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Splenic rupture in sarcoidosis: A forensic medicine perspective

Abstract

Blunt abdominal trauma is commonly seen following traffic accidents, falls, and assaults. In blunt abdominal trauma, the liver, spleen, and kidneys are frequently injured organs. Like to other trauma abdominal trauma holds significant importance in criminal and legal cases. In this study, we aimed to evaluate the facilitation of trauma by underlying diseases from a forensic medicine perspective by presenting the development of spleen rupture following blunt abdominal trauma in a victim with sarcoidosis. 43-year-old female patient who was referred to us by the relevant prosecutor's office for preparation of a forensic report following an assault and for assessment of whether the existing findings were caused by the trauma or underlying diseases. Upon examination, it was determined that the patient's blood pressure dropped and she lost consciousness after receiving a single kick to the abdomen. Investigations revealed splenic rupture, and splenectomy was performed. Pathological examination showed granulomatous non-caseating sarcoidosis findings, and increased splenic fragility was identified. In this case of isolated splenic rupture, a kick to the abdomen caused rupture of the spleen, which was more fragile due to sarcoidosis, resulting in intra-abdominal hemorrhage and a life-threatening condition. We believe that careful collection of patient history, review of prior medical records, and consideration of pre-existing diseases during forensic report preparation can prevent potential unjust punishments.

Keywords: Forensic medicine, forensic report, sarcoidosis, blunt abdominal trauma

INTRODUCTION

Blunt abdominal trauma are commonly seen after traffic accidents, falls, and assaults. In these traumas, the liver, spleen, and kidneys are frequently damaged. Abdominal traumas, like other injuries, also hold significant importance in criminal and legal cases. In recent years, the increase in traffic accidents has led to a rise in abdominal trauma, resulting in serious morbidity and mortality issues (1-2).

Spleen injuries are a life-threatening condition (1,2). Although spleen injuries are mostly trauma-related, spontaneous splenic ruptures, though rare, can also occur. Spontaneous splenic rupture develops secondarily to the facilitating effects of underlying inflammatory (such as sarcoidosis), neoplastic, hematological, and infectious diseases (3-5).

Sarcoidosis is a granulomatous non-caseating inflammatory disease with multisystem involvement, the etiology of which is not fully understood. Sarcoidosis frequently involves the lungs and thoracic lymph nodes (6). Although less common than lung

involvement, splenic involvement and, rarely, spontaneous splenic rupture have been reported in the literature (7).

In this study, we aimed to evaluate the facilitation of trauma by underlying diseases from a forensic medicine perspective by presenting the development of spleen rupture following blunt abdominal trauma in a victim with sarcoidosis.

CASE REPORT

43-year-old female patient who was referred to us by the relevant prosecutor's office for preparation of a forensic report following an assault and for assessment of whether the existing findings were caused by the trauma or underlying diseases. During the medical history taken at our outpatient clinic, she reported being kicked in the abdominal area, then experiencing abdominal pain, and losing consciousness approximately one hour later. Her relatives then took her to the hospital, where it was reported that she lost consciousness due to hypotension secondary to a ruptured spleen.

Review of the patient's medical records revealed a known diagnosis of sarcoidosis. After the kick to the abdomen, she developed persistent hypotension that did not improve. The patient's medical records showed that hemoglobin level was 7.8 g/dl and that peripheral coldness had developed. The abdominal computer tomography (CT) scan indicated free fluid accumulations reaching 20 mm in the perihepatic region and an ongoing spleen rupture with active bleeding (Figures 1 and 2). A splenectomy was performed, and histopathological examination of the spleen showed granulomatous inflammatory changes.

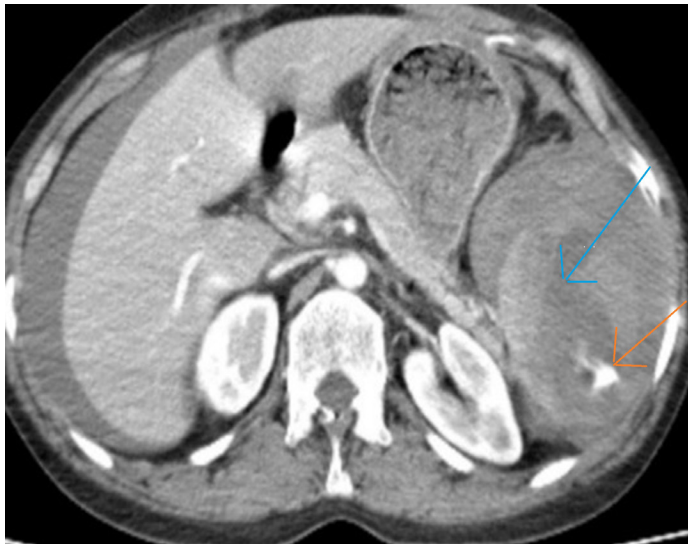


Figure 1. Axial CT section. Blue Arrow: Active splenic hemorrhage, Orange Arrow: Splenic laceration

