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Reporting the Presence of an Incision Similar to a Cardiac Notch in the Right Lung: A Case Report

Sağ Akciğerde Kardiyak Çentik Benzeri Kesiğin Varlığının Bildirilmesi: Olgu Sunumu

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ABSTRACT

The lungs are the main organs of respiration, and their main function is ventilation. The lungs, through oxygenation, convert venous blood into arterial blood. On the outer surface of the right lung, there were two deep fissures, one called the oblique fissure and the other called the horizontal fissure, with respect to the horizontal plate, which partitioned it into three upper, middle, and lower lobes. The anterior side of the lungs is thin and sharp and is located inside the rib-interstitial pleural sinus. In the present case, during the dissection of the cadaver of a 57-year-old man, it was observed that the right lung, along with its posterior border, does not have the usual geometry in the lungs. The posterior border of the right lung had a heart geometry similar to that of the anterior border of the left lung. The lingual process was also visible on the posterior border of the right lung. The left lung was normal. The presence of a heart incision is important in terms of anatomical variation along the posterior border of the right lung in terms of lung pathologies and the therapeutic pattern of lung segmental resection.

Keywords: Case report, presence of notch, lingula, variation of lungs, anterior and posterior borders

Öz

Akciğerler solunumun ana organlarıdır ve ana işlevleri havalandırmadır. Akciğerler oksijenlenme yoluyla venöz kanı arteriyel kana dönüştürür. Sağ akciğerin dış yüzeyinde yatay plakaya göre biri oblik fissür, diğeri yatay fissür adı verilen ve onu üst, orta ve alt olmak üzere üç loba ayıran iki derin çatlak vardı. Akciğerlerin ön tarafı ince ve keskindir ve kaburga interstisyel plevral sinüsün içinde yer alır. Sunulan olguda 57 yaşındaki erkek hastanın kadavrasının diseksiyonu sırasında sağ akciğerin arka kenarıyla birlikte akciğerlerdeki alışlagelmiş geometriye sahip olmadığı görüldü. Sağ akciğerin arka sınırında, sol akciğerin ön sınırına benzer bir kalp kesisi vardı. Lingual süreç sağ akciğerin arka sınırında da görülmüyordu. Sol akciğer normaldi. Kalp kesisinin varlığı sağ akciğer arka sınırı boyunca anatomik varyasyon, akciğer patolojileri ve akciğer segmental rezeksiyonunun tedavi şekli açısından önemlidir.

Anahtar Sözcükler: Olgu sunumu, çentik varlığı, dil, akciğer değişimi, ön ve arka sınırlar

INTRODUCTION

The right lung has three lobes, which are separated by oblique and horizontal fissures. The oblique fissure extends from the surface of the rib to the medial surface of the lung, both above and below the hilum. The left lung has two upper and lower lobes separated by an

oblique fissure. The anterior border of the left lung forms a cardiac notch. At the lower end of the cardiac notch is a small process called the lingula. The lingula has two upper lingular (IV) and lower lingular (V) bronchopulmonary segments (1). The normal anatomy of the lung is often altered by certain variations, such as the presence of

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an accessory fissure, absence of a fissure, or an unusual notch in the lungs.

CASE REPORT

During dissection of the cadaver of a 57-year-old man, the author noted an abnormal right lung morphology with a cardiac notch in the posterior border. A lingual process was also observed in the posterior border of the right lung. The structure of the horizontal and oblique fissures of the right lung was normal. The structure of the pleura was normal. The hilum arrangement of the right lung was also anatomically normal (Figure 1). Informed consent was obtained.

