

Aberrant Right Subclavian Artery with Kommerull Diverticulum

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Abstract: *The presence of an aberrant right subclavian artery (arteria lusoria) is potentially the most important abnormality of the aortic arch. Aneurysmal dilatation (aberrant subclavian arterial aneurysms) of the proximal portion of the aberrant right subclavian artery can occur, a pouch-like aneurysmal dilatation is called Kommerell diverticulum. If the adjacent structures are compressed by this vessel, several symptoms can occur. In this article, we discuss the commercial diverticulum scenario. In this report, we discuss a case of kommerell's diverticulum associated with an aberrant right subclavian artery in a pediatric patient*

Keywords: Kommerell's diverticulum, Aberrant, right subclavian artery, pediatric.

1. Introduction

Aberrant right subclavian artery (ARSA), known scientifically as arteria lusoria (AL), is the most common embryologic abnormality of the aortic arch. The first explanation of this variation was given in 1735 by Hunauld. However, Bayford first described the pathological entity 'dysphagia lusoria' in 1787 in a patient with a long history of dysphagia who had an aberrant right subclavian artery. It is thus, often referred to as Bayford-Autenrieth dysphagia [1].

2. Case Report

A 2 months old pediatric patient presented to the emergency room with history of shortness of breath, wheezing and difficulty in feeding since a week. The patient's respiratory rate was 50 breaths per minute and heart rate was 90 beats per minute. A contrast-enhanced computed tomography (Fig 1) shows dextrocardia with left subclavian artery and aberrant right subclavian artery arising from left sided aortic arch passing posterior to trachea and kommerul diverticulum.

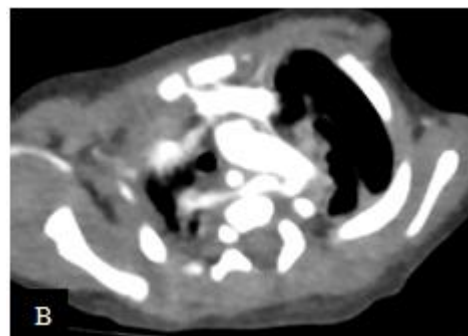
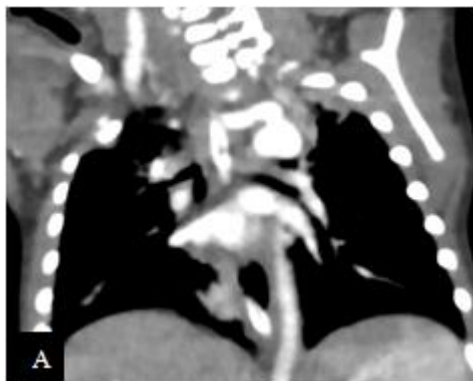


Figure 1: Contrast-enhanced computed tomography chest Coronal section (A), axial section (B) shows aberrant right subclavian artery arising from left sided aortic arch with kommerul diverticulum



Figure 2: Three-dimensional reconstruction showing aberrant right subclavian artery from left sided aortic arch passing dorsal to the esophagus.

3. Discussion

Right aberrant subclavian artery accounts for 0.5-1.8% of the population as the most frequently encountered aortic arch anomaly. Course of aberrant right subclavian artery is mostly dorsal to the esophagus (80%). It may also pass between the esophagus and the trachea (15%) or even anterior to the trachea (5%). Aberrant artery most commonly arises from the posterolateral portion of the arch of aorta [2]. Despite the low prevalence and the asymptomatic presentation of these structural anomalies, the development of cardiovascular complications and aneurysmal formation could happen as in Kommerell's diverticulum (KD) in a complicated right aberrant subclavian artery, which can undergo aneurysmal degeneration and dissection. Computed tomography (CT) or MRI (magnetic resonance imaging) angiography is the gold standard for the diagnosis. It not only confirms the diagnosis but also helps to exclude aneurysm of the aorta or other associated anomalies and to plan the operation [3]. MRI has the advantage of being a noninvasive procedure and the patient is spared the potential risk of intravenous contrast agents. MRI is not as useful as MDCT due to the generation of respiratory and cardiac motion artifacts. Also it is not a preferred method due to its cost and prolonged scan time. Although MR angiography may reveal the presence of vascular anomaly, the information regarding nonvascular mediastinal is insufficient [3]. Depending on the severity and the degree of the symptoms, the management of the patient can be determined. Regarding the management of these anomalies, if KD and aortic aneurysm were absent, the ARSA could be treated with the transposition of the right subclavian artery to the right common carotid artery through a right supraclavicular incision, dissection, and transaction of the artery passing over to the left side of the esophagus. There is no standard surgical repair for KD; however, its size and the presence of persisting symptoms can determine its surgical treatment [4].

4. Conclusion

The prevalence of these structural anomalies, the right aberrant subclavian artery and Kommerell's diverticulum is uncommon. Therefore, the earlier the management, the better the outcome. Investigation with different imaging methods helps to clarify the vascular abnormalities, to support a possible surgical procedure indication, and to monitor the patients in follow-up.

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