Urology Case Reports 45 (2022) 102241

Contents lists available at ScienceDirect

Urology Case Reports

journal homepage: www.elsevier.com/locate/eucr

Hydronephrotic pelvic kidney mimicking urinary retention in an 18-year-old male

Philipp Reimold *, Cem Aksoy, Georgi Tosev, Gencay Hatiboglu, Markus Hohenfellner

Department of Urology, University Clinic Heidelberg, Im Neuenheimer Feld 420, 69120, Heidelberg, Germany

ARTICLE INFO

Keywords:
Pelvic kidney
Hydronephrosis
Urinary retention

ABSTRACT

We present a case of a hydronephrotic pelvic kidney in an 18-year-old male reporting about inability to void. Ultrasound showed a hypoechogenic mass mimicking a full urinary bladder. Anticipating urinary retention, a foley was inserted but no urin could be aspirated. Imaging showed a hydronephrotic pelvic kidney with no relevant function obstructing the urinary bladder and the contralateral ureter. Nephrectomy was performed and postoperative course was uneventful.

A hydronephrotic pelvic kidney is a rare but important differential diagnosis in young men reporting lower abdominal pain and inability to void.

1. Introduction

Inability to void is a common symptom in urologic patients. Mostly, this condition occurs in men with benign prostatic hyperplasia (BPH) leading to infravesical obstruction. In young patients, other causes, like neurological disorders or medication are more likely.

Ectopic kidneys develop as a result of an aberration during the embryologic development and migration of the metanephros. When lumbal migration is insufficient, those kidneys can present as pelvic kidneys.

We present a case of a hydronephrotic pelvic kidney in an 18-year-old male reporting about inability to void due to an obstruction of the urinary bladder by the pelvic kidney.

A hydronephrotic pelvic kidney is a rare but important differential diagnosis in young men reporting lower abdominal pain and inability to void.

2. Case

An 18-year-old male from Gambia presented to our urology department with pain in the lower abdomen and inability to void. He described a strong urge symptomatic and only small urinary output – just like overflow incontinence in urinary retention. In the physical examination a resistance in the lower abdomen was palpable. All lab results were within normal range, especially parameters for renal function.

Sonography displayed an empty renal fossa on the left side and hydronephrosis II° on the right side. In the pelvis, a huge echo-free space initially was considered to be an overdistended bladder in urinary retention (Fig. 1). Yet, after bladder catheterization, no urine could be aspirated. MRI then confirmed the diagnosis of a left hydronephrotic pelvic kidney compressing the urinary bladder and the right distal ureter (Fig. 2).

Despite drainage via a percutaneous nephrostomy, which was closed during the MAG3 scintigraphy study, the pelvic kidney showed only an insignificant residual partial function of 7%. Therefore, retrograde ureteral stenting as an alternative to nephrostomy did not seem promising. As a consequence, a nephrectomy was performed. The access route via lower abdominal laparotomy exposed local peritonitis and multiple adhesions (Fig. 3).

Postoperative recovery of the patient was uneventful and hydronephrosis of the right kidney was reversible spontaneously after operation. The patient reported about no lower abdominal pain as well as normal voiding conditions.

3. Discussion

Ectopic kidneys develop as a result of an aberration during the embryologic development and migration and are found with an incidence of 1:12000 children. [1] Between the 6th and 9th week of pregnancy the renal ascensus takes place, during which the preliminary stage of the kidneys move from a pelvic to a lumbar position. [2] In patients with ectopic kidneys in the pelvis, this stage is insufficient and the kidney

* Corresponding author. Im Neuenheimer Feld 420, 69120, Heidelberg, Germany.
E-mail addresses: philipp.reimold@med.uni-heidelberg.de, philipp.reimold@web.de (P. Reimold).

https://doi.org/10.1016/j.eucr.2022.102241
Received 15 August 2022; Received in revised form 18 September 2022; Accepted 23 September 2022
Available online 23 September 2022

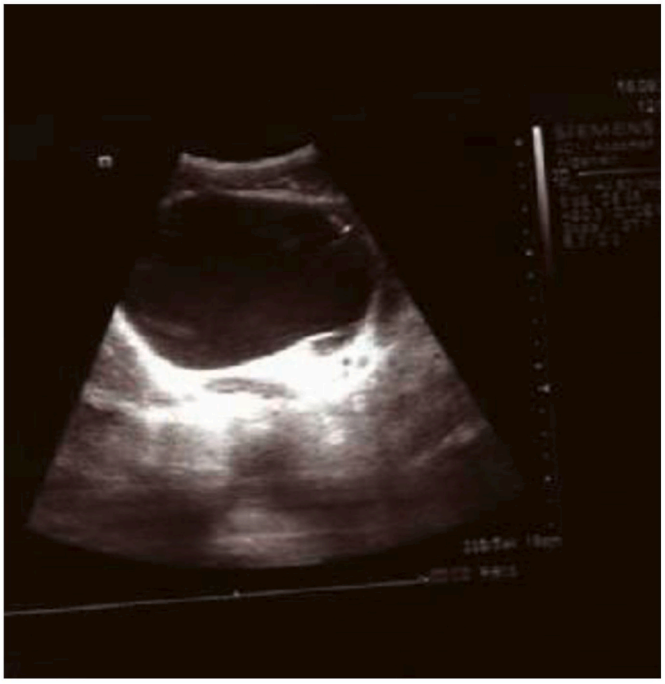

Fig. 1. Sonographic picture of a hypoechogenic mass in the pelvis appearing like a full urinary bladder.

