Internal Thoracic Artery Dissection

A Proposed Mechanistic Explanation

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A 61-year-old man with previous single bypass surgery of the left internal thoracic artery to the left anterior descending artery in 1996 presented to the emergency department with chest pain and anterior negative T waves. From time of surgery the patient remained asymptomatic until the day of admission when he experienced a sudden onset of chest pain immediately on raising and hyperex-
tending both arms. On angiography, the native left anterior descending artery remained chronically occluded and the left internal thoracic artery showed an inferiorly displaced and flared ostium with preserved flow but a long, hazy, and severe proximal lesion. Optical coherence tomography and intravascular ultrasound showed a dissection flap and mural hematoma, respectively. In order to rule out the presence of subclavian dissection, a thoracic scan was done, revealing no extension of the dissection and a 10-mm area of adhesion between the internal thoracic artery and the anterior chest wall. Subsequently, the patient underwent successful angioplasty with 3 stents.

Spontaneous dissections of the internal thoracic artery have been described, although it remains unclear which factors can trigger this serious event (Fig. 1). The multiple imaging modalities used in the present case provide a new insight into the mechanism of spontaneous internal thoracic artery dissections. The upward-pull on the internal thoracic artery from hyperextending the arms compounded by the downward-traction of the internal thoracic artery adhering to the chest wall, resulted in opposite overstretching forces that caused the internal thoracic artery to dissect. This theory is supported by the downward displacement of the internal thoracic artery ostium. Suresh et al. (1) reported a similar case of internal thoracic artery dissection after a physical movement, but no mechanistic explanation was offered.

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REFERENCE

1. Suresh V, Evans S. Successful stenting of stenotic lesion and spontaneous dissection of left internal mammary artery graft. Heart 2007;93:44.

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