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Case Report / Olgu Sunumu

Hypoplastic left anterior descending artery associated with a single coronary artery

Tek koroner artere eşlik eden hipoplastik sol ön inen arter

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ABSTRACT

Coronary artery anomalies are rarely seen in patients undergoing coronary arteriography. Single coronary artery anomaly is a rare subgroup. Hypoplastic coronary artery is a rare entity which refers to congenital underdevelopment of one or more main branches of the coronary arteries. The combination of these is extremely rare. Herein, we present a 64-year-old female case with a single coronary artery classified as type R-III with hypoplastic left anterior descending artery.

Keywords: Acute coronary syndrome; computed tomography; coronary artery anomalies.

ÖZ

Koroner arter anomalileri, koroner arteriyografi yapılan hastalarda nadiren görülmektedir. Tek koroner arter anomalisi nadir bir alt gruptur. Hipoplastik koroner arter, koroner arterin bir veya daha fazla ana dalının doğuştan az gelişmesi durumudur. Bu iki durumun birlikte görülmesi ise, oldukça nadirdir. Bu yazıda, hipoplastik sol ön inen arterin eşlik ettiği tip R-III olarak sınıflandırılan tek koroner arter anomalisi olan 64 yaşında bir kadın olgu sunuldu.

Anahtar sözcükler: Akut koroner sendrom; bilgisayarlı tomografi; koroner arter anomalileri.

Coronary artery anomalies are seen in 1.3% of all coronary arteriographies.[1] A single coronary artery (SCA) is rarely seen and is detected in 0.031% of all coronary arteriographies.[2] A SCA is rarely seen and is observed in 0.031% of all coronary arteriographies.[3] Herein, we present a case with a SCA classified as type R-III with hypoplastic left anterior descending artery (LAD).

CASE REPORT

A 64-year-old female patient was admitted to our hospital with symptoms of tachycardia and headache. Physical examination revealed hypertension. The results of transesophageal echocardiography and electrocardiography were non-specific. Electrocardiography-gated multidetector computed tomography (MDCT) angiography was performed for further evaluation of the coronary arteries and it showed a single coronary artery originating from the right sinus of Valsalva (Figure 1). The left main coronary artery reached its normal localization with a retroaortic course. The LAD and circumflex (Cx) arteries arose insularly from a common trunk. The LAD was thin and hypoplastic, proceeded into the interatrial septum and, then, circulated the anteroseptal

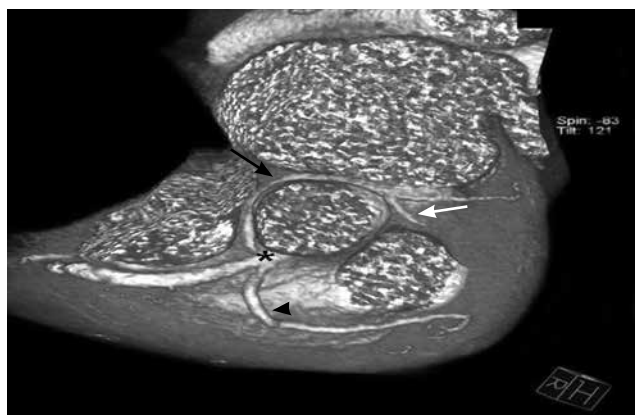

Figure 1. A cardiac computed tomography angiography volume-rendered image showing the single coronary artery arising from the right sinus of Valsalva (black star), conal artery (black arrowhead), left main coronary artery (black arrow), and hypoplastic left anterior descending artery (white arrow).

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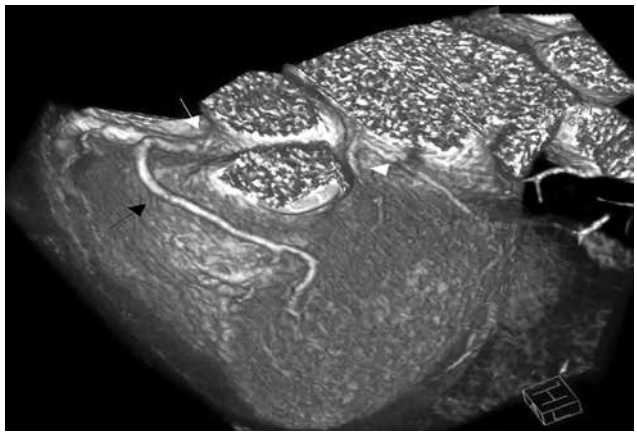

Figure 2. A cardiac computed tomography angiography volume-rendered image showing the single coronary artery arising from the right sinus of Valsalva (white arrow), conal artery (black arrow) and hypoplastic left anterior descending artery (white arrowhead).

and the base of the anterior left ventricle wall. The conal artery arose from the normal localization, but was wider than normal, proceeded pre-pulmonary and circulated the anterior septal and anterior wall of the left ventricle (Figure 2).

DISCUSSION

A single coronary artery originating from the right sinus of Valsalva has been reported to constitute 2.5% of all coronary anomalies and is usually accompanied by other congenital cardiac anomalies.[4] Lipton et al.[5] were the first to classify SCA anomalies. Later, this classification was further amended by Yamanaka and Hobbs[1] according to the origin (right or left sinus of Valsalva) and the anatomical route (I, II or III) in respect of the aorta and pulmonary truncus. Our case was classified as type R-III according to this classification which refers to a coronary artery originating from the right coronary artery and III refers to an anomaly in which the LAD and Cx arteries originate insularly from the proximal section of the normal RCA.

Hypoplastic coronary artery indicates congenital underdevelopment of one or more main coronary arterial branches without compensatory collateral circulatory vessels. It is a rare anomaly which is found at a rate of 0.02% in autopsy series.[6] In the literature, there are only three cases of SCA associated with an absent or hypoplastic LAD.[7-9] In the present case, type R-III SCA was associated with hypoplastic LAD.

The clinical importance of hypoplastic coronary artery and SCA poses a potential risk for sudden death, and acute coronary syndrome.[4,6] Group I anomalies are usually benign, while the anomalies of type R II-III and type L II-III have a high risk for acute coronary syndrome and arrhythmias.[4]

In conclusion, it should be kept in mind that single coronary artery anomalies can be associated with hypoplastic left anterior descending artery, leading to acute coronary syndrome.

Declaration of conflicting interests

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