

Evaluation of Anatomical Changes in the Thorax due to Disease Based on Radiological Observations

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Abstract

In this study, we randomly evaluated 100 patients, including 50 women and 50 men, using radiography. These patients ranged in age from 20 to 60 years. It was found that 35 patients had pulmonary and cardiac problems, which caused cardiorespiratory problems. It becomes the anatomical structure of that area.

Case Presentation

In this study, we randomly evaluated 100 patients including 50 women and 50 men weighing approximately 40 to 70 kg (total patients weighed) using posterior anterior radiographs in a standing position. These patients ranged in age from 20 to 60 years. From the radiograph of a radiologist, they reported all the photos. It was found that out of this number, 5 women and 8 men had pleural effusion and 5 women and 7 men had large heart size and 6 men and 4 women had lung infection. Patients observed anatomical changes in the lungs and heart tissue, as well as degenerative bony changes in the sternum and ribs.

Introduction

The thoracic region is covered by several large muscles such as the pectoralis major and minor, and the trapezius and dorsal muscles. Slightly inside the thoracic wall, it is protected by a bone cavity, the ribs, vertebrae, and sternum. The main is the heart and lungs, which are connected to the arteries and nerves in this area [1]. Chest radiography is considered to be one of the most complex imaging modalities. Significant differences have been observed between international physicians and radiologists specializing in this field [2]. This disagreement is more common in adult radiology [3]. Chest examination is usually possible using plain radiography and CT scan, usually chest x-rays and laboratory tests are performed to examine the chest, chest examination for a variety of diseases such as acute and chronic diseases such as cancer Pulmonary infections and fibrosis of the lungs, examination of the air below the diaphragm, and examination of the size of the heart are also performed. Compared to radiography, more CT scans are performed to examine abscesses and emphysema [4,5]. Chest x-rays are usually performed on standing position is done in the anterior or posterior profile, and then the patient is referred with a complaint of respiratory problems [6]. We see from white and black, in recent years due to increased smoking and inactivity, increased air pollutants as well as malnutrition and lung-related diseases, lung diseases, especially lung infections, have increased significantly. Pulmonary infections are usually accompanied by cough, another condition that can be treated with a chest radiograph. The diagnosis is lung fibrosis, in which we see white tissue in a specific area of the lung that usually reduces the volume of air associated with the lungs. Radiography may show air below the diaphragm, which is usually due to a ruptured colon or diaphragm, which is commonly seen in patients who have been traumatized or in addicted patients who have quit. Show the same. For example, chest radiographs of some diseases, such as pneumonia and cancer, give a similar appearance. T-scan is more appropriate [7-10]. In the chest based on (Figure 1 and 2) we see the lungs on the sides and the heart in the middle, in the lung the lung lobes are in the shape of a pyramid. The base of the pyramid is downwards and the apex is upwards. At the bottom on the outside of the base is the costophrenic angle and on the inside is the costomediastinal angle. The heart is almost in the center and the atria are on the right and the ventricles are on the left. The upper can be seen in the heart of the aortic arch, at the top and in the middle parallel to the second rib angle cartilage [11]. In this study, we examined 40 patients with a chest scan to examine the anatomical and pathological changes caused by diseases in the thoracic region.

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Table 1: The classification of 100 patients in the study.

Sex	Normal	Ribs fracture	Pleural effusion	Large heart	Lung infection	Colon ruptured
Male	27	1	8	7	6	1
Female	36	0	5	5	4	0

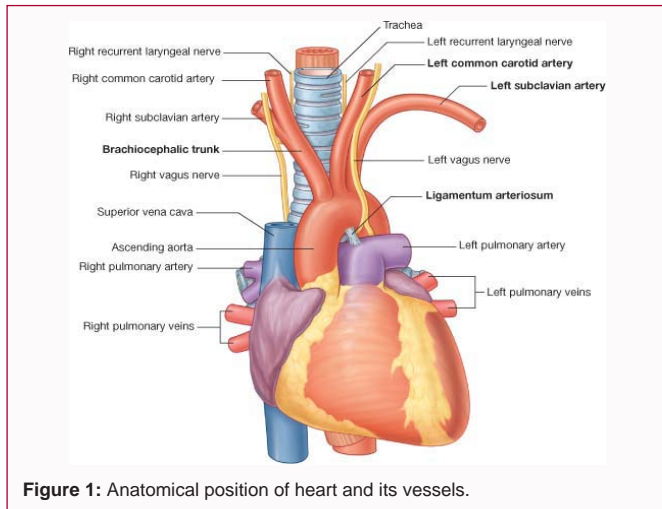


Figure 1: Anatomical position of heart and its vessels.

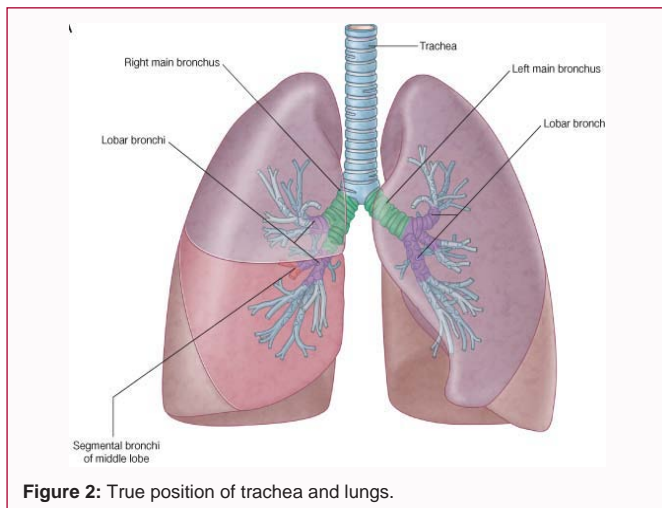


Figure 2: True position of trachea and lungs.

