

Vesicoureteral Reflux in a Six Month Old Infant Presenting with Fever of Unknown Source: A Case Report

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Introduction: Vesicoureteral reflux (VUR) is a condition more commonly found in pediatric patients that results in backflow of urine from the bladder to the kidneys. Occurrence varies based on age, sex, family history, race and urologic anomalies. Children ages 2-24 months with recurrent urinary tract infections are at risk for having VUR. Management of VUR including screening, diagnosis, and treatment, are continuing to change based on newer evidence.

Case description: A 6-month-old female came to the clinic with 8 days of fever and no clear source. A urinalysis with microscopic examination was performed with results that indicated a urinary tract infection (UTI), so the child was treated with antibiotics. Ten days later, a renal ultrasound (RBUS) was performed showing bilateral grade 1 hydronephrosis. This was followed with a voiding cystourethrogram (VCUG) which showed grade 2 VUR on the right. The child was started on continuous antibiotic prophylaxis (CAP) until a repeat VCUG and RBUS at 12 months of age demonstrated full resolution of hydronephrosis and VUR.

Discussion: Pediatric patients with a febrile UTI commonly present with a fever of unknown origin. An estimated 5% of children ages 2-24 months presenting with a fever of unknown origin will have a UTI and one third of children diagnosed with a febrile UTI also have VUR. Current research has shown the prevalence of VUR in the general population is underestimated at 0.4% to 1.8%, as some cases are asymptomatic, with 50-85% of low grade reflux (grade I-III) spontaneously resolving. There is a strong association between UTIs and VUR but current evidence has not shown an absolute association with renal scarring, prompting several key changes in guidelines.

The American Academy of Pediatrics provides guidelines for managing the initial UTI in febrile children, the most recent published in 2011. The diagnosis of UTI should be based off an abnormal urinalysis with microscopic examination and positive urine culture (at least 50,000 colony forming units per ml). Initial treatment of a UTI with oral antibiotics is just as effective as parenteral administration. A VCUG is not recommended routinely after the first febrile UTI, only if there is an abnormal RBUS or recurrent UTIs.

The American Urological Association provides guidelines for the management of primary VUR which were updated in 2010. In the 1997 guidelines, treatment choices were CAP or surgery based on reflux grade, age of diagnosis, and laterality of involvement with an annual VCUG follow-up. Current guidelines have standards, recommendations and option policies. On initial evaluation a child should undergo a general medical exam including presences of bladder and bowel dysfunction symptoms and if present the provider should obtain a RBUS. CAP is recommended regardless of the grade of VUR if the child is less than one year of age with a history of a febrile UTI or with VUR grade III-V without a febrile UTI. If all conservative treatment options have been attempted and the child is having breakthrough UTIs then surgical intervention should be considered.