Dual Anomalous Origins of the Thyrocervical Trunk and Left Internal Mammary Artery

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A 56-year-old man with diabetes and a history of triple coronary artery bypass graft surgery (left internal mammary artery [LIMA] to left anterior descending [LAD] artery, saphenous vein grafts to posterior descending artery and obtuse marginal artery) underwent coronary catheterization for unstable angina. Left main coronary angiography showed competitive follow in the distal left anterior descending coronary artery (Figure 1, Online Video 1). However, LIMA could not be visualized despite multiple angiographic images of left subclavian artery. Aortic arch angiography showed an artery coming off the aortic arch just distal to the origin of the subclavian artery (Figure 1, Online Video 2).

Aortic arch angiogram shows anomalous origin of the thyrocervical trunk from the aortic arch (thick arrow) distal to the origin of subclavian artery (thin arrow). See Online Videos 1 and 2.

Angiogram of the thyrocervical trunk (thick arrow) shows anomalous origin of the LIMA (thin arrow). LIMA = left internal mammary artery. See Online Videos 3 and 4.

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This artery appeared to be the anomalous origin of the thyrocervical trunk (Figure 2), and selective engagement of this branch was performed. LIMA was seen to arise as a branch from this thyrocervical trunk (Figure 2, Online Video 3) and to supply distal LAD. Right internal mammary artery was normal angiographically and arose from the proximal right subclavian artery (Figure 2, Online Video 4). The thyrocervical trunk usually originates from the upper part of the first subclavian artery segment (1), and LIMA arises from the proximal part of the subclavian artery in 92%, from the mid portion in 7%, and from the distal part of the subclavian artery in 1% of the cases. Anomalous origins of LIMA from the lateral junction of the left subclavian artery and aorta (2), from an aberrant vertebral artery (3), and from the aortic arch have been reported (4). To our knowledge, this dual anomalous origin of the thyrocervical trunk and origin of the LIMA from it has not been reported. These rare anomalies should be considered before concluding that this important vessel is occluded. Competitive flow in LAD was an important clue in our case that this vessel was patent, although anomalous.

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