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Mid-ureteric cyst: a variant of ureterocele disproportion

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Sir,
So-called ureterocele disproportion [1] is a rare type of double collecting system where an ectopic ureterocele is associated with a dysplastic renal upper pole; the upper pole ureter decreases in size and loses patency in its proximal portion. We saw a variant of this condition in a female child evaluated for urinary tract infection. The upper pole ureter had involuted at its two extremities but remained as a dilated segment (the "ureteric cyst") in its mid-portion.

The patient was a 2-year-old girl who had a urinary tract infection and was referred for routine imaging evaluation. Renal ultrasound (US) showed a slight asymmetry of the kidneys (right kidney 65 mm, left kidney 63 mm) with a left-sided ureterocele within the bladder and a tubular hypoechoic sac located in front of the left psoas muscle. No sonographic sign of duplex kidney could be identified on either side. Voiding cysto-urethrography (VCUG) showed left grade 1 reflux. Intravenous urography (IVU) showed a normal right urinary tract and a slightly small left kidney with a normal-sized slightly displaced left ureter. The ureterocele did not opacify. Subsequent cystoscopic examination showed a flaccid left ectopic ureterocele and a normal orthotopic left lower pole ureteric meatus.

Follow-up VCUG performed at age 4 years showed that reflux into the lower ureter had increased from grade 1 to 2. The ureterocele was no longer visible. Reimplantation was scheduled.

On preoperative US the ureterocele was not seen but the retroperitoneal cystic structure was unchanged (Fig. 1). At the time of operation the lower pole ureter was reimplanted and a puncture of the sac was performed. It turned out to be a closed cavity 60 mm long and 15–25 mm wide, with hypotonic and compliant walls. A tiny white cord was found leading from the lower extremity of the sac down to the bladder. The distal extremity of this cord ended in a deflated ectopic ureterocele. No upper pole meatus was seen. The sac was removed. Pathologic examination showed normal ureteric tissue.

The patient appears to have a variant of "ureterocele disproportion," a term used to describe a ureterocele associated with a dysplastic, nonfunctioning upper pole (that is not detectable by US). The upper pole ureter varies in size; it may be completely absent in blind ureteroceles [2].

In our patient a segment of dilated, noncommunicating ureter, the ureteric cyst [3], was interposed between the ureterocele and the dysplastic upper pole.

One can postulate that the upper pole of the left kidney secreted urine during early fetal life. It filled up the upper pole ureter and the ectopic ureterocele. Then, due to obstruction, progressive destruction of the upper pole occurred. A certain amount of urine got trapped between the upper and lower obliterated segment of the upper pole ureter. This pathophysiology could be compared with that producing a Meckel's diverticulum or urachal cyst.

The case illustrates the complementary nature of US (or computed tomography), VCUG and IVU. US alone was misleading since there was no evidence of duplex kidney. The cyst was obvious but the differential diagnosis included retroperitoneal cystic lymphangioma and mesenteric cyst. Both VCUG and IVU would have missed the cyst, but could suggest the correct diagnosis by showing subtle findings of a double system. The retroperitoneal location of the cyst could be inferred from displacement of the refluxing ureter and the presence of a ureterocele.

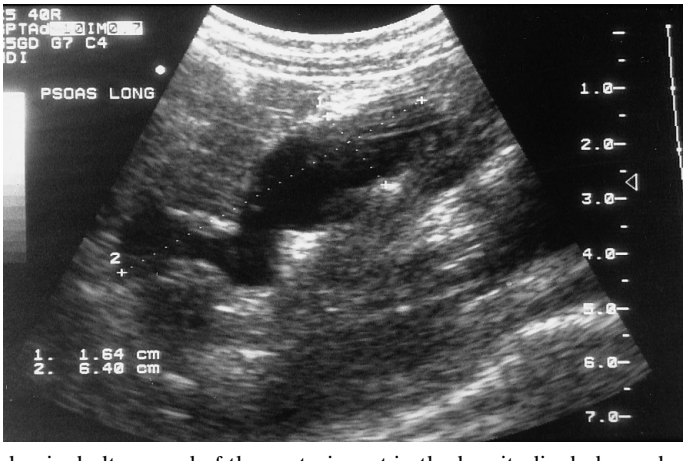

Fig. 1 Abdominal ultrasound of the ureteric cyst in the longitudinal plane, showing a tubular and convoluted hypoechoic sac in front of the left psoas muscle

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