Result and Discussion

According to our study, diseases of the thoracic region or related to it can disrupt the normal structure of the anatomy of that region. In (Table 1) you can see the classification of 100 patients classified by sex and type of disease due to the multiplicity We have brought you a form of each type of disease in this article, Figure 3 show a normal chest position, in (Figure 4) you see a cardiomegaly patient with enlarged heart cavities and Aneurysm of aorta and pulmonary fibrosis, In (Figure 5) The patient with rib fracture is visible, in (Figure 6) the patient with bronchitis is visible. The patient with pneumonia in Figure 7 is seen. In recent years, the increase in lung disease has brought huge costs to hospitals and the government. To reduce it, many studies have been done or are being done. Different types of heart and lung diseases have different effects. On the anatomical structure of the heart, these changes include cardiomegaly and aneurysms. Some lung diseases may cause the lungs to look like honeycombs or changes in pulmonary fibrotic changes. Also, aging causes the ribs to degenerate and destroy. Sometimes rib fractures cause the ribs to enter the ribs. Lung as a result of pulmonary atelectasis observed

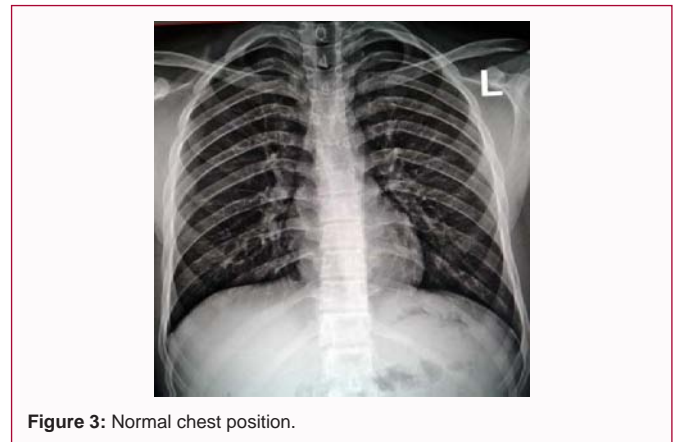


Figure 3: Normal chest position.

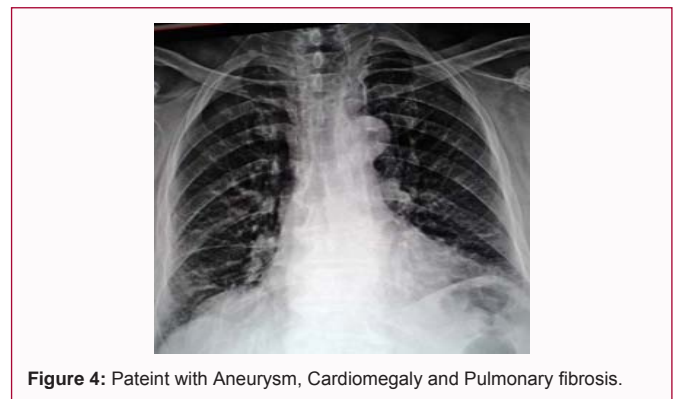


Figure 4: Patient with Aneurysm, Cardiomegaly and Pulmonary fibrosis.



Figure 5: Rib fracture, it may putting pressure on spleen and rupture pleura and nerve.

in Canada for radiographic examination of pulmonary tuberculosis by T. Pande was performed. It was found that chest X-ray can help diagnose this disease and in this disease, the anatomical shape of the lungs changes to some extent [12]. Our study also showed that in some diseases, the anatomical shape of the chest changes. Another study entitled chest radiographic features of human metapneumovirus infection in pediatric patients in Germany in 2017 showed patients with HMPV lung deformity and atelectasis [13], which was somewhat similar to our study in terms of anatomical changes, in another study Detection plural effusion on supine chest radiographs performed in Japan in 1998 found that in the pleural effusion, the pulmonary

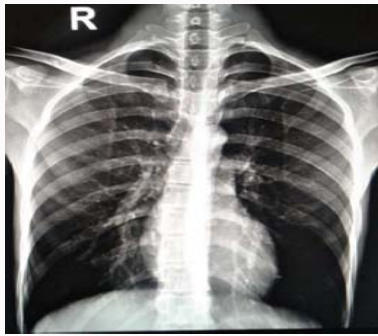


Figure 6: Patient with infection and bronchitis in two lungs, change in borders of lungs seen.



Figure 7: The patient had pneumonia. The upper and middle lobes of the right lung lost their normal anatomical shape.

edges deform [14], which was consistent with our study. Another group study in Birmingham to investigate cystic fibrosis reported anatomical changes [9]. The report suggests that these changes cause more changes over time and lead to adverse outcomes that increase mortality. What is clear is that radiographic changes alone are not enough for anatomical changes, and other methods such as CT scans and MRIs are necessary. A true and accurate understanding of the anatomy of the body is necessary to examine structures. The thoracic region has undergone many changes in humans since ancient times, meaning that the thoracic region has become smaller over time in humans, the lungs have become more adapted to the environment, and the heart is located in the middle of the thoracic region above the diaphragm. An embryo can also be seen to adapt to life outside the body. These changes occur not only in large structures but also in smaller structures such as the esophagus, trachea, vagus and phrenic nerves, and veins in this area such as the azygos and venous cava. Rhinos such as the aorta and internal thorax are observed [15].

Conclusion

Cardiopulmonary diseases cause changes in the anatomical structures of the thoracic region. Also, reducing the desire to smoke and increasing mobility and proper nutrition, as well as timely referral can be effective in reducing heart and lung diseases.

Recommendation

It is recommended that histological and anatomical changes resulting from various diseases in the thoracic region be carefully evaluated using CT scan.

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