Case Report

A cadaver with azygos lobe and its clinical significance

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Abstract

Although an azygos lobe is a rare anomaly of the lung, its radiological appearance has been well defined. Clinically, the azygos lobe has been accepted as a normal variation that can simulate various diseases. However, on chest roentgenograms, this anomaly may appear to be present if there are any other pathological conditions. So, the detection of this anomaly and clarification of its precise anatomical features are important not only to differentiate this anomaly from other pathological conditions, but also to alert the surgeon to potential problems during surgery. In the present study, an azygos lobe was observed on the right lung of a 56-year-old male cadaver. Because of the clinical importance and rare occurrence, this anomaly was compared and discussed with other related articles.

Key words: anomaly, azygos lobe, lung.

Introduction

The azygos lobe is different from other accessory lobes of anomalies of the lung; the aberrant azygos vein crosses the apex of the lung rather than border along the lung (Adachi, 1940; Chiba et al., 1990). The azygos lobe has been documented in both the right and left lungs (Takasugi & Godwin, 1989; Kobayashi et al., 1995) and this anomaly has been found on anatomic dissections at a frequency of 1.0% and at an approximate frequency of 0.4% on chest radiograms (Boyden, 1952; Felson, 1989).

Because on chest roentgenograms the azygos lobe simulates a pathological condition and may lead to misdiagnosis, radiographic recognition of this anomaly is essential. In addition, it has been stated that the determination of this anomaly is essential to alert the surgeon with respect to potential problems that may be encountered during surgery (Felson, 1989; Caceres et al., 1998).

Because the azygos lobe is rarely encountered on a cadaver, the purpose of the present study was to clarify the exact anatomy of this lobe. In addition, the present case is documented together with articles that emphasize the clinical importance, including manifestations, of the azygos lobe.

Case Report

The present study was performed on a 56-year-old male cadaver that was donated to our university for scientific research. An azygos lobe was found on the right lung during routine dissection. Length measurements were made on the right lung and the azygos lobe from the mediastinal aspect. According to these measurements, the distance between the right lung apex and the base was 19.4 cm and the length of the azygos lobe was 5.1 cm. The apex of the azygos lobe, as well as the medial and partial lower part of this lobe, was surrounded by the azygos fissure. The aberrant azygous vein extended downward along the apex of the azygos lobe and its course showed convexity. The lobe was 2.2 cm deep at the apex and lower parts (Fig. 1). The transference of the visceral pleura, which participates in the structure of the meso-azygos, from the lung to the azygos lobe was demonstrated (Fig. 2). The bronchus and vessels of the azygos lobe were dissected. It was observed that the azygos lobe was supplied by the apical and posterior segmental branches of the artery, vein and bronchus (Fig. 3). Except for the azygos lobe, we did not observe any other fissure and lobe variations. Both lungs were in normal anatomical situations.

Discussion

The azygos lobe observed in the present study was smaller than that reported by Chiba et al. (1990). In addition, in that study, the deepness of the azygos fissure was 5 cm, whereas in the present case it was 2.2 cm. Furthermore, whereas Chiba et al. (1990) reported the course of the azygos fissure towards the lateral convexity, in the present case this course showed medial convexity. In the present study, the visceral pleura was demonstrated to participate in formation of the meso-azygos and two layers of the
meso-azygos make it easy to diagnose the azygos lobe on chest roentgenograms (Felson, 1989). It was observed that the azygos lobe was supplied by the apical and posterior segmental branches of the artery, vein and bronchus. These findings are similar to the findings of Boyden (1952) and Chiba et al. (1990). In addition, Felson (1989) reported a case in which the azygos lobe was outlined by a spontaneous pneumothorax. In that case, the azygos lobe was found to be supplied by the apical or posterior segmental bronchus and artery (Felson, 1989). These findings are similar to those of the present study.

The presence of the azygos lobe causes important morphological changes in the superior mediastinum (Specman et al., 1981). Mata et al. (1990) demonstrated, by computed tomography, an anomalous right brachiocephalic vein that followed an extramediastinal course in the anterior portion of the azygos fissure. In another study, excessive anteriorization of the superior vein cava (SVC) was demonstrated in the presence of an azygos lobe and it was postulated that the variation in the localization of the SVC was possibly due to the presence of the azygos lobe (Agrawal & Gandhi, 1995). Sieunarine et al. (1995) reported an azygos lobe that was associated with an anomalous azygos vein covering the upper thoracic sympathetic chain. In addition, Sieunarine et al. (1995) noticed that this anomaly posed a significant risk during the procedure of endoscopic thoracic sympathectomy. Wong and Goldstraw (1992) reported 39 pneumothorax cases of pulmonary torsion, one of which had occurred spontaneously in an azygos lobe. Sadikot et al. (1997) observed spontaneous pneumothorax that was associated with an azygos lobe and they emphasized that the association between a spontaneous pneumothorax and an azygos lobe was surprisingly rare. The presence of this lobe may protect against the subsequent development of a spontaneous pneumothorax and the possible mechanisms behind this have been discussed by Sadikot et al. (1997). In another study, Weisman & Austin, 1989) observed pneumothorax associated with azygos lobe in three cases. One case of pneumothorax...