

Motorcycle trauma unveiling massive pyeloureteral junction syndrome

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Abstract

This medical case study presents a rare and intriguing incidentally discovered junctional syndrome in a 36-year-old male involved in a motorcycle accident. A subsequent CT scan revealed a massive pyelocalyceal dilatation measuring 22 cm with a 12 cm-diameter pyelon, compressing the renal parenchyma (Fig1, Fig2). Remarkably, despite the extensive dilatation, the patient's renal function remained unaffected, as indicated by normal laboratory findings. Prompt management involved right-side JJ stenting (Fig3, Fig4) and renal scintigraphy, which revealed that the right kidney contributed only 20% of the total renal function. This exceptional presentation highlights the significance of early detection and intervention in such cases to optimize renal health and prevent potential complications. Long-term monitoring is essential to ensure the well-being of the patient and manage this rare medical condition effectively.

Keywords: Junctional syndrome; Massive pyelocalyceal dilatation; Abdominal trauma; Extensive dilation

1. Introduction

The pyeloureteral junction syndrome, often referred to as ureteropelvic junction syndrome (UPJ), [1,3] is a distinctive urological condition characterized by an obstruction or impairment at the point where the renal pelvis connects to the ureter. This intriguing syndrome is known for its unique ability to remain asymptomatic until discovered incidentally during routine medical examinations or investigations for unrelated health concerns. It exemplifies the complexity and unpredictability of certain medical conditions, as well as the significance of early diagnosis and intervention [2]. In this article, we explore the enigmatic world of pyeloureteral junction syndrome, shedding light on its clinical manifestations, diagnostic challenges, and the vital role it plays in urological medicine.

2. Case report

In this medical case study, we present the case of a 36-year-old male with no significant medical history who arrived at the emergency department following an abdominal trauma resulting from a motorcycle accident. Upon examination, the patient exhibited mild tenderness on the right side. A subsequent CT scan revealed an astonishing finding: a massive pyelocalyceal dilatation measuring 22 cm with a 12 cm-diameter pyelon, compressing the renal parenchyma (Fig1,2). Remarkably, the patient's laboratory values, including renal function tests, were entirely normal. The patient underwent right-side JJ stenting in the operating room (Fig3,4) and was subsequently referred for a renal scintigraphy to assess the functional capacity of the affected kidney.

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3. Discussion

The identified pyeloureteral junction syndrome with an immense pyelocalyceal dilatation in this case is a rare and noteworthy occurrence[1,3]. Pyeloureteral junction obstruction refers to the impairment or blockage of urine flow from the renal pelvis to the ureter, leading to the dilatation of the renal collecting system. Although this condition is typically diagnosed incidentally[4] or during routine investigations for unrelated symptoms, the association with a traumatic event, as seen in our patient, is unusual.

The significant dilatation observed in the pyelocalyceal system, measuring 22 cm, is exceptionally large and raises concerns about its potential impact on the kidney's structural and functional integrity. The dilation's size and compression of the renal parenchyma, as evidenced by the 12 cm-diameter pylon(Fig1,2), have likely contributed to the patient's mild discomfort and tenderness on the right side. However, it is notable that despite the extensive dilation, the patient's renal function remained unaffected, as evidenced by normal laboratory findings.

The decision to proceed with JJ stenting (Fig3,4) was aimed at alleviating the obstruction and facilitating urine drainage from the affected kidney. This intervention can help mitigate the potential risks associated with prolonged urinary obstruction, such as hydronephrosis, recurrent infections, and impaired renal function.

The subsequent renal scintigraphy played a crucial role in assessing the functional capacity of the right kidney. The finding that the right kidney contributes to only 20% of the total renal function indicates that the obstruction has likely led to compromised functional performance of this kidney. The scintigraphy results will be essential for guiding further management decisions and understanding the overall impact on the patient's renal health.

