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Right retroiliac ureteral syndrome in a child revealed after ureteral reimplantation: A rare cause of persistent hydronephrosis – Case report and literature review

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Introduction

Retroiliac ureteral syndrome is an uncommon anatomical anomaly characterized by an abnormal course of the ureter passing posterior to or between the iliac vessels, resulting in extrinsic vascular compression and mechanical obstruction of the upper urinary tract. This rare ureterovascular conflict may lead to progressive ureterohydronephrosis and, if left untreated, irreversible renal damage.

Congenital anomalies of ureteral course are uncommon and include retrocaval ureter, retroiliac ureter, and other vascular entrapment syndromes. Among these, the retroiliac location is particularly rare, with only sporadic case reports described in the literature [1-3]. Because symptoms are nonspecific, including flank pain, recurrent urinary tract infections, or incidental hydronephrosis, diagnosis is frequently delayed or mistaken for more common etiologies such as ureteropelvic junction obstruction or postoperative ureteral stenosis [4].

Modern cross-sectional imaging modalities, especially CT urography and Magnetic Resonance Urography (MRU), have considerably improved the identification of the anatomical relationship between the ureter and iliac vessels, allowing preoperative diagnosis [5]. Nevertheless, many cases remain diagnosed intraoperatively.

In children, this entity is exceptionally rare. It may be congenital or become clinically apparent after ureteral reconstructive surgery, where postoperative scarring may further accentuate a pre-existing vascular conflict. Early recognition is crucial to prevent further deterioration of renal function.

We report a pediatric case of right retroiliac ureteral syndrome revealed after Cohen ureteral reimplantation for vesicoureteral reflux, successfully treated surgically, and we discuss diagnostic and therapeutic considerations with a review of the literature.

Case Presentation

This is a retrospective descriptive case report conducted in a tertiary pediatric urology unit.

Clinical history, physical examination findings, imaging studies, operative details, and postoperative outcomes were collected from the patient's medical records. Morphological assessment included renal ultrasonography and magnetic resonance urography. Functional evaluation was performed using DMSA and DTPA renal scintigraphy to determine differential renal function and assess urinary drainage.

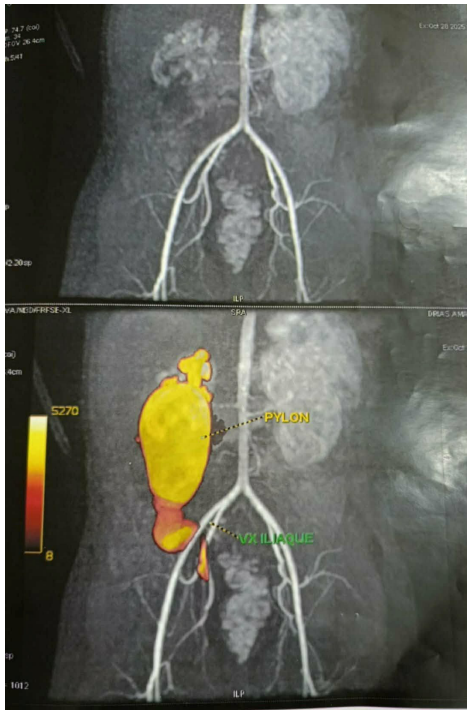

Figure 1: A uro-MRI performed in the patient showing a right retro-iliac syndrome.

Surgical management consisted of a right retroperitoneal iliac approach. After complete ureteral dissection and identification of the vascular conflict, the stenotic segment was resected and termino-terminal uretero-ureteral anastomosis was performed over a double-J stent.

Results

Patient characteristics

A five-year-old boy, second of three siblings, with no significant past medical history, was referred to our department for persistent right flank pain.

He had previously been diagnosed with high-grade right vesicoureteral reflux (grade IV) associated with renal parenchymal impairment. Baseline DMSA scintigraphy demonstrated markedly decreased right renal function estimated at 19% with multiple cortical scars, consistent with reflux nephropathy.

