49 Year-Old Woman with New-Onset Exertional Dyspnea and Chest Pain
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Clinical History
A 49 year-old physically active woman developed recurrent symptom-limiting exertional dyspnea and chest pain while attempting to complete her usual 4-mile daily jog. A stress-cardiac ultrasound was notable for mild anterior wall hypokinesis after completing 14 metabolic equivalents (METS). A subsequent treadmill stress test with nuclear imaging (ETT/MIBI) while on calcium-channel blockers was unremarkable. She was intolerant to medical therapy, and underwent coronary angiography (Figure 1), which revealed a small caliber left anterior descending (LAD) artery, with a mid-LAD myocardial bridge with systolic compression; and surgical management was contemplated.

She was referred to MGH for a second opinion, and a 64-slice MDCT was performed (Figure 2-4).

Discussion
Coronary arteries (CA) usually course on the epicardial surface of the heart. Myocardial bridging (MB) is a congenital variant of CA anatomy in which an arterial segment takes an intramyocardial course, which may result in systolic compression by overlying myocardial tissue. The LAD is the most commonly affected CA. The phenomenon was first described by Reyman in 1737 and Black in 1805. The first in-depth report was published in 1951 and angiographic proof arrived later in 1960.

Although MB is considered to be a benign condition with a good long-term prognosis, there are a few reports linking MB to acute myocardial infarction, arrhythmias, or sudden death. Symptomatic patients are usually successfully treated with beta blockers and non-dihydropyridine calcium channel blockers. Percutaneous intervention or surgical therapy is usually reserved for symptomatic high-risk patients with suitable anatomy, documented ischemia, and who have failed medical therapy.

This case demonstrates the unique power of MDCT to demonstrate not only the length but also the depth of a MB segment. Furthermore, the contribution of the conus branch to anterior wall blood supply was underappreciated by invasive coronary angiography. Following a surgical consultation, her LAD myocardial bridge was deemed not amenable to surgical or percutaneous revascularization, and resumption of medical management with calcium channel blockers was recommended.

REFERENCES