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IMAGES IN INTERVENTION

Histopathology of Coronary Fibromuscular Dysplasia Causing Spontaneous Coronary Artery Dissection

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Fibromuscular dysplasia (FMD) is strongly associated with spontaneous coronary artery dissection (SCAD), with concomitant occurrence in 60% to 70% (1). However, histopathological evidence of coronary FMD causing SCAD is rare (2,3).

We report a 57-year-old woman who presented with an anterior ST-segment elevation myocardial infarction. She had a family history of coronary artery disease, but was otherwise previously healthy. Coronary angiography revealed type 2B angiographic SCAD (1) with diffuse stenosis from mid to apical left anterior descending artery (LAD) and Thrombolysis In Myocardial Infarction flow grade 0 distally (**Figure 1A**). She also had coronary tortuosity of her diagonal and obtuse marginal arteries. She had dyskinesis of the anteroapical wall (**Figure 1B**). She was managed conservatively, but experienced sudden cardiac arrest the following day and could not be revived. Autopsy showed cardiac tamponade from left ventricular myocardial rupture. Microscopic sections of her coronary arteries with hematoxylin and eosin stain showed coronary dissection of the mid-distal LAD between the media and adventitia separated by intramural hematoma, together with thick intimal fibrous proliferation due to FMD (**Figure 2A**). Her right coronary artery also showed changes of intimal and medial fibroplasia. Macroscopic section of her right renal artery showed transverse intimal ridges consistent with FMD (**Figure 2B**).

Our case example illustrates histopathologic proof of coronary FMD causing SCAD. In clinical practice, the vast majority of patients with SCAD and concomitant extracardiac FMD do not have histopathological proof of coronary FMD, and there may be other predisposing arteriopathies. Most SCAD patients survive their myocardial infarction (1); consequently, histopathology understanding of SCAD and their definitive cause is limited. We previously reported that the appearance of marked intima-media thickening on optical coherence tomography may help diagnose coronary FMD without histopathology (4). Given the rarity, collaborative efforts to aggregate SCAD histopathologic cases into series are encouraged to further our scientific knowledge.

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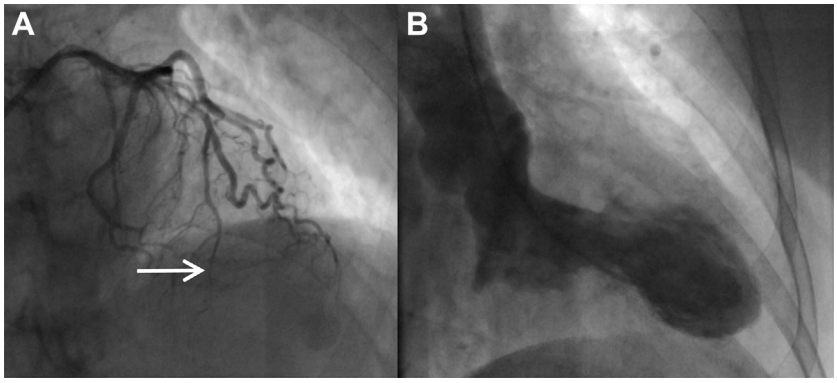
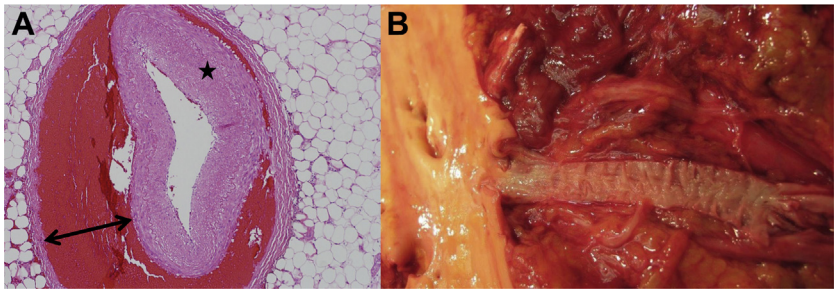
FIGURE 1 **Coronary and Left Ventricular Angiograms of Left Anterior Descending Artery SCAD**



(A) Coronary angiogram showing type 2B SCAD of the mid-distal left anterior descending artery **(arrow)**. **(B)** Left ventricular angiogram showing anteroapical dyskinesis. SCAD = spontaneous coronary artery dissection.

FIGURE 2 **Histopathological Sections**



(A) Microscopic hematoxylin and eosin stain of the left anterior descending artery showing dissection between the adventitia and media with compressive hemorrhage **(arrow)**, and dramatic intimal fibroplasia **(asterisk)**. **(B)** Macroscopic section of the right renal artery demonstrating transverse intimal ridges consistent with fibromuscular dysplasia.

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