Konservatif yaklaşım uygulanan Grade IV künt böbrek travmasının uzun dönem sonucu: Olgu sunumu

Long term outcome of conservatively managed grade iv blunt kidney trauma

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Özet

Pediatrik hasta grubunda düşük dereceli böbrek yaralanmalarına yaklaşımda konservatif yaklaşım yaygın ve bilinen bir stratejidir. Yüksek dereceli böbrek hasarlarında ise eksplorasyon önerilmektedir. Ancak, özellikle çocuk yaş grubundaki hastalarda, üriner ekstravazasyonun eşlik ettiği yüksek dereceli böbrek yaralanması olan olgularda, yatak istirahati ve üretral kataterizasyonu içeren konservatif yaklaşımın erken ve uzun dönemde herhangi bir komplikasyona neden olmadan, böbrek parankim hasarı olmadan tam iyileşme ile sonuçlanabileceği akılda tutulmalıdır. Yüksek dereceli böbrek yaralanmalarına yaklaşım son yıllarda konservatif yöntem lehine değişim içinde olsa da hemodinamik insitabilitenin olduğu vakalarda ise geleneksel eksplorasyon yöntemine başvurulmalıdır.

Anahtar Kelimeler: böbrek yaralanması, konservatif yaklaşım, prognoz.

Abstract

A conservative approach to low grade kidney injuries in the pediatric patient population is a commonly employed and well-known strategy. In cases of high grade renal damage, exploration is recommended. However, it should be kept in mind that, particularly in the pediatric age group, high grade renal injury cases accompanied by urinary extravasation can be concluded with complete resolution when treated with a conservative approach including bed-rest and urethral catheterization; in the short- or long-term without any complications or damage to the renal parenchyma. Even though approaches to higher grade kidney injuries in recent years have been in favor of a conservative approach, in cases of hemodynamic instability, the traditional exploration method is recommended

Keywords: renal injury, conservative management, prognosis

Introduction

Kidney injuries, among which the most frequent cause is blunt abdominal trauma, constitute 3% of all trauma cases (1). Especially in pediatric patients, the risk of kidney injuries resulting from blunt trauma, compared to adults, is higher due to the relatively larger kidney size, less protective peri-renal fat and mobility, and less protection of the abdominal wall (2). Such injuries occur in varying grades (grade I-III) and the generally accepted consensus for such cases is a conservative approach and observation. In cases of grade V kidney injury that are hemodynamically unstable, emergent exploration is recommended.

However, the management of grade IV blunt renal injury(parenchymal laceration extending through renal cortex, medulla, and collecting system, or main renal artery or vein injury with contained hemorrhage)is still debated and a more conservative approach started to be favored in time instead of surgicalintervention (3).

The aim of this case presentation is to report a case of a boy with grade IV blunt kidney damage who was conservatively managed by observation and to monitor the post-traumatic kidney function until the patient reached adulthood.

Case Presentation

A 20-year-old male patient presented to our clinic with right loin pain. According to the history and the discharge report written six years ago when the patient was 14, the patient suffered from blunt abdominal trauma following a fall and subsequently presented to the emergency department. The patient complained of right loin pain. "The physical exam revealed that the general status of the patient was average, the patient was with full mentation, oriented, and cooperative, and upon examination of the abdomen there was right upper quadrant tenderness. Vital signs were: BP: 80/50 mmHg, pulse: 110/min, oxygen saturation 95%. An indwelling urinary catheter was placed and gross hematuria was observed. An abdominal computed tomography with contrast showed right retroperitoneal hematoma, and a laceration plane extending from the kidney parenchyma and reaching the collecting system, along with extravasation of contrast material; the patient was diagnosed with grade IV kidney injury, and with the evidence of persistant renal bleeding, low

Figure 1: Axial CT image; contour lobulation showing deficiency of cortical continuity.

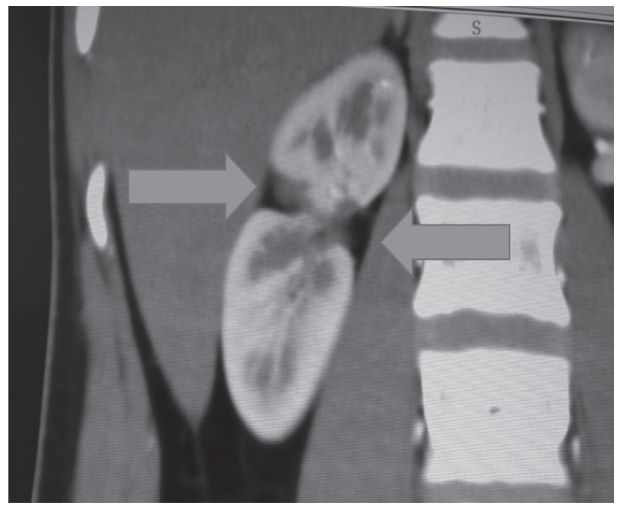

Figure 2: Coronal CT image; Right kidney; presence of contourlobulation and defective cortical continuity (blue arrow)

blood pressure, tachycardia,abdominal tenderness, image of perirenal hematoma, it was recommended to undergo retroperitoneal exploration and, if necessary, right nephrectomy. However, since the patient and their relatives did not consent to this treatment, the patient was followed up in the intensive care unit. Fourunits of packed erythrocyte suspension were transfused subsequent to a drop in the hemoglobin and hematocrit follow-up values. On the third day of admission, the patient's hematuria was resolving.The control tomography revealed that there was no extension of the hematoma and the patient was discharged from the hospital, advised to have bedrest, after being followed-up in the service until the seventh day. While the patient did not have active complaints of pain in the past month, there was increasing right loin pain. The vital signs were recorded as follows: 90/60 mmHg,

heart rate 80, respiratory rate 22.

