

Anuria in a Child Secondary to Rupture due to Ureteropelvic Junction Obstruction in a Solitary Functioning Kidney Following Trivial Trauma: An Incidental Finding

Önemsiz Bir Travma Sonrası Soliter Çalışan Bir Böbrekte Üreteropelvik Bileşim Obstrüksiyonuna Bağlı Rüptüre Sekonder Bir Çocukta Gelişen Anüri: Rastlantısal Bir Bulgu

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Pediatric kidneys are more susceptible to trauma due to poor protective mechanisms due to immature and more pliable thoracic cage, weak abdominal wall musculature and inadequate perirenal fat. Ureteropelvic junction obstruction (UPJO) is one of the most frequently found renal anomaly, and pelvicalyceal (PCS) rupture is a rare presentation whose diagnosis may be delayed due to lack of hematuria and unnoticed trauma. We present a case of child with PCS rupture in solitary functioning right kidney following trivial trauma.

A 6-year-old male child was referred with complaint of abdominal pain with anuria for 2 days after a small fight with a close friend. Physical examination findings were as follows: abdominal distension with fullness in the right renal fossa, stable vitals, and lack of any urine output on catheterization, while he had lower hemoglobin (11.6 mg/dl), and higher serum creatinine (1.8 mg/dl) levels. Whole abdominal ultrasound demonstrated grossly hydronephrotic right kidney with large perinephric fluid collection, absence of left kidney, and empty bladder. Contrast Enhanced Computed Tomography (CECT) of the whole abdomen demonstrated right PCS rupture: grossly dilated right PCS with large perinephric fluid collection extending to the pelvis, absence of the left kidney (**Figure 1**). Right side USG-guided percutaneous nephrostomy (PCN) was performed under general anesthesia and immediately after 500 ml clear urine was drained. While 24 hr-urine output reached up to 1000ml, and serum creatinine levels normalized 3 days later. After 6 weeks, repeat CT urography revealed the diagnosis of right UPJO. Then the patient underwent open Anderson-Hynes dismembered pyeloplasty (**Figure 2**).

Most children with grade IV/V renal injury following blunt trauma can be managed nonoperatively [1]. Kidneys are affected in 8-10% of the cases exposed to blunt abdominal trauma which is seen twice more commonly in children. Trivial trauma leading to PCS rupture is a rare presentation. This is more common in children with hydronephrotic kidney mostly due to UPJO. High level of suspicion is required as occasionally it manifests minimal symptoms so its diagnosis is delayed. Our patient presented as a case of emergency within 2 days after the traumatic incident due to solitary functioning kidney with anuria. DJ stenting

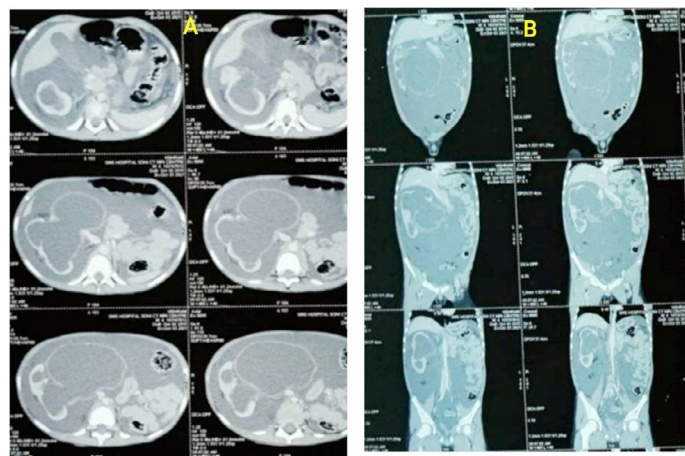


Figure 1. A-B: Abdominal CECT during initial presentation just after trauma

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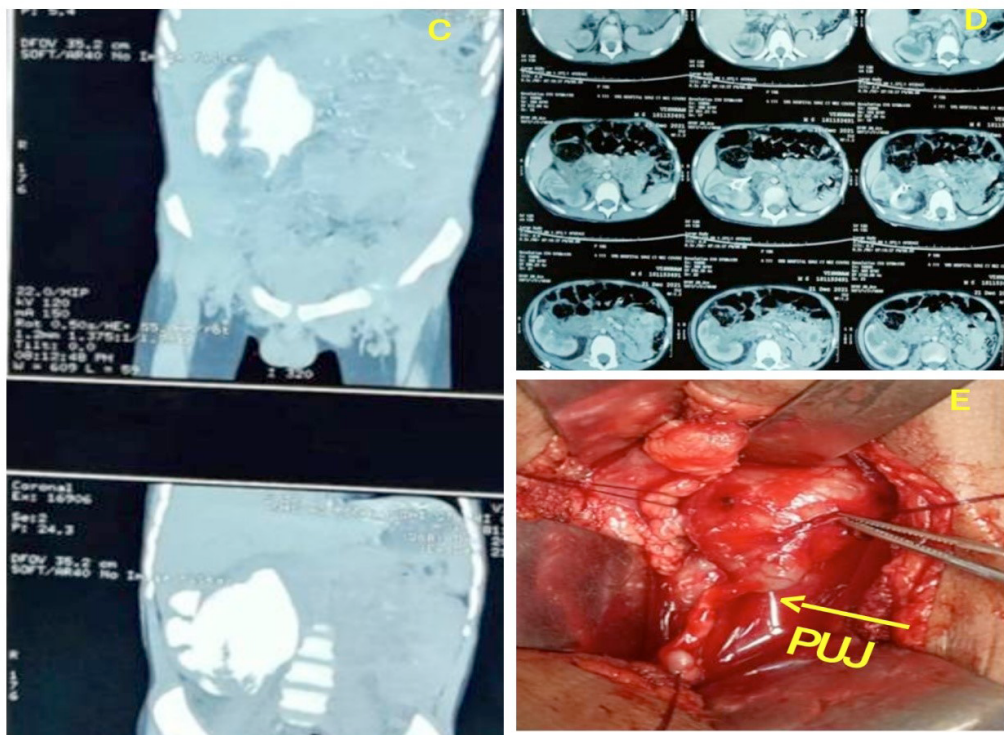


Figure 2. C-D: Follow- up CT urography 6 weeks after trauma
E: Intraoperative picture of ureteropelvic junction

and PCN insertion are appropriate options for these patients in emergency situation. Sometimes these patients may present with hemodynamic instability requiring immediate exploration. Judicious and early use of minimally invasive interventions, instead of persisting with nonoperative management improve functional outcomes [2].

Conclusion

Symptoms of PCS ruptures are not specific and can mimic several other conditions. So, early recognition with USG and CT scan imaging is a must for diagnosis. PCN insertion or double-J stenting helps restore the normal excretory functions of the urinary tract and resolves urinary extravasation.

Keywords: trauma, ureteropelvic junction obstruction, anuria, percutaneous nephrostomy, pyeloplasty

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References

- [1] Nerli RB, Metgud T, Patil S, Guntaka A, Umashankar P, Hiremath M, et al. Severe renal injuries in children following blunt abdominal trauma: selective management and outcome. *Pediatr Surg Int* 2011;27:1213-6. <https://doi.org/10.1007/s00383-011-2908-2>
- [2] Shekar PA, Ansari MS, Yadav P, Srivastava A. “Functional outcome in pediatric grade IV renal injuries following blunt abdominal trauma salvaged with minimally invasive interventions” *J Pediatr Urol* 2020;16:657.e1-657.e9. <https://doi.org/10.1016/j.jpuro.2020.07.017>