Retrocaval Ureter in a Child: A Rare Cause of Ureteropelvic Junction Obstruction and Its Laparoscopic Management

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ABSTRACT

Retrocaval ureter (RCU) is an uncommon congenital anomaly resulting from an aberrant development of the inferior vena cava, leading to the ureter being trapped behind it. Although typically diagnosed in adults, pediatric cases are rare and may present with non specific symptoms such as intermittent flank pain or urinary tract dilation.

INTIRODUCTION

Retrocaval ureter (RCU) is a rare congenital anomaly arising from abnormal development of the inferior vena cava, resulting in the ureter being trapped posteriorly. While typically diagnosed in adults, pediatric cases are uncommon and often present with nonspecific symptoms such as intermittent flank pain or hydronephrosis.

Objectives

To report a pediatric case of retrocaval ureter causing ureteropelvic junction obstruction, and to describe the laparoscopic surgical approach and outcome.

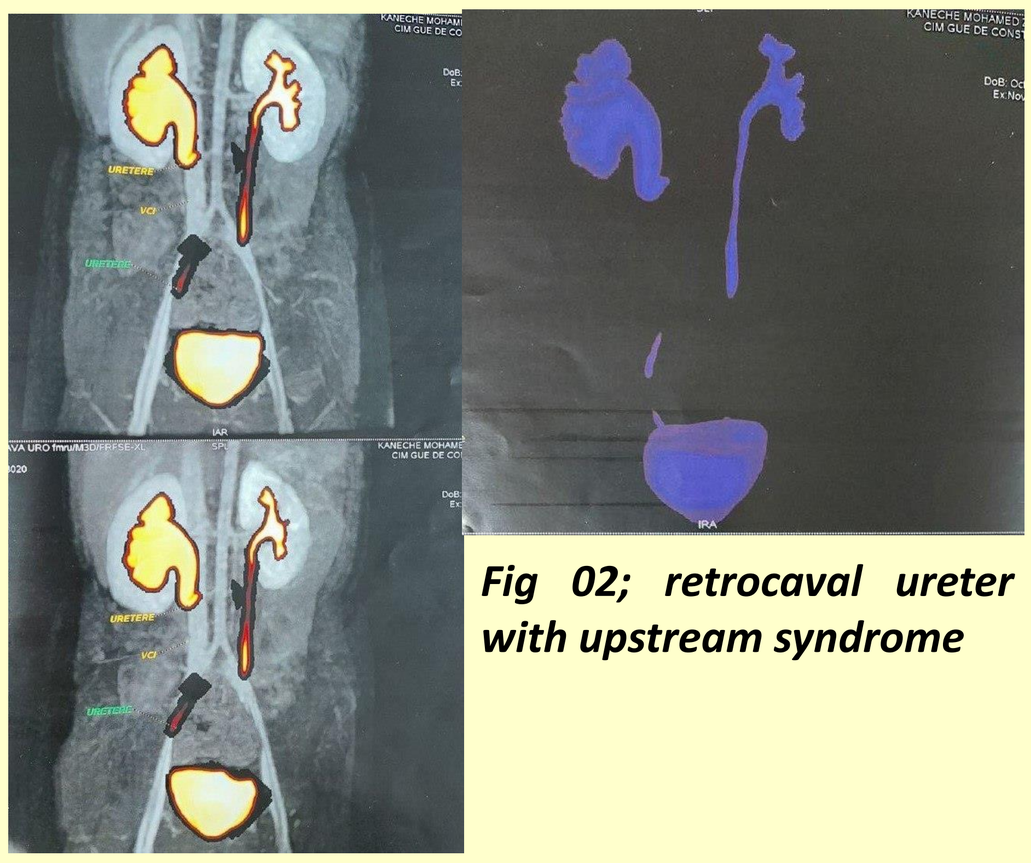

Fig 02; retrocaval ureter with upstream syndrome

Case Description

- A 12-year-old boy presented with intermittent right flank pain without urinary tract infections.
- Abdominal ultrasound revealed right hydronephrosis.
- Uroscan right hydronephrosis *(fig 01)*
- Magnetic resonance urography confirmed a retrocaval course of the right ureter with obstruction at the ureteropelvic junction.
- Renal function was preserved. *(fig 02)*
- The patient underwent laparoscopic transperitoneal ureteroureterostomy with excision of the retrocaval segment and anterior repositioning of the ureter. *(fig 03)(fig 04)*
- A double-J stent was inserted and removed after six weeks.

