Case Report

Giant hydronephrosis secondary to ueteropelvic junction obstruction diagnosed incidentally after abdominal trauma: A case report

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ABSTRACT

Introduction: Isolated blunt abdominal trauma in children is a rare condition. Pre-existing malformations like uteropelvic junction (UPJ) obstruction makes the condition a urological dilemma.

Presentation of case: A seven-year-old boy presented with blunt abdominal trauma. No significant past medical history. Computed tomography of the abdomen and pelvis showed a right giant hydronephrosis. After which, we performed simple nephrectomy. Pathological study showed neglected hydronephrosis secondary to uteropelvic junction obstruction.

Clinical discussion: Uteropelvic junction obstruction usually diagnosed incidentally. Presence of UPJ obstruction raises the kidney accessibility to trauma. Long term and chronic hydronephrosis leads to damage of the renal parenchyma. Nephrectomy maybe needed as a definitive treatment.

Conclusion: Hydronephrosis secondary to uteropelvic junction obstruction diagnosed after abdominal trauma is a challenging case. Urologists should suspect renal malformation in any child with isolated renal trauma.

1. Introduction

The kidney in a child is more susceptible to trauma owing to a decrease in the physical renal protective mechanisms found in childhood. When compared to an adult, the pediatric kidney is protected by an immature, more pliable thoracic cage, weaker abdominal musculature, and less perirenal fat and moreover it lies in a lower abdominal position [1].

Uteropelvic junction (UPJ) obstruction, a major cause of obstructive uropathy and the most frequently encountered asymptomatic congenital anomaly of the urinary tract, is one of the pre-existing abnormalities most found after renal trauma. The diagnosis is usually delayed because of insidious onset, a lack of obvious bleeding, and often a lack of urinary symptoms [2].

We present a rare case of seven-year-old boy with giant uteropelvic junction (UPJ) obstruction diagnosed after blunt abdominal trauma and managed successfully.

This case report examines one such presentation in line with the SCARE guidelines [3].

2. Case presentation

A seven years old boy was referred to our emergency department after a crush accident with his teammate 30 h before. He had no important past medical or familial history other than tonsillectomy at age five years. Vital signs are as follow: blood pressure 90/60 mm/hg, pulse 130/min, saturation 96%, and respirations 22/min. The child was alert and responded to commands. Physical examination demonstrated abdominal tenderness with maximal pain in right hypochondria. Examination of other systems was normal. Laboratory tests are shown in Table 1.

An abdominal and pelvis computed tomography (CT) scan showed a poor defined right renal outline with a thinning of the renal cortex (Fig. 1). Another important finding on CT was a large intra-abdominal and retroperitoneal fluid collection. These findings suggested a congenital malformation of the right kidney. After taking parent’s consent and according to vital signs and CT findings, we decided to perform laparotomy. Through midline abdominal approach, we reached the retroperitoneum space. The right kidney was poorly defined because of the chronic and giant hydronephrosis. A large expanding hematourinoma was found. As a result, the operator considered the poorly functioning kidney non-conservable and he performed right nephrectomy (Fig. 2). Post operation course was uneventful. We discharged the patient three days after surgery with well condition. Follow-up clinically and radiological for six months showed no important findings. Pathology showed a hydronephrosis secondary to uteropelvic junction obstruction.
3. Discussion

The kidney is affected in 10% of all blunt abdominal traumas. It is the most frequent urinary organ to suffer injury in blunt trauma [4].

Genitourinary anomalies are known to increase the risk for blunt renal trauma related genitourinary injuries. The most common pre-existing anomalies include, horseshoe or ectopic kidneys, hydronephrosis or dilatation of pelvicalyceal system and rarely renal cysts and tumours [1].

Ultrasonography could be used as a simple screening tool but is not accurate enough. Contrast-enhanced helical CT is reported as the “gold standard” in hemodynamically stable renal trauma. It can identify parenchymal lacerations, urinary extravasation, perirenal hematoma, and vascular injuries. In addition, it helps to stage the injury and pre-existing pathologies of the injured kidney, and also to document the state of the opposite kidney [2].

In a patient with a nonfunctioning kidney with loss of renal parenchyma, the recommended treatment is a simple nephrectomy because of the anticipated complication. Percutaneous drainage is an alternative management option in patients with poor clinical parameters [5]. In our case, we had a boy with blunt abdominal trauma. CT scan showed right giant hydronephrosis which was diagnosed for the first time. Our patients did not have any complaints before the accident. According to radiological appearance of the kidney and because of fluid collection intra-abdomen, we performed laparotomy. Gross appearance of the kidney illustrated a chronic hydronephrosis that led to loss of kidney parenchyma. We performed simple nephrectomy. The operation went smoothly with no complications. After three days of follow-up at urological ward, we discharged him.

4. Conclusion

Traumatic rupture of hydronephrosis secondary to ureteropelvic junction obstruction is a rare entity. CT scan of the abdomen and pelvis is the gold standard to reach the diagnosis. In some cases, simple nephrectomy is needed to cure completely.

Ethical approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images, in line with local ethical approval requirements. No other requirements were stipulated.

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Maher Al-Hajjaj is the only author of this manuscript.

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Guarantor

The corresponding author is the guarantor of this manuscript.

Declaration of competing interest

There was no conflict of interest.

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Figure 1.