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ADRENAL INJURY IN PATIENT AFTER BLUNT ABDOMINAL TRAUMA CASE REPORT

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Abstract

Aim: Isolated adrenal injury due to adrenal trauma is observed extremely rarely. In this study, a case with adrenal hematoma after blunt trauma has been examined.

Conclusion: Adrenal injury without specific symptoms or signs in trauma patients in the emergency department can be easily overlooked. The most important radiological imaging method in the diagnosis and follow-up of these patients is computed tomography.

Keywords: Adrenal injury, adrenal hematoma, abdominal trauma, computed tomography.

Резюме

ПОВРЕЖДЕНИЕ НАДПОЧЕЧНИКА У ПАЦИЕНТА ПОСЛЕ ТУПОЙ ТРАВМЫ ЖИВОТА: ОПИСАНИЕ СЛУЧАЯ

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Цель. Изолированное повреждение надпочечников вследствие травмы надпочечников наблюдается крайне редко. В данном исследовании рассмотрен случай гематомы надпочечника после тупой травмы.

Заключение. Повреждение надпочечников без специфических симптомов или признаков у пациентов с травмами в отделении неотложной помощи можно легко не заметить. Важнейшим рентгенологическим методом визуализации в диагностике и динамическом наблюдении этих больных является компьютерная томография.

Ключевые слова: повреждение надпочечников, гематома надпочечников, травма живота, компьютерная томография.

Түйіндеме

ІШТІҢ ЖАРАҚАТЫНАН КЕЙІН НАУҚАСТА БҮЙРЕК ҮСТІ БЕЗІНІҢ ЗАҚЫМДАНУЫ: ЖАҒДАЙДЫҢ СИПАТТАМАСЫ

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Мақсаты. Бүйрек үсті безінің жарақатына байланысты оқшауланған бүйрек үсті зақымдануы өте сирек кездеседі. Бұл зерттеу тұйық жарақаттан кейін бүйрек үсті безінің гематомасын қарастырады.

Қорытынды. Жедел жәрдем бөлімінде жарақаттары бар пациенттерде ерекше белгілері бар немесе белгілері жоқ бүйрек үсті бездерінің зақымдануын оңай байқауға болмайды. Бұл науқастарды диагностикалау мен динамикалық бақылаудағы визуализацияның маңызды рентгендік әдісі-компьютерлік томография.

Түйінді сөздер: бүйрек үсті безінің зақымдануы, бүйрек үсті безінің гематомасы, іштің жарақаты, компьютерлік томография.

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Introduction.

The adrenal glands are triangular-shaped endocrine organs located superiorly and anteromedially to the kidneys. The right adrenal gland is adjacent to the right diaphragmatic crus and liver, while the left is adjacent to the left diaphragm crus, stomach, spleen, and pancreas. The adrenal glands, which are small in size, are located retroperitoneally, surrounded by the major viscera, lower rib cage, and back musculature. Due to its location and its surroundings, injury caused by trauma is seen as extremely rare. This injury, which usually occurs after blunt trauma, has no specific symptoms or signs [1,2]. Computed tomography (CT) plays an important role in the diagnosis and follow-up of these patients. Adrenal injury treatment is surgical or non-surgical [3].

This study presents clinical and radiological findings of a patient with adrenal hematoma after blunt abdominal trauma as a case report.

Case. The case-patient was a 32-year-old female with severe acute left upper abdominal pain who was admitted

to the emergency department (ED). In her past medical history, it was learned that she had a fall from a height of 1 meter 1 hour ago, and she had no history of cancer diagnosis, history of comorbidity, or previous surgical operation. On the medical presentation, vital signs were normal including; blood pressure: 125/65 mmHg, heart rate: 70 bpm, peripheral oxygen saturation (SpO₂): 100%, and temperature of 37°C. In each physical examination, abrasions were observed in the right upper quadrant and right flank, as well as tenderness on deep palpation in these localizations.

There were no abnormal findings in blood analysis, metabolic/coagulation panel, and urinalysis. No pathological finding was detected in chest, spine, and pelvis plain radiography. Abdominal ultrasonography (USG) scan did not reveal any pathological findings. An abdominal CT scan was performed due to the persistence of pain and clinical suspicion in the patient's follow-up. On CT scan, a 6x14 mm lesion was observed in the right adrenal gland, which was evaluated in favor of hematoma (Figure 1 a,b).