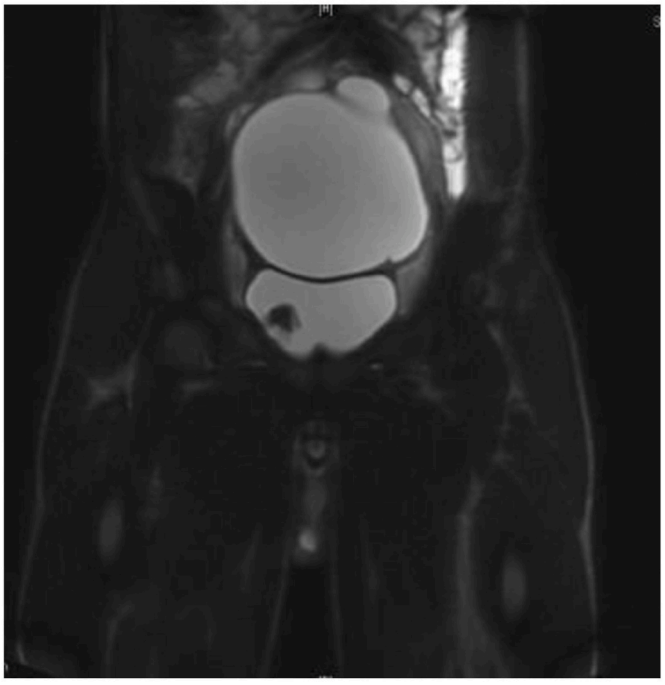

Fig. 2. MRI revealed a hydronephrotic pelvic kidney. Below, the urinary bladder with foley catheter can be identified.

evolves in a pelvic position. The reasons for this anomaly are almost unkown, theories include aberrations in vessel evolution and variable genetic disorders. [3] The most common associated findings in patients with ectopic kidneys have been found to be vesicoureteral reflux (VUR), contralateral renal dysplasia, cryptorchidism and hypospadias. [4]

Pelvic kidneys can remain asymptomatic for lifetime but patients can also present with haematuria, colicky pain or - as in our case - lower abdominal pain and inability to void. [5]

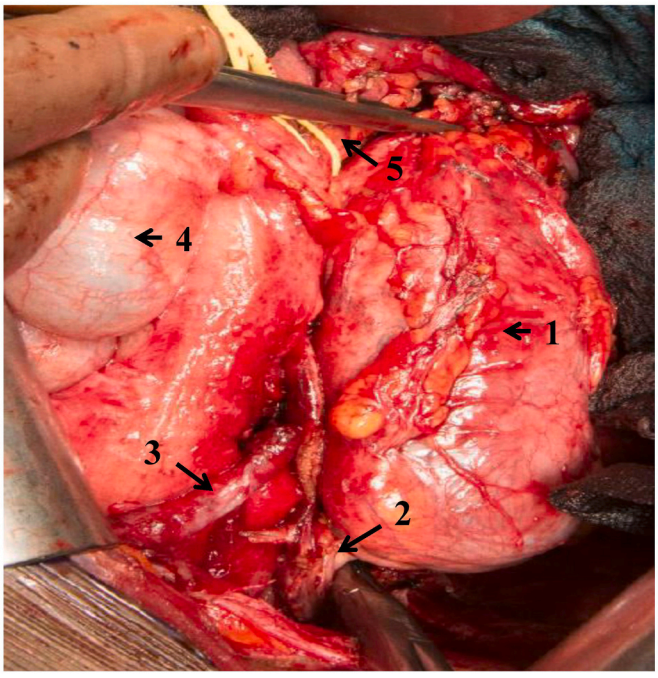

Fig. 3. Intraoperative situs with hydronephrotic kidney[1] and its ureter,[2] right iliac artery,[3] ileum[4] and the right ureter.[5]

Usually, diagnosis of hydronephrotic pelvic kidneys is made in early childhood during routine sonography checkups. Thus, subsequent work-up and therapy can be initiated early.

In the presented case the patient did not undergo standart checkup during childhood. As a consequence, the diagnosis of hydronephrotic pelvic kidney was not made until his presentation in our urologic department.

This case shows a rare but important differential diagnosis for anuria in young patients suffering pain in the lower abdomen and inability to void. Furthermore, it illustrates the importance of regular sonographic checkups in early childhood as well as follow-up in patients with renal dystopia.

4. Conclusion

This case shows a rare but important differential diagnosis for anuria which should be considered especially in young patients suffering pain in the lower abdomen and inability to void.

Funding

For the publication fee we acknowledge financial support by Deutsche Forschungsgemeinschaft within the funding programme „Open Access Publikationskosten“, as well as by Heidelberg University.

Declaration of competing interest

The authors state, that there is no conflict of interest.

References

1. Meizner I, Yitzhak M, Levi A, Barki Y, Barnhard Y, Glezerman M. Fetal pelvic kidney: a challenge in prenatal diagnosis? *Ultrasound Obstet Gynecol.* 1995;5(6):391–393. https://doi.org/10.1046/j.1469-0705.1995.05060391.x.
2. Mikuz G. Ectopia of the kidney, urinary tract, and male reproductive organs. *Pathologe.* 2018;39(5):415–423. https://doi.org/10.1007/s00292-018-0474-2.

3. Hill GS. *Renal and Ureteral Anomalies*. vol. 1. New York Edinburgh London Melbourne: Churchill Livingstone; 1989. Uropathology.
4. Malek RS, Kelalis PP, Burke EC. Ectopic kidney in children and frequency of association with other malformations. *Mayo Clin Proc*. 1971;46(7):461–467.
5. Bhoil R, Sood D, Singh YP, Nimkar K, Shukla A. An ectopic pelvic kidney. *Pol J Radiol*. 2015;80:425–427. https://doi.org/10.12659/PJR.894603.