

**POSTTRAUMATIC LEFT ADRENAL HEMORRHAGE WITHOUT ANY
ASSOCIATED SOLID ORGAN CONTUSION: A RARE CASE**

VolkanKızılgoz¹, Hasan Aydın², Utku Menderes¹, Murat Yülüklü³, Mustafa Aydemir⁴

1. Afyonkarahisar State Hospital / Radiology Department

2. Kecioren Training and Research Hospital / Radiology Department

3. Afyonkarahisar State Hospital / General Surgery Department

4. Afyonkarahisar State Hospital / Endocrinology Department

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For Correspondence

Email ID:

volkankizilgoz@gmail.com

Abstract

Introduction

Adrenal trauma is a rare condition in multi trauma patients and frequently associated with other organ injuries. The diagnosis is mostly made by imaging findings based on CT but ultrasound images can also be helpful. This paper reports a rare condition of left adrenal hemorrhage without any associated solid organ injury.

Case Report

Our patient was a 25 years old male and he admitted to emergency department of our hospital after a blunt abdominal trauma caused by a traffic accident. The CT images were obtained to investigate solid organ trauma in the abdominal region and imaging findings revealed left adrenal hemorrhage. There was no other solid organ contusion neither in the left nor the right side of abdomen in CT images. The blood tests and other physical examinations showed no abnormality except a mild abdominal guarding on the left side of the abdomen.

Conclusion

Adrenal hemorrhage is an uncommon finding in trauma patients. Adrenal injury can be fatal and the radiologists should be aware of accompanying solid organ contusions with this rare entity.

Introduction

Adrenal gland is located in the superomedial perirenal area, enclosed by the Gerota's fascia. Therefore a great impact of force has been associated with adrenal gland injuries because of its well protected location. Adrenal hemorrhage caused by blunt abdominal trauma is not uncommon but a relatively rare entity in multitrauma patients as compared with other solid organ injuries

(1,2). Adrenal rupture rarely occurs as an isolated injury but is more frequently associated with injury of the kidneys, spleen and liver (3). Herein, we report a patient with traumatic injury of left adrenal gland without any solid organ contusion.

Case Report: A 25-year-old male patient was admitted to our hospital's emergency department following a traffic accident. His major complain was back pain and he

denied loss of consciousness and he had full recollection of the event and thereafter. There was no significant past medical history. He was neither on any medication nor using alcohol or drugs. He was a non-smoker.

Examinations revealed a normal blood pressure, his heart rate and electrocardiography results were normal. There was mild abdominal guarding but no rebound tenderness. His neurological examination was in normal circumstances.

Laboratory tests in our emergency service indicated that the hemoglobin, hematocrit, white cell count, and liver enzymes were normal but creatine kinase levels (385 U/L) and lactate dehydrogenases (454 U/L) were higher than normal.

CT scans revealed no cerebral trauma or calvarial fracture, no rib fracture, no pneumothorax, no hemothorax or parenchymal lung contusion. There were left transvers process fractures for five consecutive vertebrae starting from T12 to L4 levels. Left anterior acetabular fracture and left ischial fracture is observed.

Contrast enhanced CT revealed an enlarged left adrenal gland with peri-adrenal stranding, consistent with adrenal contusion. The kidneys, spleen and all other solid organs appeared normal and there was no diaphragmatic rupture, no sign of splenic or left renal vascular injury.

Surgeons decided follow up instead of operation and strict monitoring for hours. The follow up CT scans were nearly the same as before, indicating that adrenal bleeding was ended. But the patient refused to come for more follow up scans and laboratory tests after the day of the accident.

Discussion

In the autopsy series, adrenal hemorrhage is observed in 7-28% of patients after blunt abdominal trauma (4-6). Sevitt reported in 1955 that adrenal hemorrhage was observed in 14 of 50 autopsies after

severe torso injuries (6). The detection of adrenal injuries was very limited before CT examinations became available but they are more commonly diagnosed by increased availability of CT scanners. In the year 1992, Burks et al. reported that 20 patients with adrenal gland hemorrhage were diagnosed among the 1120 patients with blunt abdominal trauma by CT scans (7). Both studies revealed that bilateral adrenal gland injuries occurred very rarely and unilateral adrenal gland hemorrhages were mostly right sided.

