

Intrathoracic splenosis secondary to previous penetrating thoracoabdominal trauma diagnosed during delayed diaphragmatic hernia repair

Gecikmiş diyafragma hernisi onarımı sırasında saptanan ve eski bir penetran torakoabdominal travma sonucu oluşmuş intratorasik splenozis

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Although intraperitoneal splenosis is a very common disease, intrathoracic splenosis is very rare. It is generally an asymptomatic disease that occurs after thoracoabdominal trauma, and is diagnosed as an intrathoracic mass that leads to unnecessary investigations to be differentiated from other benign or malignant lesions of the chest. We present a patient with an intrathoracic mass which was preoperatively diagnosed as a diaphragmatic hernia on chest X-ray and magnetic resonance imaging. We have intraoperatively recognized that many pieces of splenic tissue have been herniated through a diaphragmatic defect, and formed intrathoracic splenosis. We repaired the diaphragmatic hernia defect after excision of fragments of the spleen.

Key Words: Abdominal injuries; spleen; splenectomy; splenic rupture/surgery; tomography, X-ray computed.

Intratorasik splenozis, torakoabdominal bir yaralanmadan sonra görülen asemptomatik bir hastalıktır. Göğüs boşluğunda yer işgal eden bir kitledir ve malign lezyonlar başta olmak üzere diğer kitlelerden ayırt edilmesi gerekir. Bu yazıda, 25 yıl önce geçirilmiş penetran sol torakoabdominal travma öyküsü olan ve kliniğimize nonspesifik solunum sistemi şikayetleriyle başvuran 50 yaşındaki erkek hasta sunuldu. Akciğer grafisi ve toraksın manyetik rezonans incelemeleri ile diyafragma hernisine bağlı göğüs boşluğunda kitle teşhisi koyulan hastada, ameliyat sırasında intratorasik splenozis tespit edildi. Diyafragma hasarı, dalak dokuları çıkarıldıktan sonra onarıldı.

Anahtar Sözcükler: Karıncı yaralanmalar; dalak; dalak ameliyatı; dalak yırtığı/cerrahi; tomografi, X-ışını kompüterize.

After splenic trauma, pieces of the spleen may spread into the peritoneal cavity leading to the development of functioning splenic tissue in the abdomen. Its incidence is reported up to 50% after traumatic splenic rupture.^[1] On the other hand, intrathoracic splenosis after thoracoabdominal trauma is very rare. Rupture of the spleen and laceration of the diaphragm is necessary for the splenic pieces to spill into the thoracic cavity. In fact, it is asymptomatic, and may be recognized as an intratorasik mass many years after a trauma. The difficulties of differential diagnosis lead to unnecessary diagnostic procedures and sometimes to thoracotomy. We pre-

sent a case of intrathoracic splenosis recognized during delayed diaphragmatic hernia repair many years after a penetrating left thoracoabdominal trauma.

CASE REPORT

A chest X-ray of a 50-year-old man complaining of non-specific respiratory symptoms showed a mass in the basis of the left hemithorax. History of the patient revealed a penetrating (gunshot) left thoracoabdominal trauma 25 years ago. In the previous operation, a scattered spleen had been removed but diaphragmatic laceration had probably been missed. During our evaluation, magnetic resonance imaging

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(MRI) showed a hernia mass in the left paracardiac area and the base of the left thoracic cavity (Figure 1). This was preoperatively diagnosed as a delayed diaphragmatic herniation. During exploration of thoracic cavity through a left thoracotomy, reddish blue, sessile, smooth-surfaced, nodular mass similar to splenic tissue (4.0x3.5x3.0 cm) was found. Splenic tissue was also demonstrated by frozen section. Some fragments were excised to reach the laceration of the diaphragm. The diaphragmatic defect was almost 1 cm in diameter, and was repaired with horizontal mattress silk sutures. A piece of functioning splenic tissue was left in the thoracic cavity. The tube placed to the left thoracic cavity was removed 5 days postoperatively, and the patient was discharged the following day.