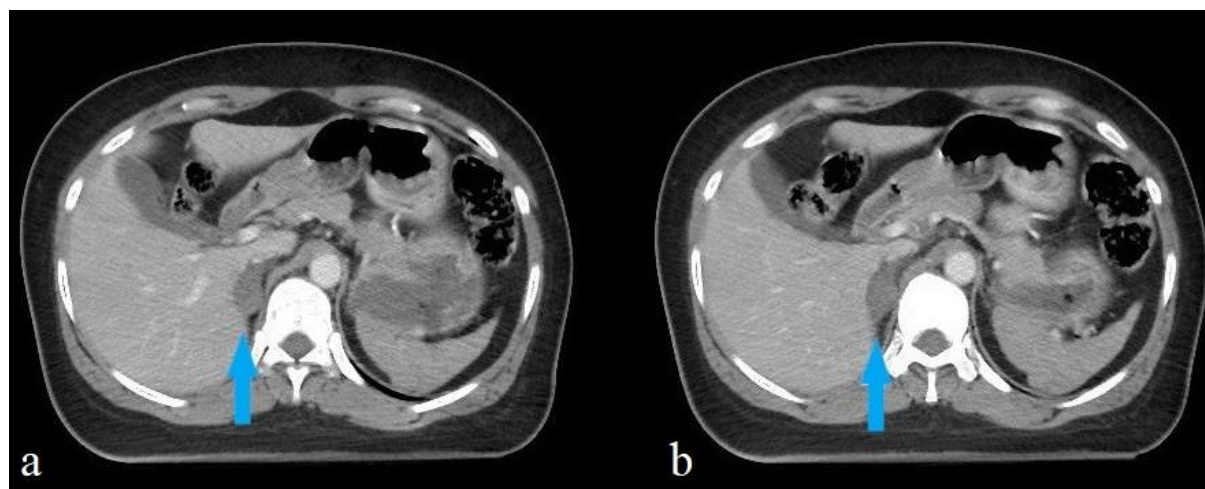


Figure 1 (a), (b): Abdominal axial contrast-enhanced computed tomography sections show hematoma in the right adrenal gland (blue arrow).

No injuries from other organs were detected. Conservative treatment was applied to the patient who was hospitalized for follow-up. The patient did not have any complaints during the follow-up period and the hemoglobin and biochemical panels remained constant. No pathology was detected in the endocrinological evaluation. The patient was discharged from the hospital on the 5th day after being told not to engage in physical activities and not to use anticoagulant drugs. In the follow-up abdominal CT scan performed 2 weeks later, it was observed that the hematoma had resorbed (Figure 2 a,b).

Discussion.

While the encounter of trauma-caused adrenal injury is reported to be 0.03% to 4.95%, it is higher [7-26%] in the autopsy series [4]. While adrenal gland injury usually occurs in high force accidents, injuries are often accompanied by liver, kidney, thorax, spleen, ribs, clavicles, and/or scapulae pelvis, hips, and spine injuries [1,3,5,6,7,8]. Isolated adrenal gland injury, on the other hand, is less common and is caused by low-force accidents.

