Clinical and Experimental Health Sciences

Case Report / *Olgu Sunumu*

A Rare Condition Causing Dysphagia: Aberrant Right Subclavian Artery

Nadir Bir Disfaji Nedeni: Aberan Sağ Subklavyan Arter

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Abstract

Dysphagia lusoria is a secondary condition caused by the compression of the esophagus with an aberrant right subclavian artery. This anomaly usually involves the right subclavian artery and occasionally the left subclavian artery. Most cases remain asymptomatic. Therefore, dysphagia lusoria is quite a rare phenomenon, which doctors may not face throughout their careers. In this report, the aberrant right subclavian artery of a patient suffering from underestimated dysphagia, which was incidentally diagnosed using chest computed tomography, is presented.
Keywords: Aberrant right subclavian artery, dysphagia lusoria, spiral computed tomography

Öz

Disfaji lusoria aberan sağ subklavian arterin özofagusu sıkıştırmasına ikincil gelişen bir durumdur. Bu anomalide genellikle sağ subklavian arter ve bazen sol subklavian arter tutulumu söz konusudur. Olguların çoğu asemptomatik kalır. Bu nedenle disfaji lusoria doktorların kariyerleri boyunca yüzleşmeyebilecekleri nadir görülen bir olgudur. Bu olguda, önemsenmeyen yutma güçlüğü olan bir hastada göğüs bilgisayarlı tomografisinde tesadüfen teşhis edilen aberan sağ subklavian arter sunulmuştur.
Anahtar kelimeler: Aberan sağ subklavian arter, disfajia lusoria, spiral bilgisayarlı tomografi

INTRODUCTION

An aberrant right subclavian artery formation is a rare congenital anomaly (1). An aberrant right subclavian artery is detected in 0.5%–1.8% of the population (2). It was proposed that an aberrant right subclavian artery develops because of inadequate inhibition mechanisms of the aortic arch development during the embryonic stage, and heart, eye, brain, and bone tissue abnormalities have been reported to accompany it (1, 3).

Dilatation and an aneurismal change of the aberrant vascular structure in adulthood may lead to bleeding through the esophagus fistula and superior vena cava syndrome by compressingthe thoracic sympathetic ganglia (4-7).

Dysphagia symptoms is observed in 10% of patients with an aberrant right subclavian artery. Compression of the esophagus because of a congenital vascular anomaly is called dysphagia lusoria (2). Methods, such as esophageal barium X-ray, echocardiography, angiography, magnetic resonance imaging, and computed tomography (CT), can be used for diagnosis (8, 9). Here we present a case of an aberrant right subclavian artery that was detected using a contrast-enhanced chest CT, which was performed during the investigation of suspected nodules that were observed in a chest X-ray.

CASE PRESENTATION

A 27-year-old female patient was admitted to family medicine outpatient clinic with complaints of dry cough that persisted for a long time. The patient reported that she could easily swallow liquids but had a feeling of food being stuck while swallowing solid foods. As the patient was accordingly selecting her food, she had yet not experience a serious health problem. The height of the patient was 160 cm, and her weight was 50 kg. The patient's blood pressure was 100/60 mmHg, heart rate was 76 beats/min, and temperature was 36.4°. She did not report any weight loss. Although there was a slight coarsening in respiratory sounds, there was no significant rale, rhonchus, or pathologic sounds during lung examination. During the examination of the other systems, it was noticed that the patient occasionally complained regarding numbness and tingling in the right arm. The patient's head, neck, and other system examinations were normal. To investigate the numbness and tingling in the patient's right upper extremity, tests were performed to evaluate the vascular, muscular,

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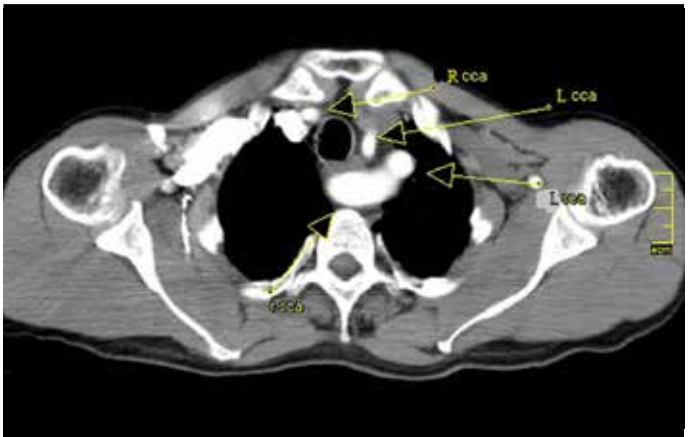

Figure 1. Chest Computed Tomography of the Patient
Abnormal origin of the right subclavian artery was noticed. It was found that the aortic arch was highly localized and the subclavian artery was emerging in the neighborhood of the left subclavian artery instead of the brachiocephalic trunk. RSCA: aberrant right subclavian artery; LSCA: left subclavian artery; RCCA: right common carotid artery; LCCA: left common carotid artery

