Reentrance of Azygos Vein into Azygos Fissure After Pneumothorax

Pnömotoraks Sonrası Azigos Fissürüne Tekrar Yerleşen Azigos Veni

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ABSTRACT

Empty azygos fissure implies dislocation of the azygos vein to the mediastinal side of the right upper lobe from azygos fissure, which is usually secondary to pneumothorax, pleural effusion, parenchymal fibrosis, vertebral collapse or persistent vomiting. We are presenting here a case where a separated azygos vein in CT and radiography images was noted. Moreover, in the follow-up images, it appeared that the complete reexpansion of the right lung resulted in reentrance of the azygos vein into azygos fissure in its native position.

Keywords: Azygos vein, pneumothorax, multislice computed tomography, anatomic variation

ÖZ

Boş azigos fissürü, azigos veninin pnömotoraks, plevral efüzyon, parankimal fibrozis, vertebral çökme ve persistan kusma gibi nedenlerle azigos fissüründen üst üst lobun mediastinal tarafına doğru yer değiştirmesini ifade eder. Bu olgu sunumunda BT ve radyografilerde ayrılmış azigos veni bulunur ancak takip görüntülemelerde sağ aksijerdeki reekspansiyona bağlı azigos veninin azigos fissürü içine tekkrar girdiği saptanan bir olgu sunulmuştur.

Anahtar Kelimeler: Azigos veni, pnömotoraks, çok kesitli bilgisayarlı tomografi, anatomic varyasyon

Introduction

An azygos fissure is observed in 0.4% of chest radiographs and 1.2% of thorax computed tomography (CT) scans as a normal anatomical variant [1, 2]. It is developed as a result of the penetration of the azygos vein through the right upper lobe. An empty azygos fissure is usually caused by the collapse of the right upper lung lobe, which causes displacement of the azygos vein from the azygos fissure [3]. In our case, the azygos vein showed re-entrance to the azygos fissure after a pneumothorax.

Case Report

A 15-year-old girl was admitted our hospital for the evaluation of scoliosis. Whole spine radiography (Siemens FD-X, Siemens, Erlangen, Germany) showed less than 10° of spinal curve in the lower thoracic region. Thoracic spine radiography showed an azygos fissure as an incidental finding. Three years later, when she was 18 years old, she was re-admitted with acute chest pain. Chest x-ray and CT (Sensation 16, Siemens, Erlangen, Germany) scans demonstrated a moderate amount of pneumothorax, which was accepted as the spontaneous type. CT scan also showed that the azygos vein separated completely from the azygos fissure (Figure 1, 2). A chest tube was placed, and proper treatment was provided. Re-expansion of the right lung was followed by chest radiography, and on the fourth day, the chest x-ray showed the complete re-expansion of the right lung and revealed re-entrance of the azygos vein into the azygos fissure. Two years after the admission, she was again admitted to our hospital with chest pain. Contrast-enhanced thorax CT was performed to elucidate the cause of the chest pain. CT showed not only the absence of a pneumothorax but also the native position of the azygos vein in the azygos fissure, which had been displaced from the right upper lobe because of the pneumothorax (Figure 3).

Written informed consent was obtained from the patient.
The azygos fissure is identified on chest radiography as a right paramediastinal extra line at the upper lobes after chest tube insertion for a pneumothorax shows a pneumothorax with complete separation of the azygos vein (curved arrow) from the visceral pleural part of the azygos fissure (straight arrows).

The empty azygos fissure is not irreversible will prevent confusion that can occur during follow-up. An azygos fissure usually has no clinical significance but may lead to hazards or technical difficulties during surgery [6]. Reporting an empty azygos fissure is important to prevent damage to the azygos vein that may occur during surgery [2]. Re-entrance of the azygos vein into the azygos fissure after a pneumothorax or pleural effusion may be important, particularly in terms of forensic medicine and critical care units. To the best of our knowledge, there have no reports in the literature regarding the potential re-entrance of the azygos vein into the azygos fissure. The awareness of clinicians and radiologists that the empty azygos fissure is not irreversible will prevent confusion that can occur during follow-up.

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