CASE REPORT

Prenatal and Postnatal Radiological Evaluation of Ectopic Ureterocele

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Abstract

Abstract: Prenatal and postnatal ultrasonography has dramatically increased the number of infants detected with significant asymptomatic uropathology. We report of a fetus with hydronephrosis and dilated ureter, diagnosed insidentally at 25th week of gestation. On assumption of left sided ureteropelvic junction obstruction, postnatal serial diagnostic investigations including abdominal ultrasonography, voiding cystoureterography, and intravenous pyelography were performed. The final diagnosis was ectopic ureterocele. We discussed the usefullness of ultrasonography in the prenatal and postnatal diagnosis and follow-up of urogenital anomalies.

Key word: ureterocele, prenatal diagnosis, postnatal diagnosis

Özet

Bir Ektopik Üreterosel Olgusunun Prenatal ve Postnatal Tanısal Değerlendirmesi

Özet: Prenatal ve postnatal ultrasonografi ile saptanan asemptomatik üropatolojili yenidoğanların sayısı artmıştır. Takibimizdeki bir gebede 25. gestasyonel haftada rastlantısal olarak fetal hidronefroz ve dilate üreter saptanmıştır. Postnatal incelemede abdominal ultrasonografi, miksiyo-sisto-üreterografi ve intavenöz pyelografi incelemeleri ile hastaya ektopik üreterosel tanısı konulmuştur. Ultrasonografinin ürogenital anomalilerin prenatal ve postnatal tanı ve izlemde yararları tartışılmıştır.

Anahtar sözcükler: üreterosel, prenatal tanı, postnatal tanı

Introduction

Prenatal and postnatal ultrasonography has dramatically increased the number of infants detected with significant asymptomatic uropathology, and has allowed diagnosis and treatment before the potential devastating consequences of urinary tract infections (1, 2). We report of a newborn with ectopic ureterocele who diagnosed incidentally at 25th week of gestation.

Case Report

A 34-year-old woman (gravida 3, para 2) who had two healthy children was examined in our Sonography Unit by a high resolution ultrasound device (ATL, HDI 5000, NT, Amsterdam) transabdominally at 25th week of gestation and a left sided pelvicalyceal and ureteral dilatation was diagnosed. The amniotic fluid was normal and no other anomaly could be seen. The pelvicalyceal and ureteral dilatation was followed until Birth by sonography. On assumption of left sided ureteropelvic junction obstruction, postnatal serial diagnostic investigations including abdominal ultrasonography (USG), voiding cystoureterography (VSUG), and intravenous pyelography (IVP) were performed. Abdominal USG revealed a cystic structure joining with a dilated ureter at superior pole of the left kidney. The left kidney showed parenchymal hypoplasia (parenchymal thickness 2 mm). A sonolucent cystic mass was present in the bladder (Figure 1). Presumptive diagnosis was ectopic ureterocele. On IVP; the left sided urinary collecting system was inferiorly localized and seemed to be somewhat hypoplasic. This appearance was similar to "drooping lily" appearance as defined in ectopic ureterocele. At the bladder was a filling defect due to ureterocele (Figure 2). Endoscopic insicion was performed with a preoperatif diagnosis as ectopic ureterocele. Six months after this operation, parenchymal thickness of the left kidney reached 4.5 millimeters on abdominal USG. VUSG showed no reflux. A follow-up of radiologic-urologic controls with six months intervals was planned.

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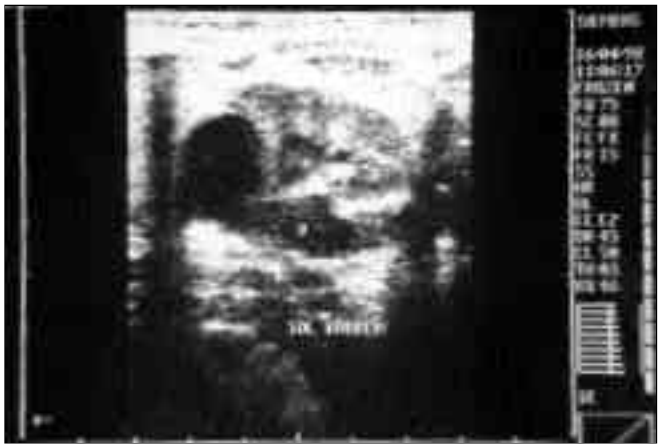

Figure 1. Abdominal USG revealed a cystic structure joining with dilated ureter at superior pole of the left kidney.

