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Prevalence of an Azygos Lobe using Thoracic Computed Tomography

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BACKGROUND
An azygos lobe of the lung is a rare congenital venous malformation. It is usually detected using a chest X-ray, but computed tomography can also be used in selected cases for advanced examination and differential diagnosis. An azygos lobe is observed in high-resolution computed tomography images by 1.2%. We explored the prevalence of an azygos lobe using computed tomography at our hospital.

MATERIAL and METHODS
Computed tomography withdrawn by any reason was retrospectively evaluated using a picture archiving and communication system between September 2012 and November 2013 at Dörtyol State Hospital.

RESULTS
By examining thoracic computed tomography, the incidence of azygos lobe was found to be 1.54%. The incidence in woman and man was 1.39% and 1.64% respectively.

CONCLUSION
The frequency of an azygos lobe detected on performing computed tomography imaging was higher than that reported in the literature.

Keywords: Azygous lobe, thoracic computed tomography, prevalence

INTRODUCTION
An azygous lobe is a rare congenital anomaly located in the upper lobe of the right lung. Its incidence worldwide ranges between 0.2% and 1.2%. It develops in utero with the azygous vein passing anterior to the lung, resulting in the right apical lobe or posterior segment remaining behind the vein (1). This study aimed to quantify the frequency of an azygous lobe detected using thoracic computed tomography (CT).

MATERIALS and METHODS
We retrospectively analyzed 2.775 thoracic CT images at Dörtyol State Hospital between September 2012 and November 2013; images were accessed using a picture archive and communication system database. All CT images were acquired using a General Electric HiSpeed Dual Scanner (General Electric, Rosslyn, USA) during inspirium and while patients were in the supine position; the imaged area spanned from the apex to the diaphragm. Images were acquired in a single breath hold with 1-mm-thick slices and at 10-mm intervals W: 1500, L: -650. Written consent was obtained from all the patients. This study was exempt from ethics committee approval by Dörtyol State Hospital.

The IBM Statistical Package for Social Sciences version 23 software (IBM Corp., Armonk, NY, USA) was used for statistical analysis. Descriptive statistics for continuous variables are presented as digital and for categorical variable are presented as percentages.

RESULTS
In In total, 2.775 thoracic CT images, which were acquired during the specific period, were assessed. Of all thoracic CT images, 39% (n=1077) were of female patients, whereas 61% (n=1698) were of male patients. Using thoracic CT, the prevalence of an azygous lobe was determined to be 1.54% (n=43). The prevalence of an azygous lobe was 1.39% (n=15) in females and 1.64% (n=28) in males (Figure 1–5).

DISCUSSION
An azygous lobe is a rare anatomical variant that can manifest as significant morphological changes (2). It is generally seen in males. There is also a predilection for family inheritance (3, 4). The recognition of an azygous lobe is import-

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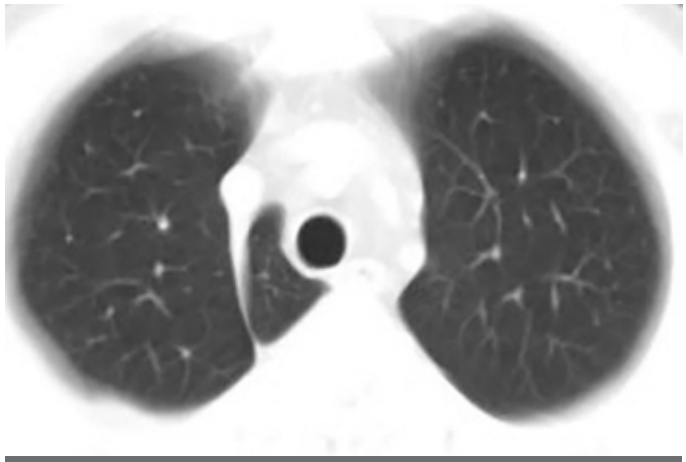

