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Case Report
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A Rare Variant of Azygos Lobe: a Case Report

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ABSTRACT

Introduction: during the routine dissection procedure of the thoracic cavity in a 70-year-old male cadaver, an unusual lobe in the apical region of the right lung was observed. The lobe was quadrangular in shape with smooth margins and with the absence of any fissure; the impression of the groove for the Azygos vein was seen in front of this lobe. The lobe was firmly attached to the upper lobe of the right lung tissue and was 6.5cm in length and 5.5cm in width. The left lung was normal. These observations were suggestive of the presence of an unusual rare variant of the Azygos lobe. Such a variant will be helpful for the radiologist and thoracic surgeons performing bronchoscopy and sympathectomy procedures. The anatomical knowledge of the different types of Azygos fissures and lobes is very important to prevent the wrong interpretation while studying or reading the chest radiographic images, because it may appear as a tumor or lung abscess.

Keywords: Accessory lobe; Broncho-pulmonary segments; Azygos lobe.

Introduction

The Azygos lobe was first described by Heinrich Wrisberg as early as 1778 in both the lungs[1]. It is very rarely encountered between 0.4% and 1% of cases during cadaveric dissection. The presence of an Azygos lobe is very rare and commonly seen in the right lungs. During embryonic development, the thoracic part of the Azygos vein which is derived from the right posterior cardinal vein runs around the apex of the right lung and drains into the SVC[2]. In some cases, this vein penetrates the upper lobe of the right lung and gets dragged down along with the pleura to create an accessory fissure called "Azygos fissure" having a vertical or an oblique course. The detachment of the superomedial part of the upper lobe of the right lung, just above the hilum and medial to the accessory fissure is known as the Azygos lobe[2,3]. In this case, however, the Azygos fissure was absent with the shallow depression in front of the lobe for the passage of the Azygos vein, and the Azygos lobe was not completely separated from the right lung. Still, the lobe was firmly attached to the lung tissue. The Azygos lobe is a misnomer since it does not represent an independent broncho-pulmonary segment of the right lung [4]. The anatomical knowledge of the Azygos lobe is very important to prevent the wrong interpretation while studying or reading the chest radiographic images, because it may appear as a mass, lung abscess, or a bulla[5,6].

Case report

During the routine dissection procedure of the thoracic cavity in a 70-year-old male cadaver, an unusual lobe in the apical region of the right lung was observed. The lobe was quadrangular in shape with smooth margins and with the absence of any fissure; there was a groove for the passage of the Azygos vein in front of this lobe. This lobe was not completely separated from the lung but was found to be firmly attached to the upper lobe of the right lung tissue and was 6.5cm in length and 5.5cm in width (Fig. 1). The left lung was found to be normal (Fig.2).

Figure 1. Arrow showing the Azygos lobe of the right lung with the deep groove for Azygos vein in front of the lobe.

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Figure 2. Right lung with Azygos lobe and normal left lung.

Discussion

The Azygos lobe is seen in only 0.4% of the population radiologically and 1% of specimens in cadaveric dissection. It is not a true accessory lobe as it does not have its bronchus and cannot be called a specific broncho-pulmonary segment[5]. Three types of Azygos fissures have been described, the type A is a horizontal fissure across the lateral aspect of the lung between the apex and a point located 2cm above. Type B is a vertical fissure that divides the apex into two lateral halves and type C is a vertical fissure that runs across the mediastinal surface of the lung and cuts off the upper lobe just above the root of the lung. A case of a very deep fissure compressing over the bronchus draining the Azygos lobe causing atelectasis and bronchiectasis has been reported[7]. Bendick and Wessler in 1928 in their autopsy report mentioned the presence of Azygos lobe and there was no relation to the cause of death due to carcinoma of lung or empyema[8]. In our case there was a total absence of the Azygos fissure, instead, there was a deep shallow groove with the Azygos vein over it in front of the lobe. The anomalous course of the Azygos vein may complicate surgical interventions involving the upper lobe; aneurysms of the vein may develop leading to the tightness of the chest. It has been observed that carcinoma of the Azygos lobe is usually not associated with regional lymph node involvement [9]. In a South African cadaveric study the prevalence of the Azygos lobe was 0.57%, it was found only in four cases out of 704 adult cadavers dissected over 10 years [10]. In a survey conducted among the Jordanian population, the prevalence of the Azygos lobe was found to be 0.88% using radiographic CT images of the lungs[11]. The clinicians should be aware of the presence of the Azygos lobe while performing different surgical interventions, since its presence can cause thoracoscopy more difficult, leading to bleeding during the surgery especially while performing sympathectomies[10,12,13].

Conclusion

Such a rare anatomical variant of the Azygos lobe in a cadaver will enlighten the radiologist and clinicians performing interventional procedures like bronchoscopy and sympathectomies.

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