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Case Study

Case Report on Left Pelvi-Ureteric Junction Obstruction with Left Hydroureteronephrosis

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ABSTRACT

Pelvi-ureteric junction obstruction (PUJO) is the most common cause of congenital hydronephrosis and may lead to progressive renal damage if not appropriately managed. Infants undergoing surgical correction require careful postoperative surveillance, as complications may present with subtle and non-specific symptoms. We report the case of a 4-month-old male infant with antenatally detected left PUJO and hydroureteronephrosis who underwent multiple urological interventions, including DJ stenting, Anderson–Hynes pyeloplasty, and ultimately left nephrectomy. The child presented with persistent irritability aggravated by handling, without fever, vomiting, or reduced urine output. This presentation posed a diagnostic challenge, highlighting the importance of considering postoperative discomfort, stent-related morbidity, urinary tract infection, or evolving urological complications in non-verbal patients. This case underscores that irritability alone can be a significant clinical indicator in infants with complex PUJO management. A high index of suspicion, systematic evaluation, and structured follow-up are essential to ensure early detection of complications, optimize recovery, and improve long-term outcomes in obstructive uropathy.

INTRODUCTION

Pelvi-Ureteric Junction Obstruction (PUJO), also known as Ureteropelvic Junction (UPJ) obstruction, is a significant cause of congenital urinary tract obstruction, characterized by impaired urine flow from the renal pelvis into the proximal ureter. This obstruction leads to urinary stasis and progressive dilatation of the renal collecting system, often detected as hydronephrosis on routine antenatal ultrasonography. PUJO is the most common cause of congenital hydronephrosis in infants, with an incidence of approximately 1 in 750–1000 live births, and left-sided involvement is more frequent [1].

Hydroureteronephrosis refers to dilatation of both the renal pelvis and ureter, reflecting more pronounced back-pressure from obstruction.

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Ultrasonography is the primary screening modality, while diuretic renography (^{99}mTc-MAG3 or DTPA) helps differentiate obstructive from non-obstructive dilatation and assess relative renal function [2].

PUJO can be classified as intrinsic, which is caused by adynamic segments at the junction, or extrinsic, such as compression from aberrant vessels. Persistent obstruction without timely intervention can cause progressive renal damage and recurrent urinary tract infections. Early diagnosis using imaging and functional studies is essential for management, which ranges from conservative observation in mild cases to pyeloplasty in significant obstruction or declining renal function [3, 4].

MATERIALS & METHODS

Study Design: Single-patient case report

Diagnostic Tool Used: Antenatal ultrasonography, Postnatal renal ultrasonography

Data Sources: Clinical presentation, physical examination, imaging findings

Ethical Considerations: Patient identity not disclosed

CASE PRESENTATION

A 4-month-old male infant presented with excessive irritability for 15 days, which was notably aggravated on handling and when being carried by the mother. The child was a known case of left pelvi-ureteric junction obstruction with left hydroureteronephrosis, detected antenatally during routine ANC ultrasonography. Postnatally, the patient underwent DJ stent placement, followed by laparotomy with modified Anderson–Hynes pyeloplasty, cystoscopy with DJ stenting, and subsequently left nephrectomy. The DJ stent was later removed. There was no history of fever, vomiting, seizures, or reduced urine output at presentation. The persistent irritability raised suspicion of post-operative discomfort or underlying urinary tract–related pathology, warranting further clinical evaluation and follow-up.

DISCUSSION

Pelvi-ureteric junction obstruction (PUJO) is the commonest cause of antenatally detected hydronephrosis, and open Anderson–Hynes dismembered pyeloplasty remains a standard corrective procedure in infants, with high success and low failure rates on follow-up.[5,6] However, postoperative symptoms in infants can be non-specific; persistent irritability aggravated by handling may represent pain, urinary infection, recurrent obstruction, stent-related symptoms, or other postoperative complications.[6,7]

In pediatric pyeloplasty series, most clinically relevant complications occur within the first 1–2 years, supporting the importance of structured follow-up with serial ultrasonography and functional assessment when indicated.[7] In infants, febrile UTI has been highlighted as a frequent postoperative complication often occurring while an indwelling ureteral stent is present although afebrile presentations may still occur, particularly in young infants where symptoms can be subtle (irritability, poor feeding).[6] Therefore, urine microscopy/culture and inflammatory markers are important to exclude infection even in the absence of fever.

Another key consideration is double-J (DJ) stent–related discomfort. DJ stents can cause pain and bladder irritative symptoms due to mucosal irritation and reflux-related mechanisms; these effects are well described and can present variably, especially in non-verbal children.[8,9] A recent

pediatric meta-analysis also suggests that longer stent duration is associated with higher overall complication risk (including irritative symptoms, fever, and migration) without a difference in surgical success, reinforcing the need to consider stent-related morbidity when unexplained postoperative symptoms occur.[10] In this case, although the stent was removed, prior stent use and repeated instrumentation (cystoscopy/stenting) increase clinical suspicion for transient mucosal irritation, UTI, or inflammation contributing to irritability.

The history of progression to nephrectomy implies severe or non-salvageable renal damage/poor function, a pathway sometimes required in obstructive nephropathy.[11] Management of poorly functioning kidneys with UPJO remains debated, but multicenter data show that pyeloplasty can be performed with morbidity comparable to nephrectomy in selected poorly functioning units, with a subset demonstrating functional recovery; nonetheless, nephrectomy remains appropriate when the unit is non-functioning or symptomatic.[12] Post-nephrectomy, persistent irritability should prompt evaluation for surgical site pain, urinoma/collection, constipation, wound complications, and residual/contralateral urinary tract issues, alongside non-urologic causes of irritability (e.g., otitis media, gastroesophageal reflux, occult fractures), because infants may manifest diverse pathology primarily as irritability.

Overall, this case emphasizes that in infants with complex PUJO management, irritability on handling is a clinically meaningful symptom that warrants systematic reassessment—particularly for UTI and stent/instrumentation-related morbidity, and for early detection of postoperative complications or recurrent obstruction—supported by evidence that complications and failures, although uncommon, are concentrated in early follow-up.[6,7]

RESULT

This case highlights the diagnostic challenge of persistent irritability in a young infant with a complex history of Pelvi-ureteric junction obstruction and multiple urological interventions. In non-verbal patients, irritability—particularly when aggravated by handling—may be the only clinical indicator of postoperative discomfort, stent-related morbidity, urinary tract infection, or evolving urological complications. The absence of classical features such as fever or reduced urine output does not exclude underlying pathology. Therefore, a high index of suspicion, systematic postoperative surveillance, and multidisciplinary evaluation are essential in infants following pyeloplasty or nephrectomy. Early recognition and timely intervention can prevent complications, optimize recovery, and improve long-term outcomes in children with obstructive uropathy.

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