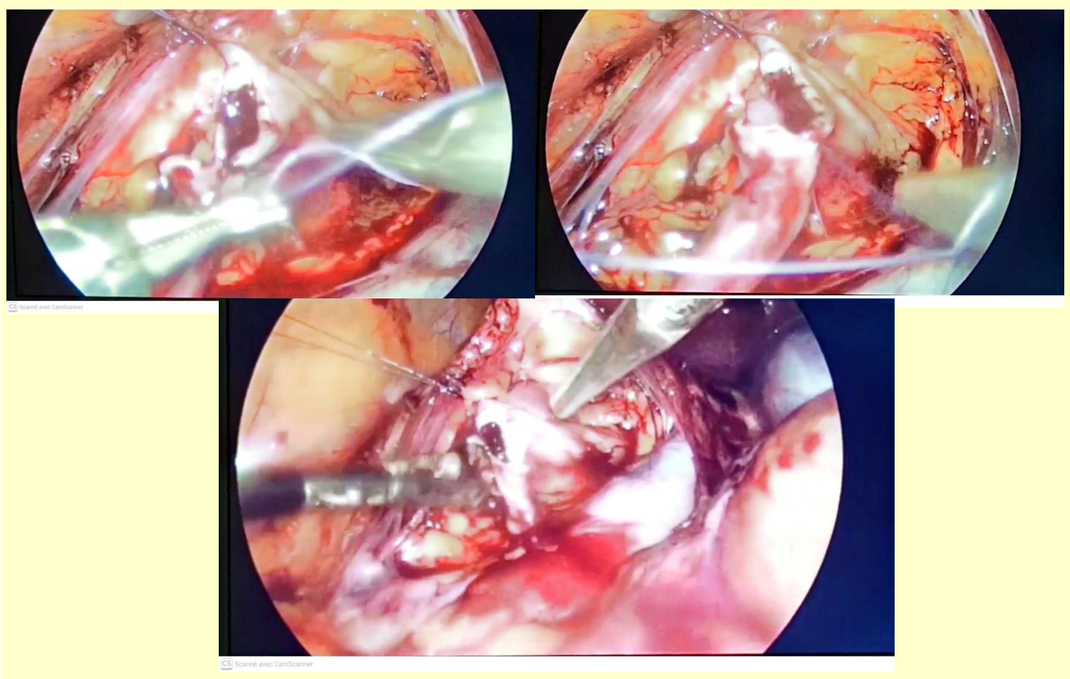

Fig 04 section, transposition in anterior IVC and anastomosis

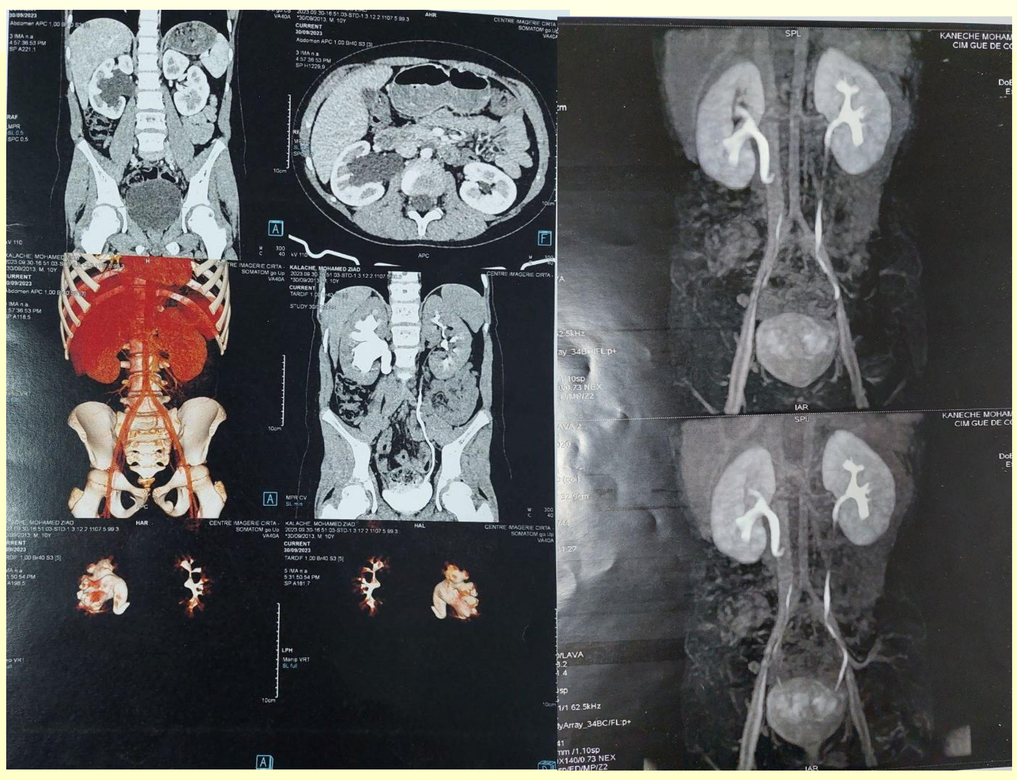

Fig 01 ; Right hydronephrosis with ureter dilation upstream o stenosis at the L3 – L4

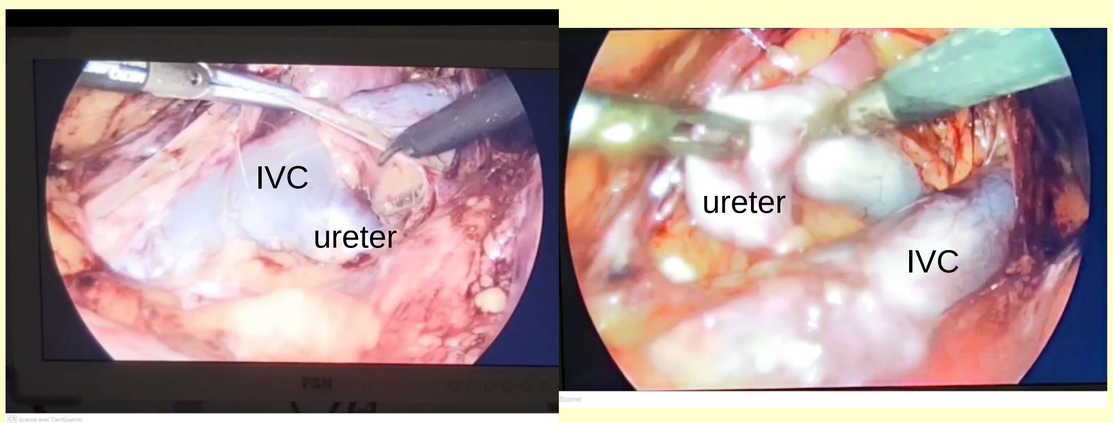

Fig 03, the ureter retro cave

RESULTS

Postoperative recovery was uneventful. At six months follow-up, the patient was asymptomatic, with complete resolution of hydronephrosis and no sign of residual obstruction on imaging.

Discussion

- A retrocaval ureter is a rare embrylogic anomaly when the diagnosis is usually with MRI.
- Actually mini invasive approach increasing ureteroureterostomy or ureteroureteripelvic anastomosis by laparotomy.
- The placement of urereteral stent jj trans anastomic.
- The transperitoneal approach was performed with anterior anastomosis.

CONCLUSION

Retrocaval ureter, although rare in children, should be considered in the differential diagnosis of unexplained right hydronephrosis. Laparoscopic correction is a safe, effective, and minimally invasive technique that yields excellent functional outcomes.

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Keywords

Retrocaval ureter; Pediatric urology; Ureteropelvic junction obstruction; Laparoscopic ureteroureterostomy; Hydronephrosis; Congenital ureteral anomalies; Minimally invasive surgery; Inferior vena cava anomaly; Case report