

## Conservative treatment of giant abdominal wall hematoma

### Konservatif tedavi ile iyileşen dev karın duvarı hematomu

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A fifty-seven-year-old male patient on warfarin therapy presented to the emergency department with severe abdominal pain that had started after a cough episode and persisted for four days. Ultrasonography showed an extensive hematoma, 17x14x7 cm in size, but failed to determine whether it was located intra-abdominally or in the abdominal wall. Computed tomography confirmed the diagnosis of abdominal wall hematoma (25x21x10 cm). The patient was treated conservatively, and abdominal findings resolved progressively in three days. This case report illustrates that ultrasonography findings may sometimes be inconclusive and, in the early period, computed tomography may be required to confirm the diagnosis of abdominal wall hematomas. Giant abdominal wall hematomas can be successfully treated with conservative methods even physical findings of acute abdomen accompany the clinical picture. To our knowledge, this is the largest abdominal wall hematoma hitherto reported in the literature.

**Key Words:** Abdominal muscles; anticoagulants; hematoma; tomography, X-ray computed; ultrasonography; warfarin.

Warfarin tedavisi görmekte olan 57 yaşında erkek hasta, öksürük sonrası meydana gelen dört günlük şiddetli karın ağrısı ile acil servise getirildi. Ultrasonografi 17x14x7 cm boyutlarında yaygın bir hematom alanı göstermesine rağmen, intraabdominal ya da karın duvarı yerleşimi konusunda kesin bulgu sağlayamadı. Bilgisayarlı tomografide lezyonun dev bir karın duvarı hematomu olduğu (25x21x10 cm) görüldü. Hastaya konservatif tedavi uygulandı ve abdominal bulgular üç gün içinde iyileşti. Bu olguda, karın duvarı hematomlarında ultrasonografi bulgularının bazen kesin bilgi vermeyebileceği ve tanıyı kesinleştirmek için erken evrede bilgisayarlı tomografiye başvurmak gerektiği görüldü. Dev karın duvarı hematomlarının, akut batın bulguları varlığında bile konservatif yöntemlerle, cerrahiye gereksinim duyulmadan tedavi edilebileceği vurgulandı. Olgunun, bugüne kadar literatürde bildirilen en büyük karın duvarı hematomu olduğu sonucuna varıldı.

**Anahtar Sözcükler:** Abdominal kaslar; antikoagülan; hematom; bilgisayarlı tomografi; ultrasonografi; warfarin.

Warfarin is commonly used as an anticoagulant agent, but can cause significant complications such as major bleeding problems requiring blood transfusion or termination of therapy. Abdominal wall hematomas are uncommon, difficult to diagnose, and often associated with systemic anticoagulation.<sup>[1]</sup>

In this report, a case of abdominal wall hematoma is presented, which, to our knowledge, is the largest one reported in the literature.

### CASE REPORT

A fifty-seven-year-old male patient presented to a local hospital with left upper quadrant bruising and pain that had started after a cough episode and persisted for four days. He was hospitalized due to a bleeding disorder that was thought to be related to warfarin use. In the early observation period, the ecchymotic area enlarged and his pain increased. Then, he was transferred to the university hospital.

