

The challenges of diagnosing obstructive hydronephrosis in children

Kourosh Afshar, MD, MHSc, FRCSC

Department of Urologic Sciences, University of British Columbia, Vancouver, BC, Canada

Cite as: *Can Urol Assoc J* 2016;10(3-4):101. <http://dx.doi.org/10.5489/cuaj.3739>

See related article on page 96.

The paper by Acker et al¹ illustrates the challenges pediatric urologists face in diagnosing obstructive hydronephrosis. The problem begins with the lack of accurate “gold standard” test to identify obstruction. Historically drainage parameters (such as T^{1/2} max) from a diuretic renal nuclear scan have been used to guide the diagnosis. The diagnostic value of these parameters has been challenged by multiple studies: “a dilated system may take longer to drain with no obstruction.”^{2,3}

The current study evaluates the usefulness of an auxiliary method to enhance the discriminative value of diuretic renal scans. The authors assessed the changes in the drainage after facilitating the urinary flow from the kidney by gravity. The hypothesis is that this maneuver improves the accuracy of the test by increasing true and reducing false positives, but one only can define true and false positive when a reference test is available. Since there is no gold standard, urologists have used confirmative evidence to circumvent this deficiency. Examples include clinical complications, such as pain, progressive hydronephrosis, and reduction in renal function. In the current study, although the authors have

shown a reduction in numbers of pyeloplasties based on the degree of gravity-assisted drainage (GAD), they have not presented the evidence to support the usefulness of their approach. For example, the followup length and the ultimate outcome of renal units that had prolonged drainage, but did not have pyeloplasty based on GAD, are unknown.

This study again demonstrates the pitfalls of labeling a dilated system as obstructed based only on drainage parameters, which in turn, may result in unnecessary surgery.

Competing interests: The author declares no competing financial or personal interests.

References

1. Acker MR, Clark R, Anderson P. Gravity-assisted drainage imaging in the assessment of pediatric hydronephrosis. *Can Urol Assoc J* 2016;10(3-4):96-100. <http://dx.doi.org/10.5489/cuaj.3237>
2. Amarante J, Anderson PJ, Gordon I. Impaired drainage on diuretic renography using half-time or pelvic excretion efficiency is not a sign of obstruction in children with a prenatal diagnosis of unilateral renal pelvic dilatation. *J Urol* 2003;169:1828-31. <http://dx.doi.org/10.1097/01.ju.0000062640.46274.21>
3. Koff SA, Binkovitz L, Coley B, et al. Renal pelvis volume during diuresis in children with hydronephrosis: Implications for diagnosing obstruction with diuretic renography. *J Urol* 2005;174:303-7. <http://dx.doi.org/10.1097/01.ju.0000161217.47446.0b>

Correspondence: Dr. Kourosh Afshar, Department of Urologic Sciences, University of British Columbia, Vancouver, BC, Canada; kafshar@cw.bc.ca