In the visit of patient in our clinic, after six years of trauma, the examination of the abdomen was unremarkable; there was no costovertebral tenderness. The investigations were as follows: Hb: 15.7 g/dL, Htc: 46.2, and creatinine value: 0.8. In the complete urine investigation, microscopic hematuria was not present. The contrast-enhanced computerized tomography (CT) of the abdomen report revealed that there was a slight displacement of the right kidney in the medial and lateral slices and that the parenchyma collection system showed an extending discontinuity; this appearance was thought to be consistent with secondary changes following grade IV renal injury. However, blood flow and contrast uptake were normal and homogenous. The renal scintigraphy report revealed that differential function was 50% on the left and 50% on the right. The patient was advised to continue to undergo routine control (Figures 1-4).

Discussion

While blunt abdominal trauma constitutes more than 10% of renal injury in adults, more than 90% of pediatric kidney injury cases are result of blunt abdominal trauma (4).

The aim of the treatment of kidney injuries is primarily resuscitation, and followed by a decrease of the morbidity and the preservation of kidney functions. The conservative approach in lower grade kidney injuries for pediatric patient population is a widely practiced and recognized strategy. However, in high grade renal damage, especially in cases accompanied by urinary extravasation, different approaches are recommended in the literature like exploration (5,6).Absolute indications for renal exploration after trauma include evidence of persistent renal bleeding, expanding, or pulsatil perirenal hematoma.

Rogers et al. published a study where conservative treatment of grade IV kidney injury was carried out on ten pediatric patients with recommendation of bed-rest followed-up with Foley catheterization and they reported an 80% success rate (7). Of the two cases where conservative therapy was unsuccessful, one underwent uretheral stenting, while the other underwent a delayed open pelvis repair procedure. The current case also demonstrated that despite the extravasation of urine with grade IV renal injury, the urinary leaking recovered only with bed-rest and bladder catheterization, without the requirement of percutaneous stent placement.

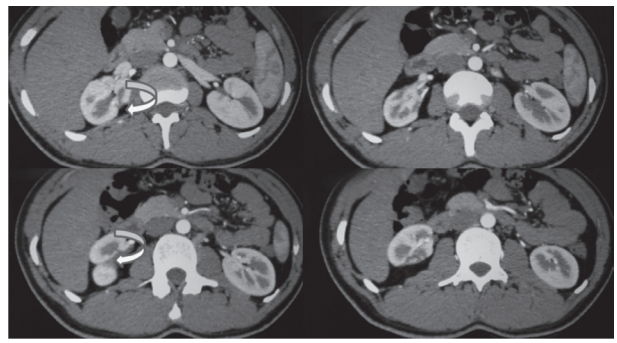

Figure 3: Axial CT image; right kidney; contour lobulation and defective cortical continuity(yellow arrow).

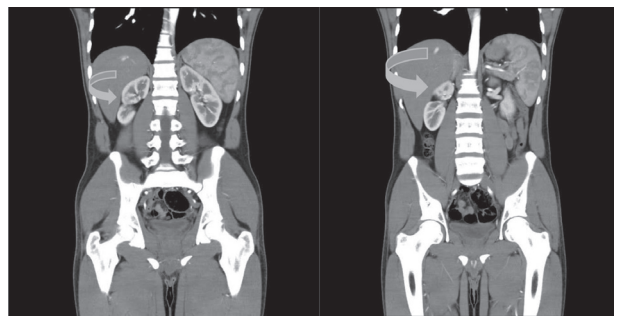

Figure 4: CT Abdomen plusIV contrast; coronal reconstructionshowing the division of the right kidney into two parts (green arrow).

Fiard et al. also observed the long term kidney functions of patients with high grade kidney trauma approached with conservative measures and stated in their study that the post-traumatic computerized tomography revealeddevascularized parenchyma regions whose radiological reporting would provide information about the functional renal capacity for the following periods (8). However, in the case we presented, as seen in the tomography, despite the defects in the contours of the entire kidney, since the entire parenchyma had contrast uptake and it was functional in the end of the long term, it is believed that, this finding can open new opportunities in the literature. Initial studies claimed that a conservative approach in patients with high grade kidney trauma face the risk of a three-fold increase in late complications, such as hypertension, compared to those who underwent operative treatment (9). However, more recent studies revealed that the development of hypertension following conservative treatment of patients was not more than the other cases (10).

The current case did not develop hypertension and split renal functions were same. Some researchers have defined an ultraconservative approach in the literature and recommended follow-up and observation, even for patients with grade V renal injury (11).As a result of the study of Altman et al., which monitored six patients with grade V renal injury without an operation and compared them to six patients who underwent operative treatment, stated that blood loss and intensive care stay duration was less in the ultraconservative group anda 50% lowerrate of mortality was observed. However, the general opinion is the requirement of laparotomy for patients who are hemodynamically unstable, who have vascular injuries, or have other accompanying organ injuries (12).

It must be specified that the decision of renal exploration should be given by the physician, and patients, or parents of patients should not object to decision. It should be remembered that the result of this abnormal situation is rare, and reported as a case report.

Conclusion

It should be recalled that especially in patients from the pediatric age group, in cases of high grade kidney injuries accompanied by urinary extravasation, can be conservatively managed with bed-rest and urethral catheterization without any immediate or long term complications or damage to the renal parenchyma. Even though the approach to high grade renal injuries is changing in favor of conservative measures in recent years, in cases in which hemodynamic instability is present, rational exploratory methods should be carried out.

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