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Case Report
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Vesicoureteral Reflux during Conventional Angiography due to Patent Ductus Arteriosus

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Case Report

An asymptomatic 4-month-old-boy, who was referred to our hospital because of the presence of a cardiac murmur. He was born full term of an uneventful but unfollowed-up pregnancy from consanguineous parents. His birth weight was 3540 gm at 39 weeks gestation. On examination, the patient was active with no dysmorphic features. His vital signs were normal; blood pressure of 89/52 mmHg, oxygen saturation of 96% on room air, heart rate of 106 beats per minute. The chest examination was clear; the cardiovascular exam showed normal first and second heart sounds with a continuous murmur, grade 3/6 with maximum intensity at the left subclavian border. Echocardiographic examination revealed patent ductus arteriosus, secundum defect in the interatrial septum and mitral regurgitation. Conventional angiography was performed, and the patent pulmonary artery was occluded with a 6x4 mm occluder. In addition, dilatation of the left renal collecting system was noted in the nephogram phase during angiography (Figure 1).

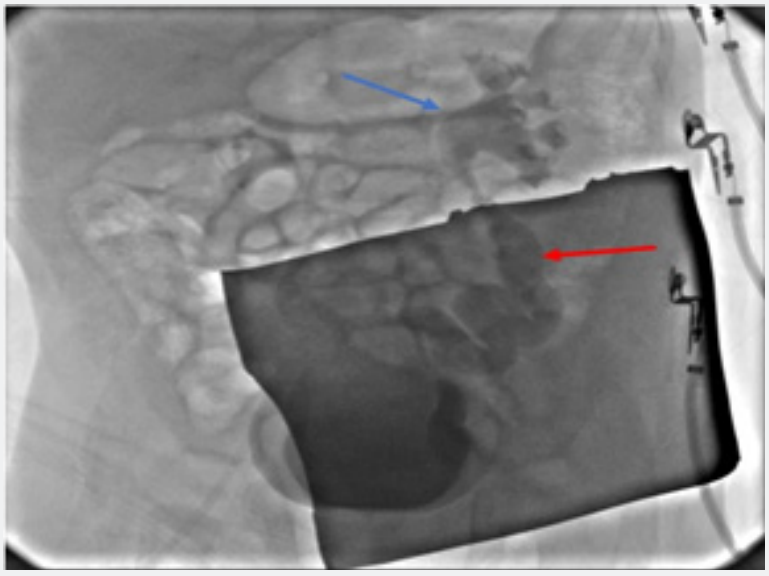

Figure 1: Urinary system image of the patient obtained during angiography.

Dilatation of the left kidney collecting system extending to the major calyces (blue arrow); tortuosity and dilatation of the left ureter (red arrow).

The patient was referred to pediatric nephrology department upon the image obtained on angiography. Urinary ultrasonography revealed a slightly larger left kidney (55x34x25 mm in diameter) and a thinner mean parenchymal thickness (4.5 mm) compared to the right kidney. Parenchymal echogenicity was normal. Grade III-IV dilatation was observed in the pelvicalyceal system, and the antero-posterior diameter of the renal pelvis was 11 mm. The left ureter was dilated and tortoise throughout the entire trace. The ureter diameter was 12 mm at its widest point. The right kidney and collecting system were sonographically normal. Initially, a prophylactic dose of trimethoprim sulfamethoxazole was started for urinary tract infection (UTI). The patient with normal serum creatinine and serum electrolytes, no proteinuria, hematuria or pyuria on urinalysis and no previous urinary tract infection underwent voiding cystoureterography with a diagnosis of left hydroureteronephrosis. Cystoureterography showed that the patient had left grade IV vesicoureteral reflux. It was planned to monitor the patient for UTI with a prophylaxis and to inform the family about UTI.

Discussion

Congenital anomaly of kidney and urinary tract (CAKUT) is the most common anomalies and constitutes approximately one third of all congenital anomalies. While symptomatic cases are diagnosed correctly, the diagnosis of asymptomatic cases is delayed. These anomalies, including VUR, may cause various health problems even in the asymptomatic period [1]. In case of asymptomatic period VUR without UTI, sterile urine pressurizes the renal pelvis and renal tubules: "water hammer effect". Severe intrarenal reflux can often lead to tubular damage, parenchymal atrophy, scarring, renal hypertension and even renal failure [2]. Fortunately, kidney and urinary tract anomalies may be diagnosed incidentally by imaging methods performed for other reasons [3,4]. Therefore, early diagnosis is important.

In this case, a previously undiagnosed and asymptomatic infant was diagnosed with CAKUT during angiography. The angiography contributed not only to the patient's cardiac prognosis but also to the renal prognosis in this case. In summary, we would like to emphasize the importance of a holistic approach to patient management that can contribute to the quality of life of patients in order to prevent delayed diagnosis.

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