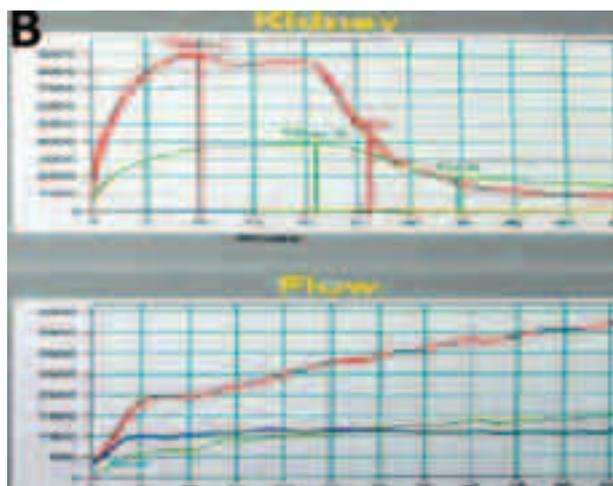
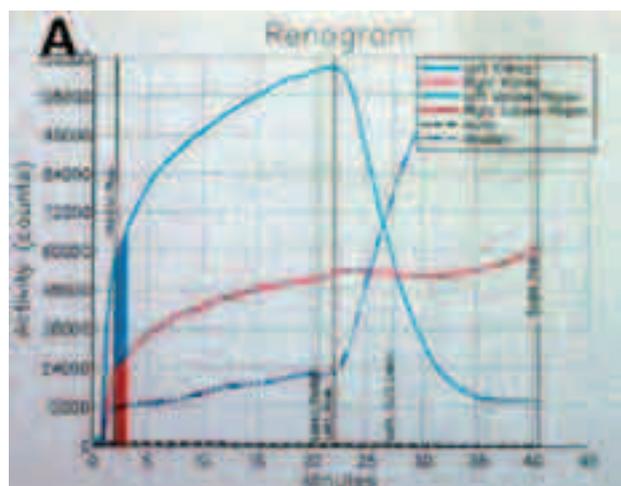


Figure 4. Pre-operative renogram shows deteriorated right kidney function (A). At 3-month postoperative renogram, right kidney demonstrated normal function with nearly normal washout time (B).

with double-J ureteral stent in place and prophylactic antibiotic on the 5th postoperative day. Ureteral stent was removed after 4 weeks, and at 3-month follow-up, ^{99m}Tc-DTPA scan and diuretic renogram revealed no obstruction with significant improvement in washout time (Figure 4).

DISCUSSION

The laparoscopic approach provides all the benefits of minimally invasive procedures to the patient with entopic kidneys.⁽⁴⁾ Laparoscopic dismembered pyeloplasty, although technically challenging, provides excellent results for extrinsic or complicated UPJO with success rates approaching those of traditional open pyeloplasty.^(5,6) In a study by Klingler and colleagues for comparing open versus laparoscopic pyeloplasty in adult patients with nonectopic kidneys, success rate was 96% for LDP, 93.4% for open pyeloplasty, and 73.3% for laparoscopic non-dismembered pyeloplasty (LNDP).⁽⁴⁾ In another study by Casale and associates comparing LDP and LNDP in pediatric patients with orthotopic kidneys, the mean operation time was 3.1 hours in two groups, but success rate was poor in LNDP (43%) compared to LDP (94%).⁽³⁾ To our best knowledge, this is the first report on laparoscopic flap pyeloplasty of UPJO in a child with a pelvic kidney and acceptable operation

time, with minimal blood loss. Laparoscopic flap pyeloplasty is indicated when dismembered and Y-Vplasty is not possible. This technique is feasible and provides excellent exposure.

CONFLICT OF INTEREST

None declared.

REFERENCES

1. Wadhwa P, Hemal AK. Case report: transmesocolic laparoscopic reconstruction of ureteropelvic junction obstruction in pelvic kidney associated with extrarenal calices. *J Endourol.* 2006;20:188-90.
2. Kutikov A, Resnick M, Casale P. Laparoscopic pyeloplasty in the infant younger than 6 months--is it technically possible? *J Urol.* 2006;175:1477-9; discussion 9.
3. Casale P, Grady RW, Joyner BD, Zeltser IS, Figueroa TE, Mitchell ME. Comparison of dismembered and nondismembered laparoscopic pyeloplasty in the pediatric patient. *J Endourol.* 2004;18:875-8.
4. Klingler HC, Remzi M, Janetschek G, Kratzik C, Marberger MJ. Comparison of open versus laparoscopic pyeloplasty techniques in treatment of uretero-pelvic junction obstruction. *Eur Urol.* 2003;44:340-5.
5. Gupta N, Mandhani A, Sharma D, Kapoor R, Dubey D, Kumar A. Is laparoscopic approach safe for ectopic pelvic kidneys? *Urol Int.* 2006;77:118-21.
6. Pardalidis NP, Papatsoris AG, Kosmaoglou EV. Endoscopic and laparoscopic treatment of ureteropelvic junction obstruction. *J Urol.* 2002;168:1937-40.