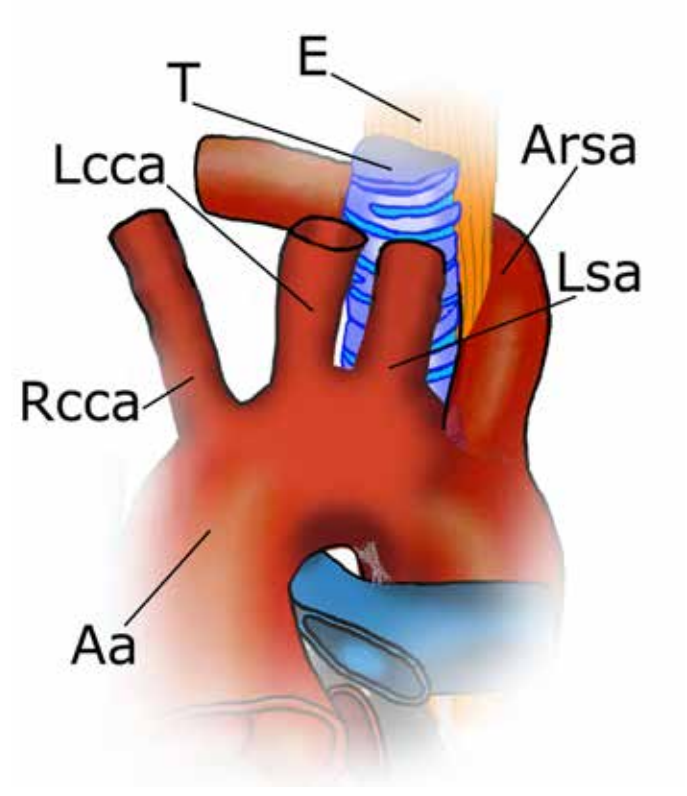

Figure 2. Schematic imaging of aberrant right subclavian artery compressing the esophagus
Aberrant right subclavian artery is an anatomic situation in which the right subclavian artery originates from the isthmus aorta instead of the brachiocephalic trunk and courses from the anterior of the trachea or the anterior of the esophagus or the posterior of the esophagus toward the upper extremity. T: trachea; E: esophagus; ARSA: aberrant right subclavian artery; LSA: left subclavian artery; AA: arcus aorta; RCCA: right common carotid artery; LCCA: left common carotid artery

and skeletal structure of the shoulder and arm. The Adson test was suspected positive, while the Hawkins, Neer, Speed, Yergason, Apprehension, Jugular compression, and Valsalva tests were negative. The patient's sensory examination was normal. In the laboratory evaluation, complete blood count, routine biochemistry, vitamin B12, folate, ferritin levels, and thyroid function tests were within normal limits. A chest X-ray revealed a suspicious nodule in the middle zone of the left lung. Therefore, contrast-enhanced chest CT was performed. Thorax CT examination revealed no pathological findings in the lung parenchyma. However, an abnormal origin of the right subclavian artery was noted. It was found that the aortic arch was highly localized, and the right subclavian artery was emerging in the neighborhood of the left subclavian artery instead of the brachiocephalic trunk. With respect to other major vascular structures (both the common carotid artery and left subclavian artery), the right subclavian artery was observed to be slightly dilated at the level of the origin and proximal (retroesophageal) section (Figure 1).

Normally, the right subclavian artery should course anterior to the trachea but in this case it was passing from posterior of the esophagus, compressing the esophagus. In addition, the patient's symptoms in the right upper extremity were considered to be caused by compression of the artery during its course. No pulmonary pathology was found as a cause of the cough. Because of the aberrant right subclavian artery, the patient was referred to the cardiovascular surgery department. A surgical approach was not suggested because the clinical symptoms were not severe. After taking patient's approve this case was reported.

DISCUSSION

In this case, an incidentally detected aberrant right subclavian artery in a patient complaining from a cough is discussed.

In normal anatomy, the aortic arch has three main branches: the brachiocephalic trunk, left common carotid artery, and left subclavian artery. The right subclavian artery originates from the brachiocephalic trunk.

However, an aberrant right subclavian artery is an anatomic situation in which the right subclavian artery originates from the isthmus aorta instead of the brachiocephalic trunk and courses from the anterior of the trachea (15%) or the anterior of the esophagus (80%) or the posterior of the esophagus (5%) toward the upper extremity (Figure 2).

Clinically it may be asymptomatic or may lead to cough or difficulty swallowing due to compression of the trachea and esophagus (10, 11). Vascular anomalies of the aortic arch have been classified in different ways by different researchers. These include open and closed rings, double aortic arch, aberrant arteries, or incomplete rings. Other researchers have made a classification according to compression of the trachea and esophagus (12-17). It was reported that the right common carotid and right subclavian artery may diverge from the aortic arch separately instead of from a trunk and that the trachea might be surrounded by the aortic arch. Also vascular rings have been reported to be causing dysphagia and difficulty in breathing (14). Kabakkaya et al. (12) reported an aberrant artery causing dysphagia, diverging from the right common carotid and coursing left of the superior thyroid artery. In this case, it was found that a right aberrant subclavian artery emerging from the aortic arch had been causing a persistent dry cough and dysphagia. Oblique notching of the right subclavian artery can be observed with posteroanterior and lateral esophageal barium X-ray. In addition, echocardiography, angiography, magnetic resonance imaging, and CT methods can be used in diagnosis (8, 9). In this study, the aberrant right subclavian artery was determined by CT.

CONCLUSION

An aberrant right subclavian artery is a rare vascular anomaly. Due to its rarity and often-subclinical presentation, it can easily be missed. This variation needs to be considered in the differential diagnosis of dysphagia in clinical practice.

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