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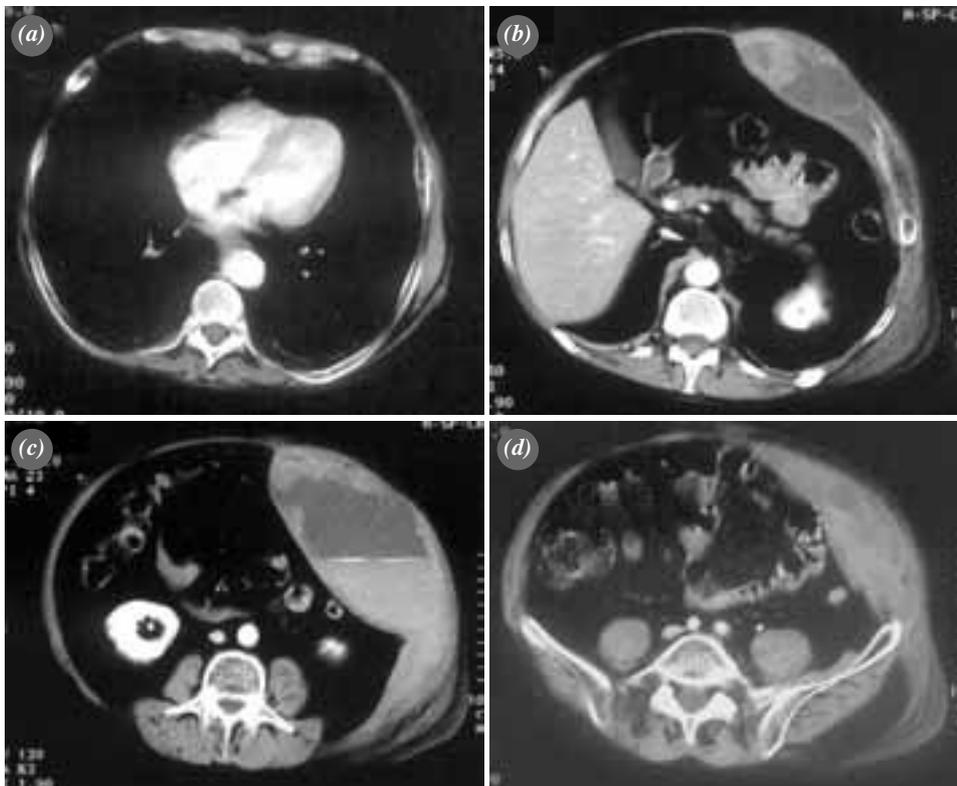
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On admission to the emergency department, he complained of severe pain in the ecchymotic area over the left upper and lower quadrants. The initial abnormal vital signs were as follows: blood pressure 153/98 mmHg, heart rate 102 bpm, and respiratory rate 28/min. He had a history of chronic obstructive pulmonary disease for 35 years and had been receiving inhalation therapy with salbutamol and dexamethasone. In addition, he had been receiving warfarin therapy 5 mg/day for deep venous thrombosis for 18 months. He had no other bleeding disorders and denied alcohol consumption. Moreover, he stated that bleeding parameters had been in optimal therapeutic range until the past four weeks. Physical examination showed marked tenderness in the ecchymotic area, abdominal rigidity, and percussion tenderness. Rebound tenderness and organomegaly could not be thoroughly investigated because of the patient's discomfort. Other system examinations were unremarkable.

Supportive therapy and monitoring were instituted. Abnormal laboratory parameters were as fol-

lows: white blood cell (WBC) 19.500/mm<sup>3</sup>, hemoglobin (Hb) 9.6 g/dL, hematocrit (Htc) 28.1%, prothrombin time (PT) 57.8 sec, activated partial thromboplastin time (aPTT) 62.8 sec, and international normalized ratio (INR): 5.97.

Ultrasonography (US) showed an extensive hematoma, 17x14x7 cm in size, with lobular contour and internal fluid level, but failed to determine whether it was located intra-abdominally or in the abdominal wall. Computed tomography (CT) revealed an abdominal wall hematoma (25x21x10 cm) on the left side (Fig. 1a-d). During observation in the emergency department, the patient exhibited hypotension, tachycardia, tachypnea, and dyspnea, all of which were resolved with intravenous fluid therapy. Two units of fresh frozen plasma and three units of erythrocyte suspension were given, and intravenous menadione sodium bisulphate 40 mg was administered (phytonadione was not available). Eight hours later, control laboratory test results were: WBC 30.900/mm<sup>3</sup>, Hb 9.7 g/dL, Htc 28.4%, PT 26.3 sec, aPTT 47.2 sec, and INR 2.12.