Several possible mechanisms for post-traumatic adrenal hemorrhage have been suggested by the authors of past investigations but the exact mechanism is not completely enlightened. Sevitt reported that adrenal medulla and juxtamedullary cortex were prone to damage and adrenal hemorrhage usually occurred in these regions due to tendency of the vessels in these regions to bleed after sudden compression and decompression maneuvers (1). The difference in the drainage course of the right and left adrenal gland is well known and majority of the adrenal injuries (78.5%) occur on the right side (8). The right adrenal vein drains directly into the vena cava and the left adrenal vein drains into the left renal vein. Increased pressure within the inferior vena cava may cause acute elevation of intra-adrenal venous pressure and bleeding and this mechanism is more likely to cause injury to the right side as the right adrenal vein communicates directly with the inferior vena cava (1).

Most of the adrenal gland injuries are able to be managed conservatively (9). Hemodynamic instability due to hemorrhage and elevated blood pressure because of the catecholamine discharge are the major considerations for surgery.

It is known that the mortality caused by blunt abdominal trauma with adrenal gland injury is five times higher than that

trauma without adrenal gland rupture (1). Radiological interpretation of a patient with multi trauma should be done carefully. Great care should be taken especially for the adrenal glands and it should not be forgotten that adrenal injury is usually associated with poor prognosis due to concomitant major solid organ injuries as liver, spleen and kidneys.

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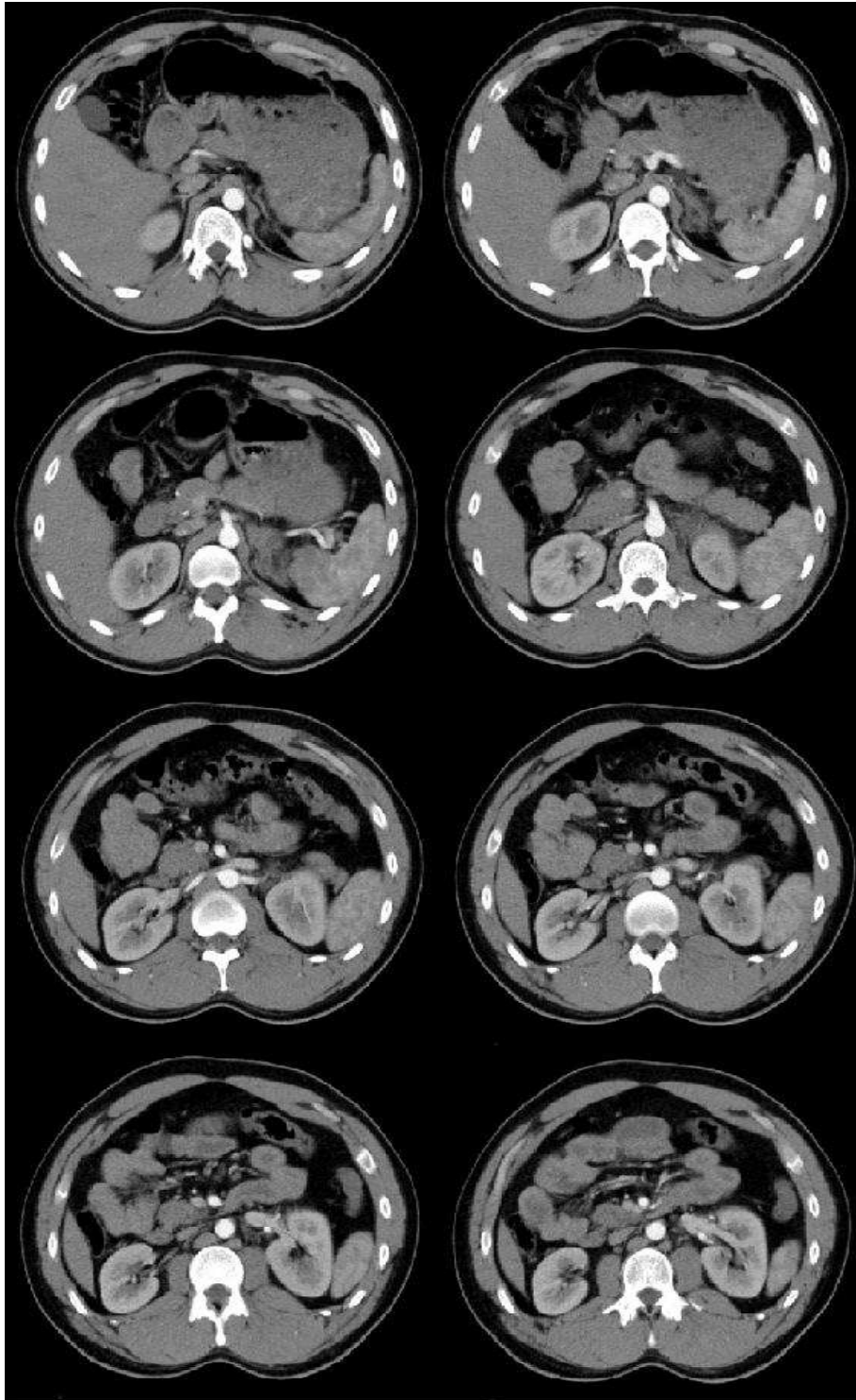