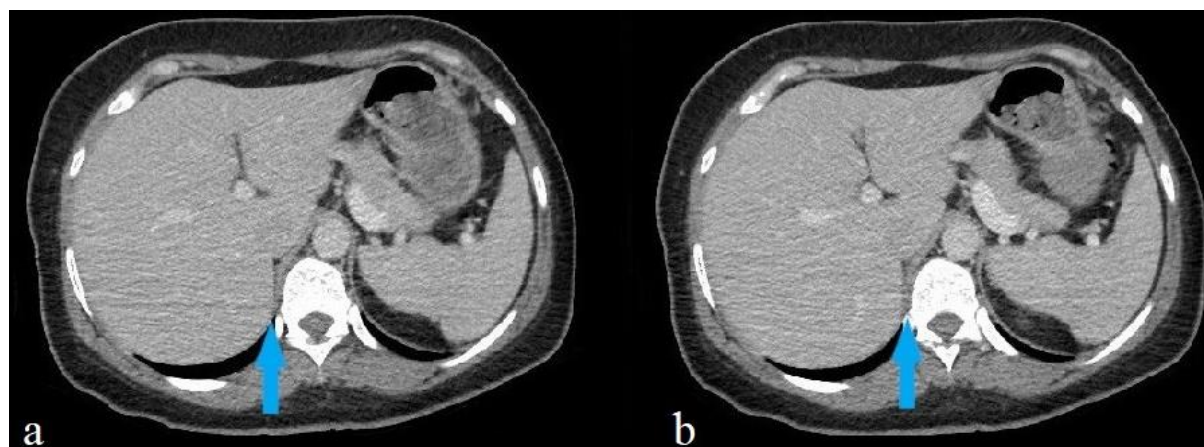


Figure 2 (a), (b): Follow-up contrast-enhanced computed tomography sections show resorption of the hematoma (blue arrow).

Adrenal injury mainly occurs on one side gland and is observed more frequently in the right [3,8]. It is thought that this is caused by the compression of the adrenal gland by the neighboring organs and the increase in the right intraadrenal venous pressure due to the compression in the inferior vena cava secondary to the trauma [5,7].

Adrenal injuries are injuries that cannot be detected during the initial evaluation of patients with blunt trauma and do not have specific symptoms or signs [1,6]. Abdominal and/or flank pain, nausea, lethargy, vomiting, weakness, diarrhea, hypotension, hypertension, a palpable flank mass, agitation, mental status change, and low-grade fever may be observed in these patients. Leukocytosis, microscopic hematuria, and mild electrolyte disturbances can be detected [7].

USG scan may be insufficient for diagnosis due to the small size of the adrenal glands. CT scan is an effective imaging method that is preferred in the diagnosis of adrenal and adjacent organ injuries and can increase the chance of early diagnosis [1,7,9]. In CT scan of adrenal gland trauma; Localized or massive enlargement of the adrenal gland, adrenal gland enlargement and distorting round or oval hematoma, uniform adrenal gland swelling, active extravasation of contrast material from the adrenal vessels and rupture can be observed [1,3,4,9,10,11]. Associated CT findings are important in diagnosing these patients and can be listed as periadrenal fat stranding, streaky infiltration of the periadrenal fat, and diffuse hemorrhage in the adjacent retroperitoneum and ipsilateral diaphragmatic crural thickening [1,4]. While acute hematomas show high attenuation in CT scan, chronic adrenal hematomas [adrenal pseudocysts] are observed as low attenuation non-enhancing lesions with or without wall calcification. In the follow-up CT scan, it should be observed that the hematomas are reduced or completely resolved and attenuation decreases, which usually occurs after 2-4 weeks [12,13]. Retroperitoneal persistent hemorrhage and hematoma, which may occur in undiagnosed patients, may turn into abscess [14]. Bilateral adrenal injury is important in the sense that it can cause life-threatening acute adrenal insufficiency.

The management of these patients varies depending on the patient's condition, the severity of the damage,

contralateral gland status, and other accompanying organ injuries [7]. Conservative treatments are at the forefront in isolated adrenal hematoma cases [5]. In the treatment of adrenal hemorrhage, supportive treatments such as volume resuscitation, electrolyte balance, and blood transfusion should be applied. While angiographic embolization can be performed in patients with hemodynamically unstable active extravasation or in whom open surgery is contraindicated, laparotomy and suture hemostasis or adrenalectomy can be performed in cases of uncontrolled bleeding or angiography [15].

Conclusion.

Isolated adrenal injury due to blunt adrenal trauma is observed extremely rarely and can be easily overlooked. This injury should be considered in patients especially blunt trauma presenting to the ED, and CT scan should always be carefully evaluated in this respect.

Authors contributions

Kavak N.: Literature search, data collection, data analysis, manuscript writing.

Seki A.: Conceptualization, manuscript editing, manuscript review, supervision of the project.

Kavalci C.: manuscript editing, manuscript review.

Competing interests

The authors declare no conflict of interest.

Ethics Approval and consent to participate

All respondents have read and approved this phrase on top of the survey that was approved by the Scientific committee of the University of Tlemcen "Once you respond to this survey, you are consenting to have your survey responses included in this research, without a trace back to the individual."

Data availability statement

The data that support the findings of this study are available from the corresponding author upon request.

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