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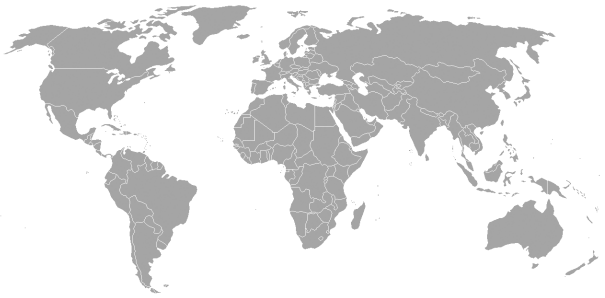
Case Report

Traumatic Aortic Rupture



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ABSTRACT

Acute disruption of the thoracic aorta due to blunt chest trauma is a life-threatening injury. The majority of patients with an aortic tear die at the scene while approximately 15-20% of the victims reach the hospital alive. A 25 years old man was admitted to emergency service because of traffic accident. On the chest X ray; left pleural effusion, left apical pleural cap, the evanescence of aortic knob and aorticopulmonary window, mediastinal widening (>8 cm), tracheal deviation to right side were seen. The patient was transferred to the operating room by the diagnosis of aortic rupture. At the operation, the tear was seen on proximal site of subclavian artery pointed from aorta. After the primary repair, the patient arrested. The cardiac rescucitation was performed but he didn't answer. In this case, we aimed that the chest x-ray is useful measurement in the radiological evaluation of the traumatic aortic rupture.

Key words: *Aortic rupture, hemothorax, trauma*

Travmatik Aort Rüptürü

ÖZET

Künt travma nedeniyle oluşan akut aort rüptürü yaşamı tehdit eden bir yaralanmadır. Aort rüptürlü hastaların büyük kısmı olay mahalinde ölürken, %15-20 kadarı hastaneye canlı ulaşabilir. Yirmibeş yaşında erkek hasta trafik kazası nedeniyle acil servise kabul edildi. Direk akciğer grafisinde solda plevral efüzyon, apikal plevral kep, aortik kontur ve aortikopulmoner pencerenin kaybı, mediastinel genişleme (>8 cm), trakeanın sağa deviasyonu mevcuttu. Hasta aort rüptürü tanısıyla operasyona alındı. Operasyonda aortun, subklaviyan arter ayırım yerinden rüptüre olduğu görüldü. Primer tamir yapıldıktan sonra hastada kardiyak arrest gelişti. Resüsitasyon işlemine cevap alınamadı. Bu olguda, travmatik aort rüptürlerinin değerlendirilmesinde direk göğüs grafileri kullanışlı bir yöntem olduğunu vurgulamayı amaçladık.

Anahtar kelimeler: *Aort rüptürü, hemotoraks, travma*

INTRODUCTION

Acute disruption of the thoracic aorta due to blunt chest trauma is a life-threatening injury (1). The majority of patients with an aortic tear die at the scene while approximately 15-20% of the victims reach the hospital alive (1,2). Injury of the intrathoracic great vascular structures occurs in three varying mechanisms which are shearing, compression and intraluminal hiperextension (3). Left untreated, only 20% of the initially surviving patients will develop a chronic traumatic aneurysm and be alive after 6 weeks (4). Moreover, paraplegia remains a devastating complication of traumatic aortic rupture (TAR) (5-7). The incidence of traumatic aortic rupture has increased steadily. Currently, traumatic rupture of the aorta alone accounts for 16% of fatalities resulting from motor vehicle accidents (8,9).

