Case Report

http://journals.sbmu.ac.ir/jpn

A Case of Single System Ectopic Ureter and Dysplastic Kidney and Contralateral Refluxing Duplex Kidney


Nasrin Esfandiar,¹*
Leili Mohajerzadeh,²
Mostafa Sharifian,¹
Reza Dalirani,¹
Jamshid Jabarpour¹

1 Pediatric Nephrology Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran
2 Pediatric Surgery Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

*Corresponding Author
Nasrin Esfandiar MD
Mofid Children’s Hospital, Tehran-Iran
Email: nasrinesfandiar@gmail.com

We report a six-year-old female child who presented with continued incontinence and a normal physical examination. Urodynamic study was normal and uroflowmetry showed a prolonged low peak flow rate (PFR) in voiding. VCUG revealed left grade III VUR. Her symptom continued in spite of medical treatment. Finally, MRU showed a single system ectopic ureter with a dysplastic kidney on the right side and a refluxing duplex kidney on the contralateral side. She underwent surgical correction and recovered.

Keywords: Ectopic Ureter; Ureter Abnormalities; Magnetic Resonance Imaging; Urography; child; Renal Dysplasia.

Introduction

Ectopic ureters (EU) are more common in duplex systems than single systems [1] but it may be reverse among Asians [2]. Diagnosing a single system ectopic ureter (SSEU) requires high clinical suspicion, especially when a dysplastic kidney and continuous incontinence exist simultaneously [3-5]. Magnetic resonance urography (MRU) is increasingly considered as a useful diagnostic tool to detect pediatric urinary tract anomalies [6-12]. Here we report a case of SSEU diagnosed by MRU and cystoscopy with an ipsilateral dysplastic kidney and a contralateral refluxing duplex kidney.

Case Report

A six-year-old girl presented with incontinence in spite of a normal physical examination of the lumbosacral area.

Primary evaluation including urinalysis, urine culture, electrolytes and renal function tests was normal. She had no history of urinary tract infection. Ultrasonography (US) showed an invisible right kidney and a larger-than-normal left kidney (96*35mm) without other abnormalities, which was interpreted as compensatory hypertrophy. On voiding cystourethrogram (VCUG), the bladder was distensible and had a regular wall. There was grade 3 vesicoureteral reflux on the left side and a mild residue after voiding [Fig.1]. Dimercaptosuccinic acid scan revealed a non-functioning right kidney and a mildly enlarged and normal cortical functioning left kidney [Fig.2]. Cystometry showed normal bladder compliance without any uninhibited bladder contractions. Uroflowmetry exhibited a prolonged low peak flow rate (PFR).
Figure 1. VCUG revealing grade three left vesicoureteral reflux

Therapy with prophylactic antibiotic and baclofen was started. Nevertheless, the patient continued to experience little incontinence. Magnetic resonance urography (MRU) showed a kidney-like atrophic tissue on the right side without a functional cortex with a visible ectopic ureter and a larger-than-normal left kidney with complete duplication and a rather dilated ureter (Fig. 3 & 4).

Figure 2. Renal DMSA scan showing non-functioning right kidney

Figure 3 & 4. MRU showing right single system ectopic ureter with dysplastic kidney and left partial duplicated system
A case of single system ectopic ureter and dysplastic kidney – Esfandiar et al

Figure 5. Cystoscopy revealed a right side ectopic ureter distal to the bladder neck in the vestibule around the urethral opening

She underwent cystoscopy which revealed a right side ectopic ureter distal to the bladder neck in the vestibule around the urethral opening (Fig. 5). The left ureter orifice was single and in normal position. She underwent open surgery. The right side ureter was divided extravesically and the distal ureteral stump was ligated. The proximal stump had a little urine flow so it underwent Lick-Gregoir ureteral reimplantation. On the left side, two ureters joined just outside the bladder. Both duplicated ureters were reimplemented extravesically and two double J catheters were inserted in both of them.

Discussion

In this case report, EU was related to a dysplastic single system not a duplex system. Wakhlu [13], Gotoh [14] and Roy Choudhury [2] reported that EU was more prevalent as a SSEU in females among Asians. Embryologically, the ureteric bud originates more cranially and its abnormality results in renal dysplasia [3]. Different surgical operations could be performed, especially with regards to the amount of renal function [15-21]. Although the affected kidney had 8% function in our case, she underwent Lick-Gregoir ureteral reimplantation due to the sufficient amount of urine although surgeons increasingly prefer the laparoscopic approach. Contrary to our female case and some Asian reports [2, 13-14, 22], the majority (75%) of SSEUs are reported in male patients. EU is a diagnostic challenge, especially when SSEU with non-functional kidney exists. Considering the fact that T2 weighted MRU does not require contrast injection especially in dysplastic kidneys, it could be a valuable diagnostic modality in detecting ureteral abnormalities. Thambidorai et al [6] reported a 6-year-old female with urinary incontinence and duplex kidneys in whom EU was not detected by other modalities while MRU showed a dilated and ectopic ureter related to the upper moiety of the left kidney. Therefore, MRU could be the preferred modality in EU and duplex renal anomalies.

Conflict of Interest

None declared

Financial Support

None declared

References

A case of single system ectopic ureter and dysplastic kidney – Esfandiar et al