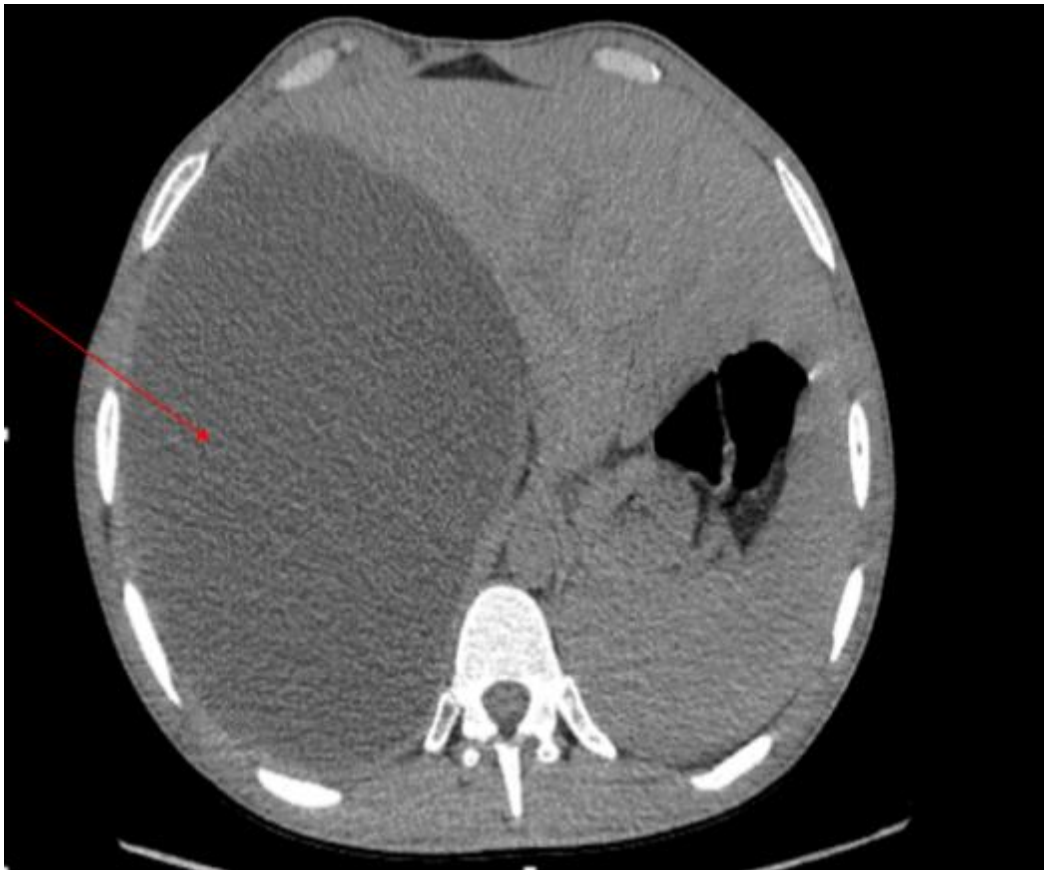


Figure 1 Axial CT scan demonstrating a significant pyelocalyceal dilatation measuring 22 cm (marked by red arrows) with a 12 cm-diameter pylon compressing the renal parenchyma on the right side. The patient's renal function remained normal despite the extensive dilation

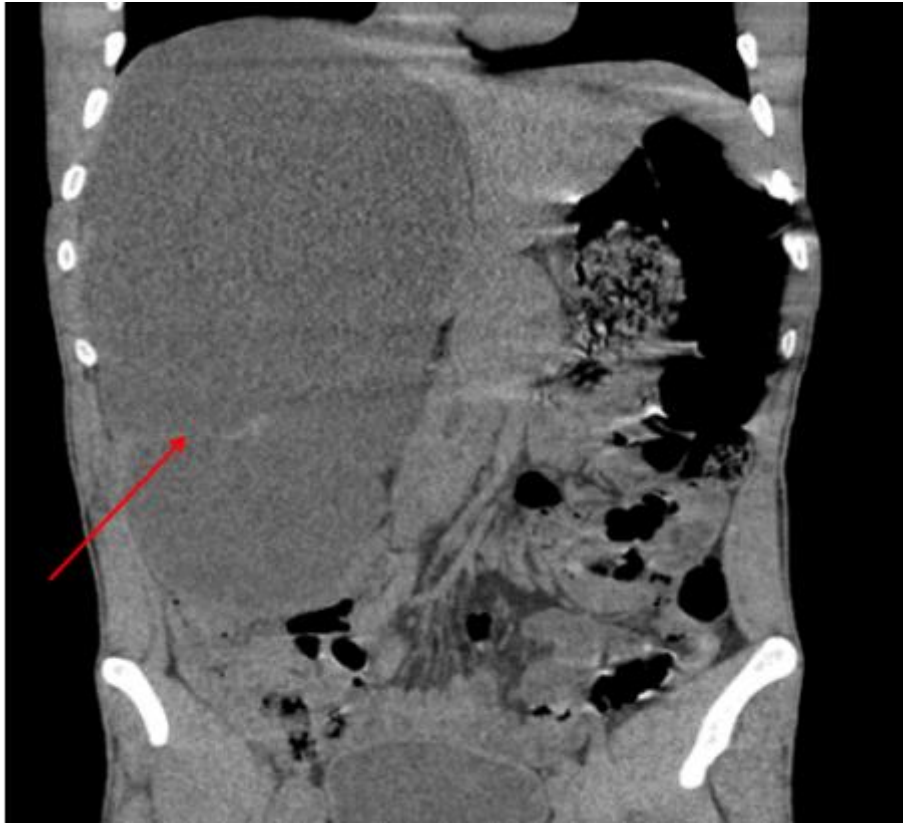


Figure 2 Sagittal reconstruction of the CT scan revealing a massive pyelocalyceal dilatation (marked by red arrows) in the right kidney, emphasizing the extent of the dilated renal collecting system



Figure 3 Axial CT scan post-treatment with a double J stent



Figure 4 Sagittal reconstruction of the CT scan after double J stent placement

4. Conclusion

This case highlights a remarkable presentation of pyeloureteral junction syndrome with an exceptionally large pyelocalyceal dilatation in the context of a motorcycle trauma. Despite the extensive dilation and compression of the renal parenchyma, the patient's renal function remained unimpaired. The successful JJ stenting procedure and the subsequent renal scintigraphy have provided valuable insights into the management and functional status of the affected kidney. Long-term follow-up and close monitoring will be necessary to ensure optimal renal health and prevent potential complications associated with this rare and intriguing medical condition.

Compliance with ethical standards

Statement of ethical approval

The present research work does not contain any studies performed on animals/humans subjects by any of the authors'.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study. (yes)

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