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Trauma and reconstruction

Traumatic renal artery occlusion secondary to blunt trauma in a second-trimester pregnant woman who managed successfully with non-operative management: A rare case report

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ABSTRACT

Blunt renal injuries in pregnancy are seldom isolated, with resultant renal vascular injury following this type of injury being extremely rare. We present a rare case of complete blockage of the left renal artery about 1 cm from the aortic opening in a second-trimester pregnant woman after she sustained a motor-vehicle-accident. She was managed successfully with NOM. Traumatic renal artery blockage is a rare condition with devastating consequences if missed on imaging. Although blunt renal trauma during pregnancy is a rare condition, NOM has become increasingly popular to reduce morbidity associated with nephrectomy resulting in higher rates of renal salvage.

1. Introduction

Kidneys are the most common injured genitourinary organ in trauma circumstances, accounting for approximately 3–5% of all trauma cases.[1] Blunt trauma (motor vehicle accidents and falls) are the most prevalent cause of kidney injury, whereas penetrating trauma (weapons and stab wounds) accounts for the rest. Contrast-enhanced computed tomography (CT) is the gold standard for diagnosing renal trauma in stable patients.

Trauma affects one in every twelve pregnant women and has a significant impact on maternal morbidity, mortality, and the pregnancy's outcome.[2]

Blunt renal injuries in pregnancy are seldom isolated, with resultant renal vascular injury following this type of injury being extremely rare.[3]

We report a rare case of traumatic renal artery occlusion in second-trimester pregnant women who managed successfully with non-operative management (NOM).

2. Case report

A 23-year-old second-trimester pregnant woman was brought to the emergency department after she sustained a motor vehicle accident.

On arrival, the patient was unstable, uncooperative, and hypotensive (BP: 45/80 and pulse rate of 90/min). A urethral catheter was inserted, which revealed slight hematuria. Laboratory investigations revealed a hemoglobin of 8 mg/dl, WBC 9.95 × 1000M3, serum creatine of 0.64 mg/dl, and urea of 11 mg/dl.

Following an immediate resuscitation with intervenous fluids and blood transfusion, radiological imaging was requested.

A contrast-enhanced abdominal CT revealed a grade 5 left renal injury with non-opacification following injection of contrast, left renal artery showing complete blockage about 1 cm from the aortic opening, and there was perinephric hematoma (Fig. 1).

Also, the CT revealed a moderate Peri-splenic and mild subcapsular hematoma with a splenic laceration deepest measuring 2 cm.

On chest x-ray, there was a left mid clavicular fracture. Fracture in the left superior and inferior pubic ramus was also noted. The contralateral kidney and the gravid uterus were intact.

The patient was admitted to the intensive care unit (ICU) and managed conservatively with a serial control of hemoglobin every four-six hours and an ultrasound every 22-to 36 hours. In addition, the patient was given intravenous fluids, ceftriaxone, and blood products as needed.

The patient was referred to the urology ward for further follow-up after four days in the ICU. On the seventh day, the hemoglobin level was 10mg/dl, urea and creatine were in the normal range, and there was no progressive perirenal hematoma detected in the ultrasound. The renal blood follow was restored, as noted in the renal doppler

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Fig. 1. Left renal artery showing complete blockage about 1 cm from the aortic opening, The contralateral kidney was intact.

ultrasound. Finally, she was discharged from the hospital in good clinical condition. Follow-up blood investigations and abdominal ultrasound after 21-days were unremarkable.

3. Discussion

Traumatic renal artery blockage is a rare condition with devastating consequences if missed on imaging.[3] Renal artery injury following blunt renal trauma occurs in 1–3%. Since Von Recklinghausen initially characterized it in 1861, less than a thousand cases have been published in the literature.[4] Blunt renal injuries in pregnancy are seldom isolated, with resultant renal vascular injury following this type of injury being extremely rare. The U. S. National Trauma Databank reviewed 945,326 patients with blunt trauma. Of these patients, renal artery injury was detected at about 0.05% (517 patients).[3] Zahoor Ahmed et al. reported two young male cases of traumatic renal artery occlusions following polytrauma.[4] The first patient underwent emergency nephrectomy, while the other case underwent endovascular revascularization. Unfortunately, due to prolonged ischemia revascularization was not achieved. We report a rare case of traumatic renal artery occlusion in second-trimester pregnant women who managed successfully with non-operative management (NOM).

As observed in the current case, renal trauma and renovascular injuries are relatively more predominant in the left kidney.[5] Several anatomical variations predispose to prone injury to the left renal artery, including shorter coarse, and more acutely angled than the right renal artery. Multiple visceral injuries are associated with renovascular injuries. The present case had concomitant grade 2 splenic injury, fracture in the clavicle, and left superior and inferior pubic ramus.

Although traumatic renal artery occlusion following blunt renal trauma is rare, it is a life-threatening condition, and if left untreated, renal infarction, hypertension, and renal insufficiency are the major complications that may result.[1] Despite the left renal artery showing complete blockage about 1 cm from the aortic opening, the renal blood follow was restored, as noted in the renal doppler ultrasound.

4. Conclusion

Traumatic renal artery occlusion is rare that can have catastrophic consequences if not detected immediately. Although blunt renal trauma during pregnancy is a rare condition, Non-operative management has become increasingly popular to reduce morbidity associated with nephrectomy resulting in higher rates of renal salvage.

Declaration of competing interest

None.

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None.

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