

Recurrent back pain of unknown etiology - suspect an urological origin!

Paula Nunes¹, Nidia Rolim², Renato Mota²

¹ Department of Pediatrics, Centro Hospitalar de Lisboa Ocidental, Nova Medical School, Portugal.

² Department of Urology, Centro Hospitalar de Lisboa Ocidental, Portugal.

Abstract

Ureteropelvic junction (UPJ) obstruction poses a diagnostic challenge when the patient arrives at the emergency department with severe recurrent back pain without previous record of this condition. Extrinsic factors including crossing vessels or intrinsic factors such as adynamic segment of proximal ureter can cause UPJ obstruction. We report a case of a 16 year-old female patient with ureteropelvic junction syndrome occurring at adolescence, caused by two accessory vessels. She was submitted to a laparoscopic dismembered pyeloplasty with favorable outcome.

Keywords

Ureteropelvic junction syndrome; pyeloplasty; hydronephrosis; recurrent back pain.

Copyright © 2016 [pediatricurologycasereports.com](http://www.pediatricurologycasereports.com).

Corresponding Author: Paula Nunes, M.D.

Department of Pediatrics, Nova Medical School,
Estrada do Forte Alto do Duque, Lisbon, Portugal

Email: pasdenunes@gmail.com

Accepted for publication: 24 November 2015

Introduction

Back pain is a common complaint at the emergency departments (ED). Often, patients with chronic intermittent back pain with multiple visits to medical providers find it difficult to make the diagnosis. Ureteropelvic junction (UPJ) obstruction is an important diagnosis to consider.

Symptoms of UPJ obstruction are back or flank pain, nausea, vomit, febrile urinary tract infection and hematuria. The estimated incidence of UPJ obstruction in pediatric population is 1 per 500-2000 newborns screened by routine antenatal ultrasound, so we should think about this etiology in patients with back pain [1-5]. Symptomatic UPJ obstruction is more common later in life [4]. Anatomic lesions or functional disturbances that restrict urinary flow across the UPJ may cause obstruction, resulting in hydronephrosis [1-3, 6].

Case Report

A 16-year-old caucasian girl presented with intermittent right back pain aggravated by water ingestion and exercise. She had no history of antenatal hydronephrosis, urinary tract infections or urolithiasis during childhood. A physical examination identified her blood pressure was 110/70 mmHg and revealed mild tenderness on palpation at the upper right quadrant of the abdomen.

Laboratory investigations showed creatinine 0,81 mg/dl (glomerular filtration rate (GFR) of 80.5 mL/min per 1.73 m²), urea 30 mg/dl. Hemoglobin, hematocrit, and ionogram, calcium, phosphate and magnesium were within normal limits. Urinalysis revealed microscopic hematuria, normal density, no proteinuria, whereas the urine culture was negative.



Fig. 1. Ultrasonography showing severe hydronephrosis of the right kidney and moderate diffuse reduction of renal parenchyma.

Renal ultrasound showed right severe hydronephrosis with 31 mm (anteroposterior

diameter) associated with a modest loss of cortex thinning of the right kidney with renal asymmetry; left 140 mm, right 115 mm bipolar renal diameter [Fig. 1].

Helical computed tomography (CT) angiography with 3D reconstructed images showed a polar right renal artery arising from the abdominal aorta toward the lower pole of the right kidney conditioning a severe upstream hydronephrosis [Fig. 2].

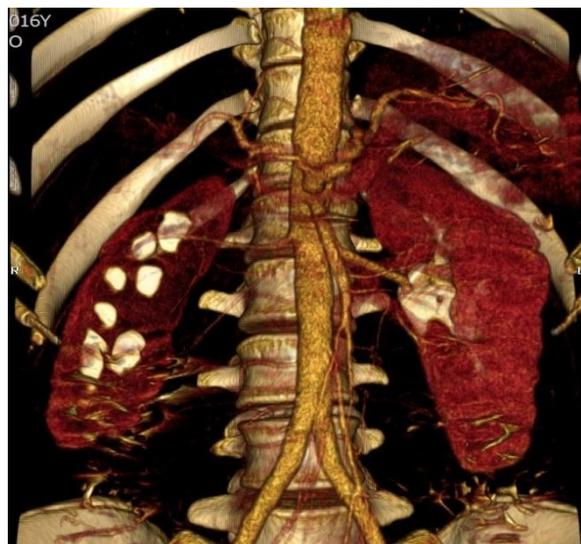


Fig. 2. Helical CT angiography with 3D reconstructed image identifying an accessory inferior renal polar artery at the level of the UPJ above which the pelvis demonstrates severe hydronephrosis.

