An elderly patient with atresia of the left main stem

To the Editor,

We deeply appreciate Topuz et al.[1] for their study entitled 'An elderly patient with atresia of the main stem' published in the May 2015 issue of Archives of the Turkish Society of Cardiology. The study mentions atresia of the left main coronary artery (LMCA) as a rare congenital coronary anomaly with poor clinical outcomes. Fewer than 50 cases have been reported in the literature.[2] It can be fatal and can present with severe heart failure during infancy, or only as left ventricular dysfunction and mitral incompetence.

In the Topuz et al. study, considering the patient's clinical data, age, ECG findings (LBBB) and images, there is the impression of LCMA occlusion rather than LCMA atresia. In the right coronary angiography, the impression is that the circumflex (Cx) and left anterior descending (LAD) artery are filling from the right coronary artery (RCA) by proximal and distal collaterals. Also in the scintigraphy images, an anterior and posterolateral reversible defect (ischemia) is being considered as steal of coronary flow from the RCA due to collateral formation.

As a result, in this aged patient, it is not altogether clear whether it is atresia or collateral formation developing after occlusion, which developed over ischemia. In our opinion, this case should be evaluated and reported from this point of view.

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Authors' reply

We thank our readers for their interest in our work and the valuable comments. We reported the diagnosis of a case of left main coronary artery (LMCA) atresia during evaluation for noncardiac surgery.[1]

In our case, we suggested that the best explanation for our angiographic and cardiac CT findings was association with LMCA atresia. LMCA atresia ranges across a broad age and clinical spectrum. It is not only a newborn or childhood disorder, but is also found in the elderly population, as was the case with our patient.[2] In this case, the remaining coronary arteries were normal. As reported, we evaluated the patient's coronary anatomy using multislice computed tomography (CT) in addition to coronary angiography. In multislice CT, there was no calcification, or obstructive or non-obstructive atherosclerotic plaques in the coronary arteries. Hence, the patient's agatston calcium score was low, and syntax score was not calculated.

It is important to bear in mind that, although very uncommon, when there is a lack of atherosclerotic disease in coronary arteries, it is usually suggestive of congenital causes for absence of the LMCA. Therefore, we agree that in daily practice another imaging modality to investigate coronary anatomy may also be used in adjunct to coronary angiography, especially if there is suspected congenital disease of the coronary arteries. One cause of absence of the LMCA without atherosclerosis in the remaining coronary arteries is congenital atresia of the LMCA. In LMCA atresia, there is no left coronary ostium and no left main trunk. The left anterior descending artery (LAD) and left circumflex (Cx) arteries are connected proximally, as usual, but end blindly, with their blood supply coming from the right coronary artery (RCA) via one or more collateral arteries. The second cause leading to angiographic absence of the LMCA without atherosclerosis is single (right) coronary artery. In this condition, the RCA is generally responsible for blood flow to perfuse the entire heart, as seen in congenital atresia of the LMCA. In single

coronary artery, the blood flow is always centrifugal, flowing from the center to the periphery, and from bigger to smaller arteries. In contrast, in atresia of the LMCA, the circulation of blood in the left coronary system is reversed. The blood flows from the right to the left coronary system via one or more collateral arteries, and from the periphery to the center (centripetal pattern).[3,4]

Our patient's myocardial perfusion scintigraphic findings were associated with reversible ischemia at the anterior and posterolateral myocardial region. We know that cardiac scintigraphy is a subjective modality for ischemia, and it has been demonstrated that in patients with single-vessel total coronary artery occlusion, myocardial ischemia is almost always present, irrespective of the presence or absence of angiographic collaterals.[5]

Consequently, all our findings led us to the conclusion that our elderly patient had LMCA atresia with significant collateral formation that had developed over a period of years.

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Is balloon sizing still necessary in the era of real-time 3D transesophageal echocardiography?

To the Editor,

We read with interest the recent paper in your journal by Arslan et al. entitled 'Corrected balloon occlusive diameter to determine device size during percutaneous atrial septal defect closure'. Arising out of this, we believe that the following question must be raised: Is balloon sizing still necessary in the era of real-time 3D transesophageal echocardiography?

Transcatheter closure of interatrial septal defects, including secundum type atrial septal defects (ASDs) has become a safe and effective method when performed at experienced centers.[1,2] However, among centers performing transcatheter ASD closure various technical differences exist in selection of device size, such as balloon sizing, and echocardiographic guidance in the use of transoesophageal (TEE), 3-dimensional (3D) and intracardiac echocardiography (ICE). Furthermore, there exists no international consensus regarding the sizing issue.

In their paper, Arslan et al.[3] reported that utilization of corrected balloon occlusive diameter (BOD) might be of benefit in deciding size of ASD occluder device. In the study, corrected BOD was shown to be determined by rim durability and indentation formation, device size being the diameter measured when there is bilateral indentation of the inflated balloon; device size=measured diameter +2 mm (for defects <20 mm) or 4 mm (for defects ≥20 mm) in instances of unilateral indentation or bilateral minimal indentation; device size=measured diameter +1 mm (for defects <20 mm) or 2 mm (for defects ≥20 mm) when there is unilateral complete indentation on one side and minimal indentation on the other.

Such a formulation is sophisticated to implement. Despite the traditional paradigm using balloon sizing in the closure of ASDs, recent studies have shown TEE evaluation without balloon sizing to be safe and effective, and possibly superior to balloon sizing in