

One day hospitalization after open, double-J stented pyeloplasty

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Background: This study was undertaken to assess the effect of antegrade placement of internal double-J catheters for patients who underwent open pyeloplasty for ureteropelvic junction (UPJ) obstruction.

Methods: Medical records of unilateral dismembered pyeloplasties of 71 patients with UPJ obstruction treated between 1998 and 2008 were reviewed retrospectively. In all patients, a double-J catheter was placed in an antegrade fashion during the operation. The patients were reviewed in terms of age, sex, postoperative complications and length of hospital stay.

Results: All children but one using double-J catheter were discharged within 24 hours after the operation. Neither urinary leak nor re-obstruction occurred in the operated kidneys during a follow-up.

Conclusion: Transanastomotic stenting with double-J catheter is recommended as the reasonable mode of drainage in open pyeloplasty in pediatric patients.

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Key words: double-J catheter;
pyeloplasty;
ureteropelvic junction

Introduction

Congenital ureteropelvic junction (UPJ) obstruction is the most common cause of upper urinary tract obstruction in children. Surgical correction of the obstruction is safe and reasonable in case of clearly defined UPJ obstruction. Dismembered pyeloplasty is widely accepted for surgical correction

of UPJ obstruction, but controversy still exists over the postoperative drainage. Insertion of a transanastomotic double-J (JJ) catheter into the ureter during pyeloplasty has been reported.^[1,2] In this report, we presented our experience in 71 patients with unilateral UPJ obstruction in whom drainage was performed by a JJ catheter after dismembered pyeloplasty.

Methods

Seventy-one consecutive children with unilateral UPJ obstruction were operated on by a single surgeon (AA) between January 1998 and December 2008. Anderson-Hynes type dismembered pyeloplasty was performed. JJ catheter was placed in an antegrade fashion during the operation for all patients. Catheters with the widest diameter was used to fit the ureter (3-4.7F). The length of the catheter was determined according to the size of the patient. The catheter was placed after pelviureteric anastomosis of the posterior wall. Postoperative pain was relieved by oral ibuprofen. Besides, a Foley catheter was left in the bladder for 12 hours.

The position of the JJ catheter was confirmed by direct supine roentgenography of the abdomen several hours after surgery. The upper coil of the catheter in the renal pelvis and the lower coil in the bladder indicated a successful placement.

Trimethoprim-sulphamethaxazole prophylaxis was continued along the period of the catheter left *in situ*. The patients were evaluated for urinary leak, infection, the length of hospital stay and recurrence. The JJ catheter was removed cystoscopically under general anesthesia 6 weeks after pyeloplasty. Follow-up examinations of the patients included ultrasound and diuretic renal scan 3 and 6 months after the operation respectively. Long-term follow-up was conducted by annual renal ultrasound.

Results

Of the 71 patients, 70 patients were pain free and discharged from hospital at the first postoperative day. One patient was discharged at the second postoperative

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day because of pain complaints that could not be relieved by oral analgesics. Single complication related with JJ catheter was prolapse of the catheter from the urethra during micturition 3 days after the operation. The patient with this condition had undergone pyeloplasty for UPJ obstruction of the pelvic ectopic kidney. The JJ catheter was removed, and no leakage or urinoma was found.

Intermittent mild hematuria and mild pelvic discomfort were seen in all of the patients until removal of catheters. No urinary tract infection was encountered. All patients but one showed good drainage curve by postoperative diuretic renal scan during the follow-up of 2-4 years. The one patient required re-operation because of persisting obstruction after removal of the JJ catheter. The overall success rate in the patients after the first operation was 98.5%. Epidemiologic and clinical features of the patients are listed in the Table.

Discussion

Open or endourologic-laparoscopic pyeloplasty has been considered the standard surgical modality for correction of UPJ obstruction, with success rate exceeding 90%. Traditional transanastomotic nephrostomy tube drainage of the kidney has been replaced by JJ catheter stenting of the ureter to drain pediatric pyeloplasty.^[1-3] Although nonstented pyeloplasty has been used in pediatric patients with similar results to stented pyeloplasty,^[4,5] JJ catheter drainage can shorten hospital stay and reduce nursing care requirement.^[2] Pediatric patients who underwent JJ catheter stented pyeloplasty for UPJ obstruction showed similar rate of complications compared to nonstented pyeloplasty (12% vs. 14%), while more infections and secondary procedures were seen in the nonstented group.^[6] Using JJ catheter during pyeloplasty eliminates the need for external drainage.^[2,3,5,7]

Ninan et al^[8] performed 61 dismembered pyeloplasties in 60 consecutive patients with UPJ obstruction. In 58 patients, JJ catheter was placed in an antegrade fashion during the operation, so they recommended JJ stenting as the safest mode of drainage in pyeloplasty in infants and children.

The position of JJ catheter could be confirmed by instillation of methylene blue into the bladder,^[9] or perioperative fluoroscopy.^[4] In our study, the catheter position was confirmed by direct supine roentgenogram of the abdomen postoperatively because perioperative fluoroscopy was unavailable in our institution.

Vesicoureteral reflux may result in pyelonephritis and renal cortical scarring.^[10] Bacterial colonization of urine may occur after long-term use.^[11,12] We used antibiotic prophylaxis for the patients and urinary tract infection

Table. Epidemiological data and clinical features of 71 patients with UPJ

Variables	No. of cases
Age of operation, mean (range)	40 mon (6 mon-5 y)
Male/female	42/29
Prenatal diagnosis	33 (47%)
Postnatal diagnosis	38 (53%)
Age of postnatal diagnosis	26 mon (1 mon-5 y)
Side of UPJ obstruction	
Right	42 (60%)
Left	29 (40%)
Mode of presentation	
Urinary tract infection	22 (30%)
Hematuria	14 (19%)
Abdominal mass	10 (14%)

UPJ: ureteropelvic junction.

did not occur in any case for 6 weeks.

Laparoscopic pyeloplasty as a minimally invasive method has been performed for UPJ obstruction. However, this operation necessitates advanced laparoscopic skills and facilities.

Transanastomotic stenting of the ureter during pyeloplasty provides excellent anatomic and functional results, decreases the rate of complications, and reduces the length of hospital stay of the patients. Early catheter removal may cause reflux and/or anastomotic leakage. The disadvantage of internal stent is the need of second procedure to remove the stent.

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