

Trauma and reconstruction

Successfully managed grade IV renal injury and retained bullet in third-trimester pregnant woman

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ABSTRACT

Gunshot injury to the kidney in pregnant women is extremely rare describing a significant cause of maternal and fetal morbidity and mortality. This case report demonstrates the management of renal trauma by presenting 24years old third-trimester pregnant women who sustained gunshot wounds to the abdomen. Renal trauma management has evolved in the last decades from immediate surgical exploration to non-operative management (NOM). Based on our patient's outcome, we review the role of conservative management to a high grade of penetrating renal trauma which is potentially life-threatening describing the safety of this approach.

Introduction

Renal trauma management has emerged in the last decades from immediate surgical exploration to non-operative management with the goal is to preserve the kidney. However, nephrectomy may be the only option to control life-threatening hemorrhage. Trauma influences 1 in 12 pregnant women and has an important impact on maternal mortality, morbidity and the outcome of the pregnancy.¹

The kidney is the most commonly injured genitourinary organ. It is affected in about 1–20% of all traumas. Isolated renal injuries are rare and will require a large degree of force and are usually seen in multi-system injuries. In this case report we present a rare case of renal trauma in pregnant women following a gunshot.

Case report

A 24-year-old third-trimester pregnant woman came in the emergency department who sustained a gunshot wound to the thoraco-abdomen region. On admission; the patient was alert. Physical examination showed normal vital signs (T: 36, P: 82, Bp: 105/50) with no evidence hypovolemic shock. Upon arrival, a urethral catheter was inserted revealing slight hematuria. Laboratory analysis revealed anHb of 10.1 g/dl, Hct of 31.7%. Contrast-enhanced abdominal CT revealed 6 cm sized laceration in right kidney lower pole (AAST Grade IV injury)

with perinephric hematoma and intact uterine cavity and other organs of the abdomen (Figs. 1 and 2). CT abdomen also reveals a bullet just a neighborhood of the right kidney (Fig. 3). She was managed conservatively in the intensive care unit and after on the urology ward with fluids and blood products as needed. Serial differential complete blood counts and ultrasound made during her hospital stay. 7cm perirenal hematoma noted on ultrasound with no progressive perirenal hematoma. The patient progressed properly; she was discharged well on the eighth day with Hb of 10.5 and 3cm perirenal hematoma.

Discussion

Penetrating trauma cases during pregnancy are rare, and account only for 1.5% of episodes of trauma during pregnancy. However, abdominal injuries, if occurring during the third trimester of pregnancy, are associated with high maternal morbidity (60–70%) and a particularly high fetal death rate (71%).² This case report illustrates a rare gunshot injury to the kidney in pregnant women with excellent results for the mother and fetus. There are fewer other similar cases to this one in the literature. In one particular case report, Gabriel et al. a case of a 27-year-old woman and her 37-week fetus who were the victims of a gunshot wound. Renal trauma management has evolved in the last decades from immediate surgical exploration to NOM with the goal is to preserve the kidney.^{3,4} In our case, we prefer the conservative

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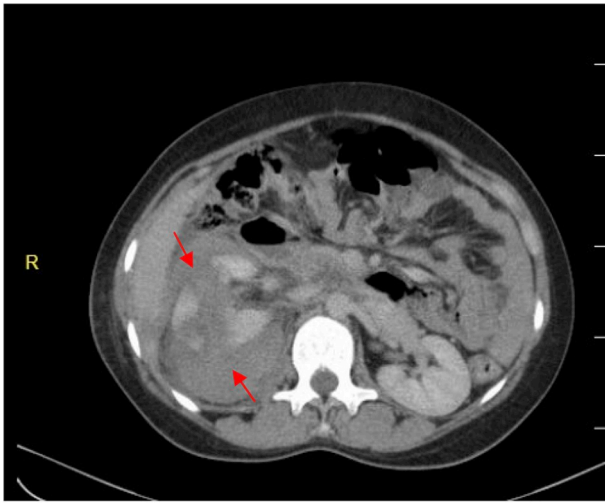


Fig. 1. There is a 6 cm sized laceration in right kidney lower pole (AAST Grade IV injury) with perinephric hematoma (arrows).

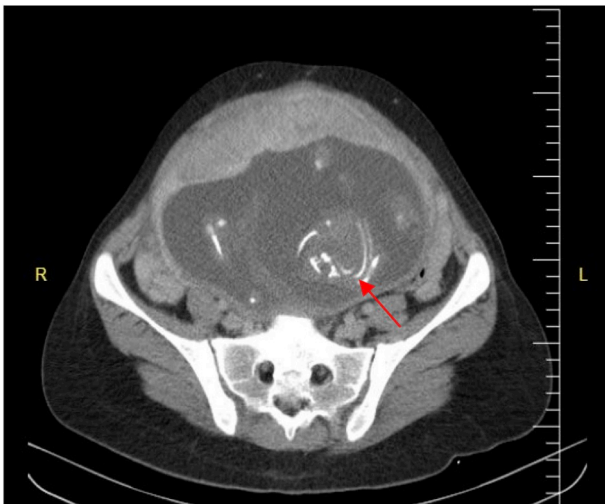


Fig. 2. There is a fetus in the uterine cavity (arrow).



Fig. 3. There is a hyperdense foreign body adjacent to the right kidney (arrow).

management of such high grade of penetrating renal trauma in

third-trimester pregnant woman which is potentially life-threatening that aims to preserve the kidney but it is extremely important to keep patients under close monitoring because this will allow early identification for patients who will require surgical intervention.

Abdominal CT with IV contrast is the gold standard for the diagnosis of renal injuries in stable patients and remains the investigation of choice for injured pregnant patients. The risks of radiation to the pregnancy are small compared with the risk of missed or delayed diagnosis of trauma.⁵

Penetrating injuries anterior to the anterior axillary line will most likely cause damage to the renal hilum, whereas posterior to this will be in the parenchyma and injuries are less serious. In our case, the gunshot injury was posterior to the anterior axillary line decreasing the need for surgical intervention.

Conclusion

Although it is a rare condition penetrating renal trauma during pregnancy, the conservative management of such renal injuries in third-trimester pregnant women in developing countries is critical but has low morbidity and mortality rate, and a high renal preservation rate when properly selected.

Financial conflict of interest

None.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.eucr.2019.101082>.

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