Diuretic renography with mercaptoacetyltriglicine (MAG-3) revealed the right kidney differential function of 28 % with an arrested pattern of excretion suggesting pyeloureteral obstruction [Fig. 3.]

and mildly reduced kidney function (GFR 80.5 ml/min/1.73m²). This is considered stage 2 of chronic kidney disease (GFR 60-89 ml/min/1.73m²) and justifies close follow-up of kidney function [8].

The management of UPJ obstruction syndrome is conditioned by the etiology of the obstruction. When there is renal parenchyma that can be preserved, the obstruction can be solved by one of two possible approaches: endopyelotomy or pyeloplasty, the latter can be performed through open surgery, laparoscopic or robotic surgery [9].

In the presence of crossing vessels diagnosed preoperatively it is preferable to perform pyeloplastic procedures to avoid the lesion of vessels with the endoscopic incision of the UPJ. Although the endopyelotomy can be performed in this situation the success rates are lower with this approach and the eventual risk of uncontrolled hematuria or later fibrosis of the ureteral scar must be considered [1,9,11].

References

1. Mishra, A. Crossing renal vessel causing ureteropelvic junction obstruction. Saudi Med J. 2006; 27(9):1415-17.
2. Cain MP, Rink RC, Thomas AC, Austin PF, Kaefer M, Casale AJ. Symptomatic ureteropelvic junction obstruction in

The development of minimally invasive approaches such as laparoscopic or robotic surgery reduces the morbidity associated with bigger wounds that are performed in classic open surgical procedures such as dorsal lumbotomy (e.g. pain in surgical recovery, physical mobilization after procedure, wound infection or aesthetical morbidity). For this reason minimal invasive surgical approaches are favored in the management of UPJ obstruction [9].

To conclude, severe recurrent back pain could be caused by UPJ obstruction, it is important to increase awareness of this condition amongst our nonurologic colleagues. Hence, knowledge of the embryology of the renal vessels is necessary to understand the presence of an anomalous vessel crossing the UPJ that can cause obstruction.

Acknowledgements

The author(s) declare that they have no competing interests and financial support.

- children in the era of prenatal sonography-is there a higher incidence of crossing vessels? Urology. 2001;57(2):338-41.
3. Tsai JD, Huang FY, Lin CC, Tsai TC, Lee HC, Sheu JC, et al. Intermittent

- hydronephrosis secondary to ureteropelvic junction obstruction: clinical and imaging features. *Pediatrics*. 2006;117(1):139-46.
4. Nerli RB, Jayanthi VR, Reddy M, Koura A. Pelvi-ureteric junction obstruction with crossing renal vessels: a case report of failed laparoscopic vascular hitch. *J Pediatr Urol*. 2009;5(2):147-50.
 5. Koff SA, Mutabagani KH. Anomalies of the kidney In: *Adult and Pediatric Urology*. 4th ed. G.J. Gillenwater JY, Howards SS, Mitchell ME (Eds). 2002, Philadelphia: Lippincott Williams and Wilkins.
 6. Hacker HW, Szavay P, Dittmann H, Haber HP, Fuchs J. Pyeloplasty in children: is there a difference in patients with or without crossing lower pole vessel? *Pediatr Surg Int*. 2009;25(7):607-11.
 7. Schneider A, Ferreira CG, Delay C, Lacreuse I, Moog R, Becmeur F. Lower pole vessels in children with pelviureteric junction obstruction: laparoscopic vascular hitch or dismembered pyeloplasty? *J Pediatr Urol*. 2013;9(4):419-23.
 8. *Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group*. KDIGO 2012 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney inter., Suppl*. 2013; 3: 1–150.
 9. Khan F, Ahmed K, Lee N, Challacombe B, Khan MS, Dasgupta P. Management of ureteropelvic junction in adults. *Nat Rev Urol*. 2014;11(11):629-38.
 10. Stern JM, Park S, Anderson JK, Landman J, Pearle M, Cadeddu JA. Functional assessment of crossing vessels as etiology of ureteropelvic junction obstruction. *Urology*. 2007;69(6):1022-4.
 11. Herts BR. Helical CT and CT angiography for the identification of crossing vessels at the ureteropelvic junction. *Urol Clin North Am*. 1998; 25(2):259-69.

Access this article online

<http://pediatricurologycasereports.com>

Quick Response Code