DISCUSSION

In the fourth week of the embryonic period, the respiratory diverticulum appears as a ventral growth from the anterior end of the foregut endoderm. The diverticulum develops caudally toward the surrounding mesenchyme, forming two right and left buds. Each lung then grows through repeated dual branching of the secondary bronchi. After several generations of branching, the bronchopulmonary segments are organized (2). Cadavers are the best tool for studying the anatomy of any organ. Numerous researchers have identified and presented anomalous anatomy of the lungs in human cadavers (3,4). In a study of 1,200 pairs of lungs in 2013, incomplete oblique fissures were found in 25.6% of the right lungs and incomplete horizontal fissures in 17.1% of the right lungs. The oblique fissure was absent in 7.3% and 4.8% of the left and right lungs, respectively. There were no horizontal fissures in 45.2% of the right lungs (5). In 1999, Lukose et al. (6) conducted a study on the morphology of the lungs, which showed that 21% of the left lungs had incomplete oblique fissures. In addition, horizontal fissures were absent and incomplete in 10.5% and 21% of the left and right lung, respectively. In 1999, Bergman et al. (7) studied changes in the peripheral division of the right lung and the base of the right and left lungs, in which they reported that in 21% of cases there was no horizontal fissure and in 67% the right lung was incomplete. In this study, we observed a defect on the posterior side of the right

lung that impairs bronchopulmonary segregation. This defect is important in lung surgery and the removal of bronchopulmonary segments. Understanding embryology and the formation of small bronchopulmonary segments of the lungs and pulmonary veins is clinically useful (8). In this investigation, the upper lobe of the right lung has two lingual parts on its posterior side, whereas it normally has three segments, the apical, posterior, and anterior bronchopulmonary segments. However, in this case, in addition to the above segments, two upper and lower lingual bronchopulmonary segments were also observed. Because of these variations, the accessory lobes and bronchopulmonary segments of the lungs can be misinterpreted on radiographs and computed tomography scans. They can also be confounded with certain clinical conditions such as linear atelectasis and pleural scarring (9,10). Anomalies detected in the right lung in this study are important for diagnostic radiology and bronchopulmonary segment resection.

Anomalies detected in the right lung in this study are important in diagnostic radiology and bronchopulmonary segment resection in pulmonary patients. It is important to identify the differences between lungs and atypical lungs. This knowledge helps physicians to accurately identify pathological conditions. This knowledge also helps surgeons remove pathology in the lungs. These variations should be considered before any surgery, such as segmental resection or lobectomy, to prevent further complications.

Ethics

Informed Consent: It was obtained.

Authorship Contributions

Concept: M.K., A.R., S.H.E.V., A.M., R.S., Design: M.K., A.R., S.H.E.V., A.M., R.S., Data Collection or Processing: M.K., A.R., S.H.E.V., A.M., R.S., Analysis or Interpretation: M.K., A.R., S.H.E.V., A.M., R.S., Literature Search: M.K., A.R., S.H.E.V., A.M., R.S., Writing: M.K., A.R., S.H.E.V., A.M., R.S.

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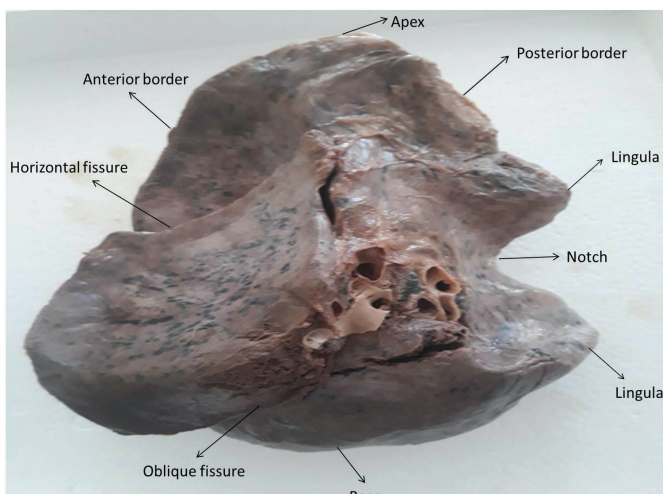


Figure 1. Sharp anterior border of the right lung. In this figure, the posterior border of the right lung has an unusual incision similar to the cardiac notch in the left lung.

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