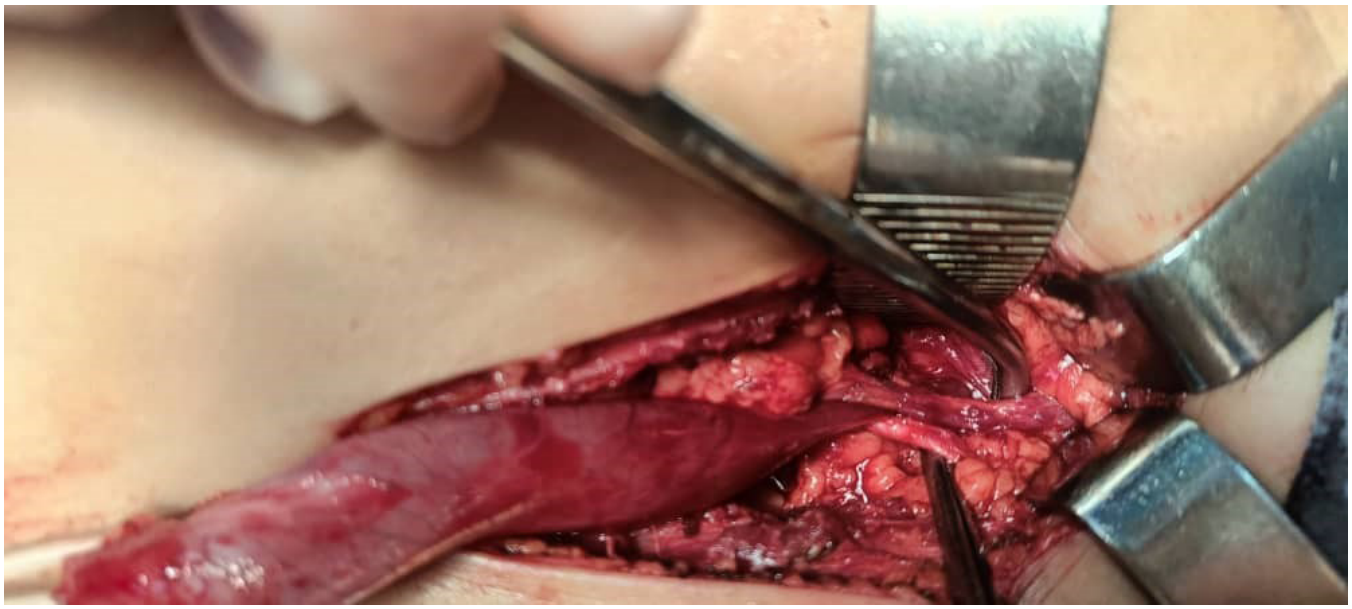

Figure 2: Intraoperative images of the ureter trapped between the two branches of the external and internal iliac arteries.

The patient had undergone right ureteral reimplantation using the Cohen cross-trigonal technique.

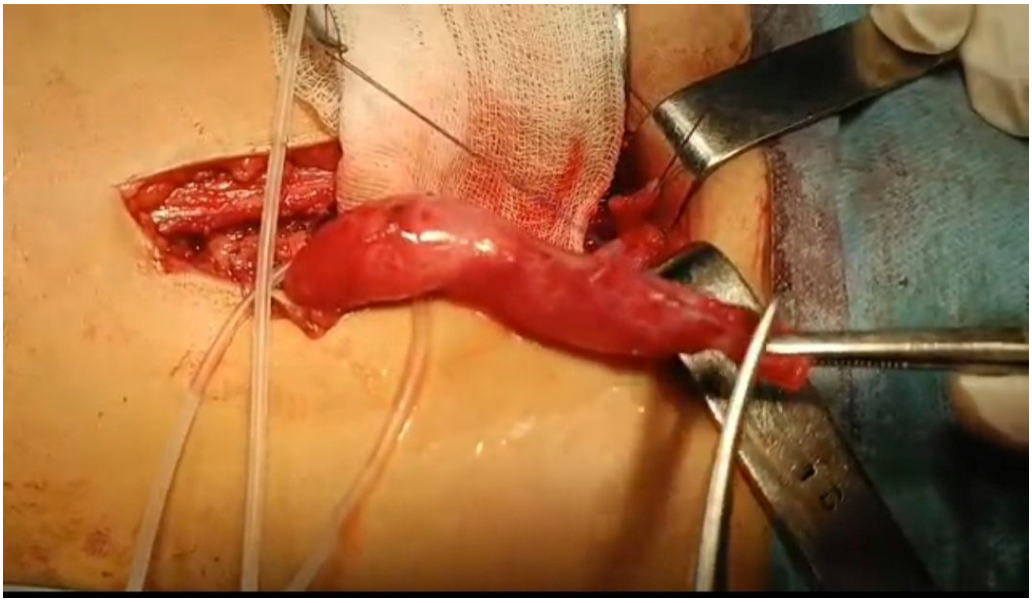

Figure 3: Resection of the stenotic segment with end-to-end anastomosis and transposition away from the vessels.

Clinical findings

During postoperative follow-up, the child experienced persistent right lumbar pain without fever or urinary infection.