Figure 1 : Axial consecutive images of the patient with left adrenal hemorrhage indicates no solid organ trauma is associated with adrenal injury.

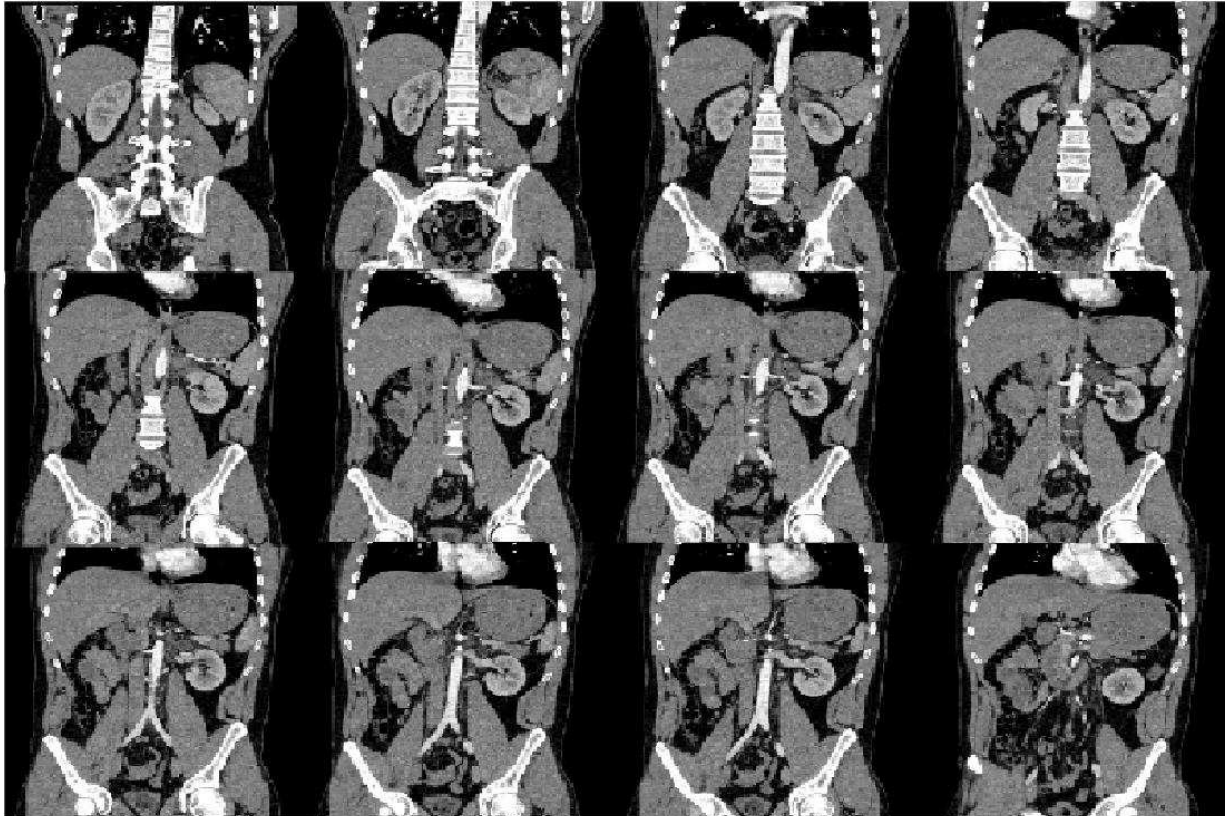


Figure 2 : Coronal plane images of the patient with left adrenal injury.