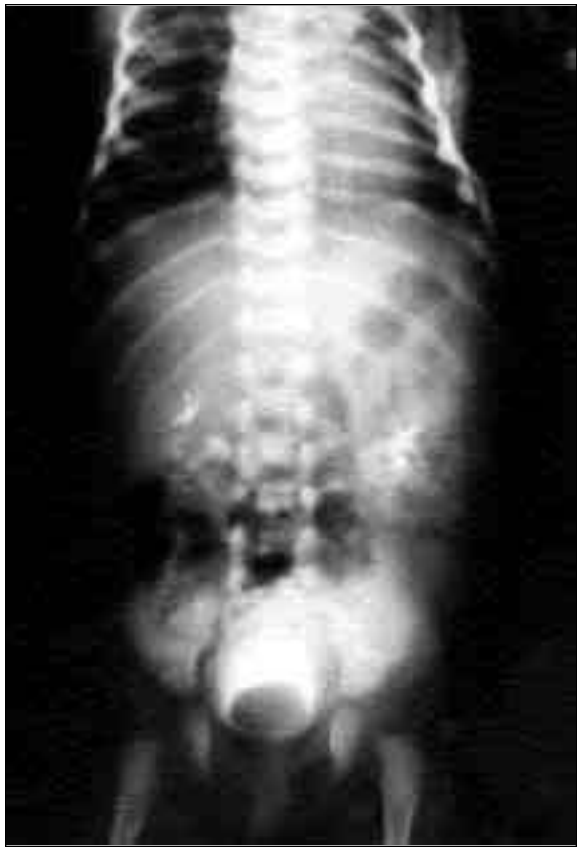

Figure 2. On IVP; left sided urinary collecting system was inferiorly localized and seemed to be somewhat less developed. In the bladder, there was a filling defect due to ureterocele.

Discussion

Obstruction of the fetal urinary tract may vary in degree, location, and clinical severity. Whereas partial or unilateral obstruction may have only mild clinical effects, chronic severe bilateral obstruction may lead to irreversible renal failure and death. Because early treatment of obstructive uropathy may significantly improve clinical outcome, early detection with antenatal sonography is important (1, 2).

Duplex anomalies (duplicated collecting systems and ureters, simple and ectopic ureteroceles) are another cause of fetal and neonatal hydronephrosis seen in 1.7% to 4.2% of the population (3). With duplication of the ureter, the upper pole moiety clasically obstructs while the lower pole moiety refluxes. Sonographically, one may recognize asymmetric hydronephrosis of the superior pole of the kidney with preservation of a normal lower renal pole. Differentiation from hydronephosis secondary to ureteropelvic junction obstruction may be difficult, although occasionally, ultrasound may definitively identify duplication of the collecting systems in utero (1,2). Prenatal sonographic demonstration of mildly dilated ureters and ureteroceles may also be problematic, but careful attention to the fetal bladder may allow identification of these important findings (2). Ureteroceles are bilateral in 15% of cases. If ureteroceles become sufficiently large, they may prolapse into the bladder outlet, acutely causing severe outflow obstruction. Rarely, with ureterocele disproportion, there may be marked dissimilarity in size between a large ureterocele and its diminutive ureter and calyces (4).

Ectopic ureterocele is more common in young infants than is simple ureterocele and, overall, is more common females (4). Urinary tract infection is common in these patients, especially in girls, as the ectopic ureter frequently inserts below the external uretrhal sphincter or in the vagina. This allows for the retrograde introduction of perineal bacteria (4, 5). Ultrasound clearly demonstrates the duplicated hydronephrotic upper kidney, the dilated ureter, and the cystic ureterocele in the urine-filled bladder. The findings are typical, but it should be noted that in some cases the duplicated upper kidney, rather than being hydronephrotic, is dysplastic and small and can be missed even with ultrasound (6).

Roentgenographically, the ectopic ureterocele usually is seen in association with a nonfunctioning or poorly functioning dupplicated upper kidney. If the kidney is enlarged resulting from hydronephrosis, it will displace the normal lower kidney outward and inferiorly. At the same time, the dilated ectopic ureter frequently produces indentations on the normal ureter draining the lower moiety, and as with simple ureterocele, an oval, round, or lobulated filling defect in the bladder (4,6).

Conversely, hydronephrosis may be present in a variety of nonobstructive disorders (7-9). The significance of renal pelvis dilatation after 20 weeks menstrual age has been adressed by several authors (8,9). A fetal renal pelvis that measures less than 5 mm in antero-posterior diameter is normal; a pelvis diameter measurement of 6 to 9 mm is probably normal or physiologically dilated. However,

dilatation of the renal pelvis to greater than or equal to 10 mm represents significant hydronephrosis, especially when the ratio of renal pelvis diameter to kidney diameter to kidney diameter exceeds 50% (9). Postnatal confirmation of hydronephrosis is best performed a few days after birth because infants are frequently mildly dehydrated in the first 48 hours of life (10).

Distal ureteral obstruction is most often functional, resulting in primary megaureter; less commonly, ureteral atresia is present. Characteristically, distal ureteral obstruction presents as fetal hydronephrosis, with the dilated proximal ureter seen as a serpiginous anechoic cystic structure filling the fetal abdomen and retrovesical space (5-7).

Additionally, fetal surgery and interventional procedures have been attempted in selected cases of severe urinary obstruction (5-7). By delineating the site of the obstruction and by assessing the potential for reversibility of renal damage, prenatal sonography has been advocated as a useful modality to assist in patient selection and in the timing of surgery (10).
Finally congenital ureterocele leads to urinary retention and recurrent urinary tract infection which can cause irreversible damage to the kidney. This abnormality can be suspected in the fetus by prenatal sonography and confirmed by sonography and X-ray investigations after birth.

References

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