DISCUSSION

Splenosis is an autotransplantation of splenic tissue to ectopic sites secondary to splenic trauma. It is mostly seen in the peritoneal cavity but rarely in the thoracic cavity through a diaphragmatic defect or pores. Shaw and Shafi^[2] reported the first thoracic splenosis case in 1937, and nearly 30 new cases have since been reported in the literature. Intrathoracic splenosis is mostly recognized within

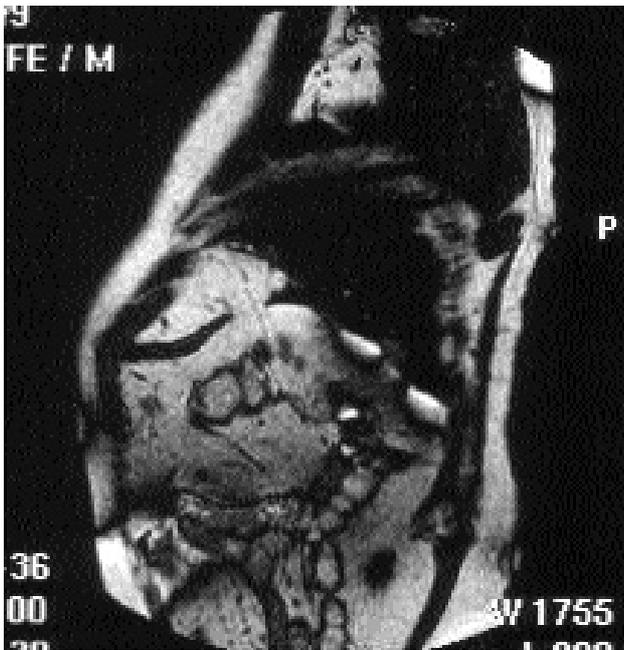


Fig. 1. Sagittal T1W magnetic resonance imaging of left hemithorax depicting herniated abdominal fatty tissue through a diaphragmatic defect.

6 to 42 years after thoracoabdominal trauma.^[3] It is generally asymptomatic disease like our patient.^[1,2]

Cordier et al.^[4] have reported a case of intrathoracic splenosis presented with hemoptysis. History of left thoracoabdominal injury was diagnostic like the history of our patient. Differential diagnosis of this mass includes malignant lesions of the chest. Direct X-ray, computed tomography and MRI are not specific to splenosis. Radiographic images were also not diagnostic for splenosis in our patient. MRI helped to recognize a diaphragmatic laceration. Nodules located over the pleura should be differentiated from lymphoma, mesothelioma, invasive thymoma, fibrous tumor and plaques.^[5] Fine needle aspiration cytology and Tru-cut biopsy are useful to achieve the diagnosis.^[2] In addition, absences of Howell-Jolly bodies, pitted erythrocytes and siderocytes in peripheral blood smear demonstrate a functioning splenic tissue. Splenosis can also be diagnosed by scintigraphy. Tc-99m sulfur colloid was used first to demonstrate splenosis, but scintigraphy with Tc-99m heat-damaged RB or platelets labeled with In-111 are more sensitive than Tc99m sulfur colloid.^[1,6] Wahner-Roedler et al.^[1] have reported that scintigraphy was better than demonstrating Howell-Jolly bodies on blood smear to diagnose splenosis. Scintigraphy leads to recognize the mass as a functioning splenic tissue and may prevent its excision. In our case, an intrathoracic mass was incidentally found on chest X-ray, and also a history of thoracoabdominal trauma led us to suspect a delayed diaphragmatic herniation. MRI also supported this diagnosis, but could not demonstrate the splenic tissue, and showed it as a herniated mesenteric fatty tissue.

During thoracotomy, we performed histopathologic diagnosis of splenic tissue by frozen section. As in our case, Tsunozuka et al.^[2] have also reported that MRI could not demonstrate splenic tissues in the thoracic cavity. The remaining functional splenic tissue probably prevents the overwhelming bacterial infections, so it is not recommended to excise it.^[7] If a patient has a hematological disease, it is necessary to excise all functional splenic tissue to prevent recurrence of the disease. In our case, we left a piece of splenic tissue for its immunologic function. The size of splenosis is reduced to decrease the chance of having hemoptysis and hemothorax as formerly reported.^[2,4]

We concluded that a nodular mass over the base of the pleura especially accompanying a diaphragmatic laceration in any patient with a history of thoracoabdominal blunt or penetrating trauma, should remind the possibility of intrathoracic splenosis. According to previous reports scintigraphy with Tc99m heat-damaged RBC, thoracoscopy and histopathologic examination are important diagnostic tools. If intrathoracic splenosis is preoperatively diagnosed, unnecessary surgical procedures can be avoided but surgical interventions are required to repair diaphragmatic hernia secondary to penetrating trauma.

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