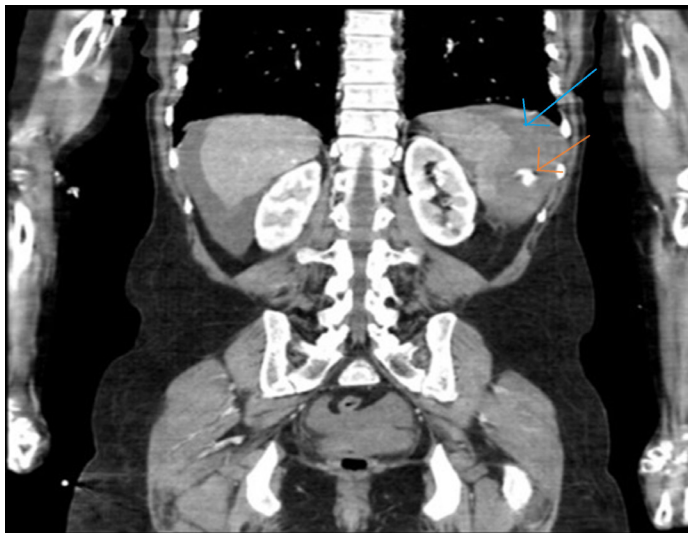


Figure 2. Coronal CT section. Blue Arrow: Active splenic hemorrhage, Orange Arrow: Splenic laceration

DISCUSSION

Spleen is one of the most frequently injured organs in blunt trauma to the abdominal region. Studies have reported that splenic injury occurs in approximately 46% of abdominal trauma.

Men are more involved in work life and traffic than women. For this reason, the rate of spleen rupture in men is approximately twice that of women. It has been reported that a very large proportion of splenic ruptures occur due to traumatic causes, with traffic accidents being the leading cause. A large portion of non-traumatic splenic ruptures occur in association with neoplastic and infectious diseases. Inflammatory diseases can also cause splenic ruptures. The development of splenomegaly and disruption of the parenchymal structure due to inflammatory processes facilitates rupture. In sarcoidosis, splenomegaly and parenchymal disruption can lead to spontaneous ruptures. Mortality rates in spontaneous splenic ruptures have been reported as %12 (8-10).

Lombardi et al. reported splenic rupture after trauma in a patient with acute myeloid leukemia. Unlike our case, their trauma was caused by a traffic accident and the splenic rupture developed after the accident. In our case, blunt abdominal trauma (a kick to the abdomen) was immediately followed by hypotension and syncope (11).

Underlying comorbid diseases can exacerbate trauma. Differentiating whether conditions developing after trauma in individuals with underlying diseases are due to the trauma itself or the pre-existing disease is one of the challenging issues in forensic medicine. Additionally, it is important to assess whether the existing disease has a facilitating effect on the condition developing after the trauma. According to the Turkish Penal Code, injuries that make life-threatening risk are classified as aggravated injuries, and the penalty to be imposed is increased by one degree. In our case, if the spleen rupture had not developed, it would have been an injury treatable with simple medical intervention. And in that case, according to our country's laws, it could have been punishable by imprisonment for six months to one year. However, due to the spleen rupture, a life-threatening situation arose and, because of its consequences, it was classified as a serious injury (12-14).

In the case of isolated splenic rupture, a kick to the abdomen caused and intra-abdominal bleeding, resulting in a life-threatening condition due to the increased fragility of the spleen. The forensic report indicated the presence of an underlying disease and informed the relevant court that it contributed to the aggravation of the trauma.

CONCLUSION

In conclusion, when writing forensic reports, we believe that careful collection of patient history, examination of previous medical records, and consideration of prior diseases can prevent potential violations of rights.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Informed Consent

Informed consent was obtained from the patient.

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