On admission:
Good general condition
Afebrile (36.9°C)
Stable vital signs
Isolated right costovertebral tenderness
Normal external genitalia

Imaging findings

Ultrasonography revealed significant right hydronephrosis with cortical thinning and loss of corticomedullary differentiation.

DTPA renal scintigraphy showed an obstructive drainage curve partially improved after diuretic administration.

DMSA confirmed impaired right renal function with heterogeneous uptake.

Magnetic resonance urography demonstrated: normal left kidney small right kidney (63 mm) with cortical thinning and scarring marked dilation of the renal pelvis and proximal ureter (15 mm) abrupt narrowing at the level of the iliac vessel crossing normal distal ureter, excluding reimplantation stenosis. These findings strongly suggested a ureterovascular conflict consistent with retroiliac ureteral syndrome.

Operative findings

Surgical exploration through a right iliac retroperitoneal approach revealed a dilated proximal ureter and a narrowed segment entrapped between the external and internal iliac arteries. The ureter was clearly compressed at this level.

Ureterolysis was performed, followed by resection of the stenotic segment and termino-terminal uretero-ureteral anastomosis over a double-J stent.

Postoperative course

Recovery was uneventful. The child experienced complete resolution of flank pain. Follow-up ultrasonography showed significant reduction of hydronephrosis. Renal function remained stable. The double-J stent was removed six weeks later.

Discussion

Retroiliac ureteral syndrome represents an extremely rare cause of ureteral obstruction. Its pathophysiology is based on an abnormal anatomical relationship between the ureter and iliac vessels, producing chronic extrinsic compression and progressive obstruction [2,3].

This condition shares similarities with other vascular entrapment anomalies, such as retrocaval ureter, but is considerably less frequent. Because of its rarity, awareness among clinicians remains limited, which contributes to delayed diagnosis.

Clinical manifestations are nonspecific. Flank pain and hydronephrosis are the most frequent findings, while recurrent infections may occur secondary to urinary stasis [4]. In postoperative patients, obstruction is often initially attributed to anastomotic stricture or fibrosis, potentially masking the vascular origin of the obstruction.

Imaging plays a pivotal role. While ultrasonography detects hydronephrosis, it cannot define the cause. CT urography and MRU allow precise visualization of the ureter's relationship with surrounding vessels. In pediatric populations, MRU is preferable due to the absence of radiation exposure [5].

The characteristic imaging pattern includes: Proximal ureteral dilation

Abrupt narrowing at the iliac crossing Normal distal ureter

These features were clearly present in our patient and allowed accurate preoperative diagnosis.

Surgical treatment is considered the gold standard. Options include simple ureterolysis with anterior transposition or resection with uretero-ureteral anastomosis. Outcomes are generally excellent, with symptom resolution and preservation of renal function [6-8].

Our case emphasizes that persistent hydronephrosis after ureteral reimplantation should not automatically be attributed to surgical failure. Rare causes such as retroiliac ureteral syndrome must be considered, particularly when distal ureteral patency is demonstrated.

Conclusion

Retroiliac ureteral syndrome is a rare but clinically relevant cause of pediatric ureteral obstruction. It should be suspected in cases of unexplained or persistent hydronephrosis, especially following ureteral surgery. Magnetic resonance urography enables accurate diagnosis, and surgical correction provides definitive treatment with favorable functional outcomes. Early recognition is essential to prevent progressive renal damage.

References

1. Bateson EM, Atkinson D. Circumcaval and retroiliac ureter: report of unusual ureteral course. Clin Radiol. 1969; 20: 173-178.

2. Dyer RB, Chen MY, Zagoria RJ. Abnormalities of ureteral position: embryologic and radiologic features. Radiographics. 2002; 22: 1133-1147.

3. Kawahara T, Ito H, Terao H, et al. Retroiliac ureter causing hydronephrosis: case report and review. Int J Urol. 2010; 17: 563-565.

4. Wein AJ, Kavoussi LR, Partin AW, Peters CA. Campbell-Walsh-Wein Urology. 12th ed. Philadelphia: Elsevier. 2021.

5. Grattan-Smith JD, Jones RA. MR urography in children. Pediatr Radiol. 2006; 36: 1119-1132.

6. Hemal AK, Mishra S. Laparoscopic ureteroureterostomy for vascular ureteric compression. J Endourol. 2005; 19: 66-69.

7. Mandhani A, Kapoor R, Dubey D. Ureteral obstruction due to vascular anomalies: surgical management. Urology. 2004; 64: 591-595.

8. Salomon L, Hoznek A, Balian C, et al. Surgical management of rare ureteral vascular entrapment. Eur Urol. 1999; 35: 204-207.

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