CASE

A 25 year old man was admitted to emergency service

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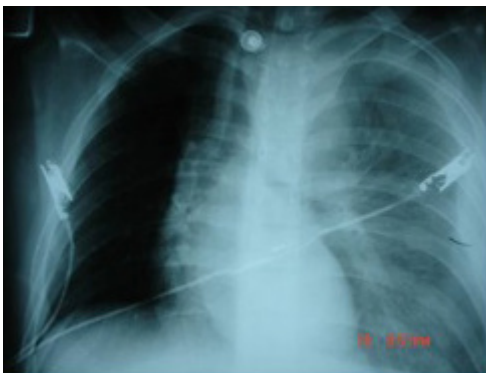

***Figure 1**. Chest X ray; Left pleural effusion, left apical pleural cap, the evanescence of aortic knob and aorticopulmonary window, mediastinal widening (>8 cm), tracheal deviation to right side were seen.*

because of traffic accident. On the physical examination; he was confused and blood pressure was 70/50 mmHg. The breath sounds were dimished on the left side. The laboratory examination was revealed mild anemia and elevation in liver function tests. On the chest X ray; left pleural effusion, left apical pleural cap, the evanescence of aortic knob and aorticopulmonary window, mediastinal widening (>8 cm), tracheal deviation to right side were seen (figure 1). The computed tomography of whole body was taken. They were normal except thorax. The irreguraity of descendan thoracic aorta was seen on the thorax CT (figure 2). The other clinicians related with trauma were evaluated the patient and they didn't consider certain surgical intervention. Aortic rupture diagnosis was made and than he

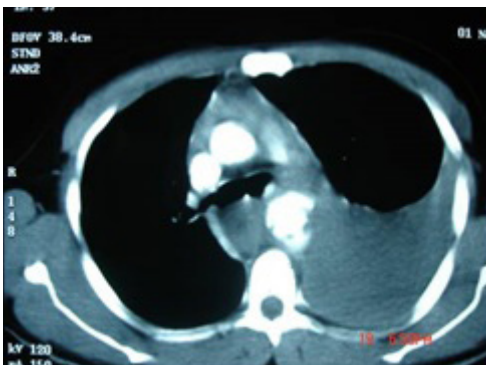

***Figure 2**. Computed tomography; The irreguraity of descendan thoracic aorta was seen.*

was taken the operation room. At the operation, the tear was seen on proximal site of subclavian artery pointed from aorta. After the primary repair, the patient arrested. The cardiac rescucitation was performed but he didn't answer.

DISCUSSION

Since acute rupture of the thoracic aorta resulting from non-penetrating chest trauma is a lethal injury, immediate surgical repair is advocated by nearly every cardiothoracic surgeon (4,10). However, multiple lesions of other organs are commonly associated with aortic lesions (1). The role of chest radiography in the diagnosis of traumatic aortic rupture has been considered in numerous studies during the past 2 decades (11,12). The tear of the vessel is usually at the region of the aortic arch isthmus, and the mechanism of injury relates to horizontal or vertical deceleration injury of the relatively fixed segments of the aorta (13). Immediate surgical repair of a traumatic aortic tear is imperative. If significant hemothorax or symptoms reflecting a coarctation syndrome are absent, an initially conservative management is thought to be appropriate (1).

Richardson et al showed that in high-risk patients, that is, patients with abnormal or equivocal chest radiographs, CT may help determine whether angiography is necessary (14). Compared with chest radiography, chest CT was a better te radiography, and the specificity of CT is significantly superior to that of radiography 86% and 62% respectively (15). The radiographic approach to such injured patients generally involves two steps. First, screening diagnostic tests are done to identify any patients that might have an aortic tear. Then, if the patient's clinical condition permits, angiography is performed as a confirmatory diagnostic test that also aids planning of surgical therapy (16).

Because traumatic aortic rupture is a life-threatening condition that can be surgically corrected, it is important to have a sensitive screening diagnostic test for the condition. The plain chest radiograph usually fills that role. Several investigators have reported that, on such films, a widened mediastinum (most commonly defined as larger than 8 cm at the level of the aortic arch) is an important indicator of the presence of aortic rupture (17,18). In summary, The chest x-ray is useful measurement in the radiological evaluation of the aor-

tic rupture. The size of mediastinal widening can help determine the diagnostic approach to such patients. So the patients with traumatic aortic rupture can quickly identify and leading to improved outcomes of therapy.

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