Intramyocardial Left Anterior Descending Artery as Cause of Myocardial Ischemia

Marek Polomsky, MD, Spencer J. Palmer, MD, and Michael E. Halkos, MD
Division of Cardiothoracic Surgery, Emory University School of Medicine; and Heart and Vascular Institute, St. Joseph’s Hospital, Atlanta, Georgia

A 58-year-old man presented with a 2-year history of intermittent exertional left-sided chest pain. Physical examination revealed only sinus bradycardia, and a thallium stress test demonstrated anterior ischemia. Coronary angiography revealed no significant atherosclerotic disease; however, there was near obliteration of the mid-left anterior descending coronary artery (LAD) during systole secondary to a myocardial bridge (Fig 1, arrow) (Video). Computed tomography angiography confirmed an LAD that was epicardial at the proximal and distal portion with a significant intramyocardial segment at the mid-LAD (Fig 2, arrows). During the surgical procedure, an intramyocardial mid-LAD with a 2- to 4-mm myocardial bridge was discovered (Fig 3, arrow), and unroofing was performed with debridement and resection of the overlying myocardium. The lateral myocardial edges were tacked down with a running suture on each side of the LAD to prevent repeated contraction. He had complete resolution of symptoms and returned to normal activity.

Typically a benign condition, myocardial bridge has an average prevalence by angiographic series of less than 5%, but in autopsy studies the prevalence is as high as 86% [1]. A myocardial bridge of the LAD can result in arrhythmias, ischemia, or infarction, and it should be considered in the differential diagnosis in patients with exertional angina. Treatment options include medical management, percutaneous techniques, and surgical operation for failed medical therapy. Surgical options include unroofing and debridement or potentially coronary artery bypass grafting.

Reference

A video can be viewed in the online version of this article [http://dx.doi.org/10.1016/j.athoracsur.2013.06.094] on http://www.annalsthoracicsurgery.org.