FIGURE I. Computed tomography axial image in different variations

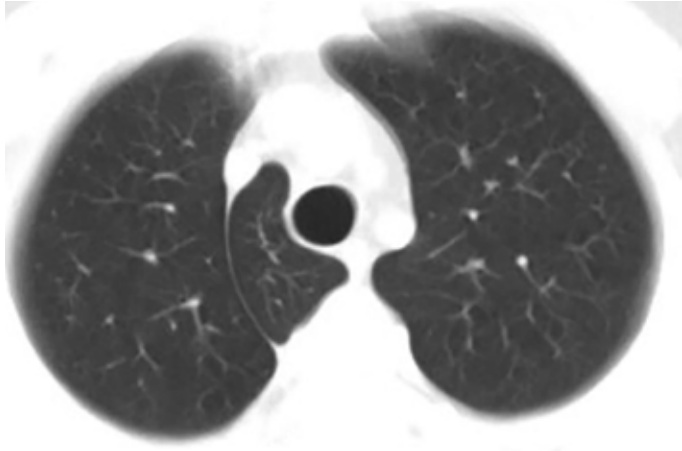

FIGURE 2. Computed tomography axial image in different variations

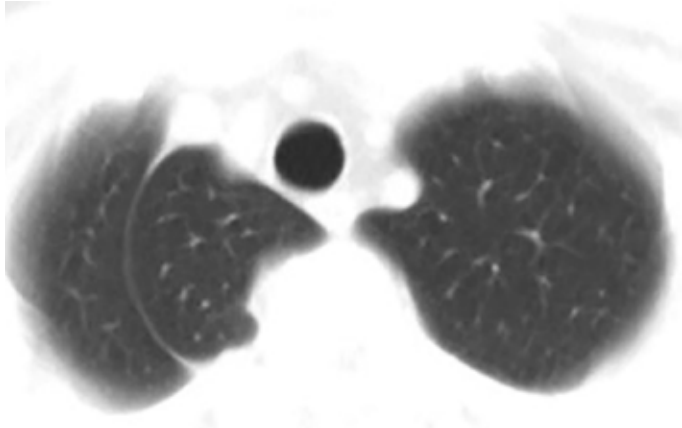

FIGURE 3. Computed tomography axial image in different variations

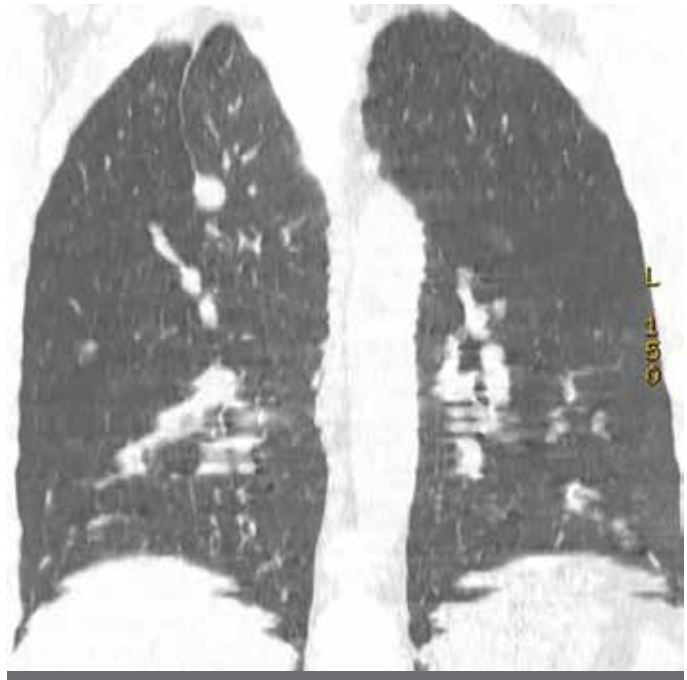

FIGURE 4. Computed tomography coronal image

FIGURE 5. Computed tomography sagittal image

ant with regard to radiological reporting of imaging findings, assessing the course of pulmonary lesions and extent of pulmonary lesions, and the technical planning before performing thoracic surgery. An azygous lobe is usually incidentally picked up on imaging studies meant to investigate an unrelated pathology. The presence of an azygous lobe alone does not confer pathological significance; simultaneously occurring pathologies should be carefully considered. Despite the rare prevalence of an azygous lobe, there may be an association with pathologies such as fissures, tumors (small-cell lung cancers), extra-pulmonary sequestration, pneumothoraces, bullous changes, vascular anomalies, and situs inversus totalis. We did not detect a simultaneous pathology associated with the presence of an azygous lobe (5-7).

Despite many published reports regarding an azygous lobe, a limited number of studies have examined its prevalence, which is reported to be 1% in cadaveric specimens, 0.4% on plain chest X-rays, and 1.2% on high-resolution CT images (8-10). A PubMed search on the prevalence of an azygous lobe detected using thoracic CT images yielded a limited number of studies (10, 11). Thoracic CT images examined in our study yielded a case prevalence higher than that previously reported. In contrast to previous reports, we included and identified sex data. The prevalence of an azygous lobe in females was 1.39% (n=15) and in males was 1.64% (n=28)

The single limiting factor of this study was that it was conducted at a single center.

CONCLUSION

Our findings indicate that the prevalence of an azygous lobe was higher (1.54%) than that in other studies published in the literature.

Ethics Committee Approval: Authors declared that the research was conducted according to the principles of the World Medical Association Declaration of Helsinki "Ethical Principles for Medical Research Involving Human Subjects", (amended in October 2013).

Informed Consent: Written informed consent was obtained from patients who participated in this study.

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