**Fig. 1.** (a-d) The hematoma was located in the rectus abdominis muscle. Computed tomography images showed heterogeneity with septations inside the hematoma. A subcutaneous mass is seen from the mid-thoracic area to the gluteal region.

The patient was then admitted to the general surgery ward, where two units of fresh whole blood and one unit of fresh frozen plasma were given. A subsequent CT scan showed no enlargement in the size of the hematoma, at which time PT, aPTT, and INR were measured as 18 sec, 41.8 sec, and 1.18, respectively. Abdominal findings resolved progressively in the following three days and no surgical intervention was needed. He was then discharged, with an instruction for presentation within two days, but he was lost to follow-up evaluation.

### DISCUSSION

Outpatient anticoagulant therapy is used for patients with prosthetic valves, deep venous thrombosis, atrial fibrillation, or a pulmonary embolus. The incidence of warfarin-associated minor or major bleeding problems is not rare in this patient population. Major hemorrhages requiring blood transfusion or termination of therapy have been reported in 2% of patients.<sup>[2]</sup> In another study, major bleedings accounted for 12% and fatal bleedings for 2%.<sup>[3]</sup> Major bleeding were categorized as fatal, life-threatening, or potentially life-threatening, and those leading to severe blood loss, surgical treatment, and to moderate blood loss.<sup>[3]</sup> In this case, the bleeding was classified as major depending on the hemodynamic instability of the patient in the emergency department.

Although high INR values are usually associated with bleeding risks in patients on warfarin, there is no established INR value that shows the occurrence of bleeding. Compared to the normal INR values (from 2.0 to 3.0) defined for deep venous thrombosis,<sup>[4]</sup> a significantly high value of 5.97 was detected in the patient. Warfarin-associated drug interactions are common and may affect anticoagulation levels rapidly.<sup>[5]</sup> However, there was no known drug interaction in our case.

Discoloration was noted in the left flank and abdomen of the patient, suggesting some possible etiologies in the differential diagnosis, including extraperitoneal hemorrhage,<sup>[6]</sup> acute pancreatitis and hemorrhagic pancreatitis,<sup>[7]</sup> splenic rupture,<sup>[8]</sup> and hemothorax.<sup>[9]</sup> Abdominal irritation signs and severe pain also suggested intra-abdominal hemorrhage.

Rupture of the epigastric vessels was reported to be associated with abdominal wall hematomas.<sup>[10,11]</sup> In a study of spontaneous hematomas of the rectus

abdominis muscle, the mean patient age was 59 years; the most common symptom was abdominal pain (100%); 93% had an abdominal mass, and 38% had peritoneal irritation findings. Moreover, the most common precipitating factor was found to be cough in 56%.<sup>[11]</sup> As the patient's bruising and pain was followed by a cough episode, it appeared that abdominal wall hematoma was caused by vigorous contraction of the rectus muscle.

Management of abdominal wall hemorrhages may be conservative.<sup>[11]</sup> It resulted in complete relief of symptoms in our patient within three days during which the INR value decreased from 5.97 to 1.18. However, surgical treatment of warfarin-induced abdominal wall hematoma was also reported.<sup>[12]</sup>

Although US is considered to be the first choice to detect intra-abdominal fluid or hemorrhage,<sup>[13]</sup> more accurate findings can be obtained by CT.<sup>[14]</sup> In this case, CT enabled us to reach a diagnosis of abdominal wall hematoma. It should also be noted that US is mainly a performer-dependent technique. Once the diagnosis is confirmed by US or CT, conservative treatment may be more appropriate to avoid risk of further complications.<sup>[15]</sup>

In conclusion, as was the case in our patient, US findings may sometimes be inconclusive and, in the early period, CT may be required to confirm the diagnosis. Giant abdominal wall hematomas can be successfully treated with conservative methods even physical findings of acute abdomen accompany the clinical picture.

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