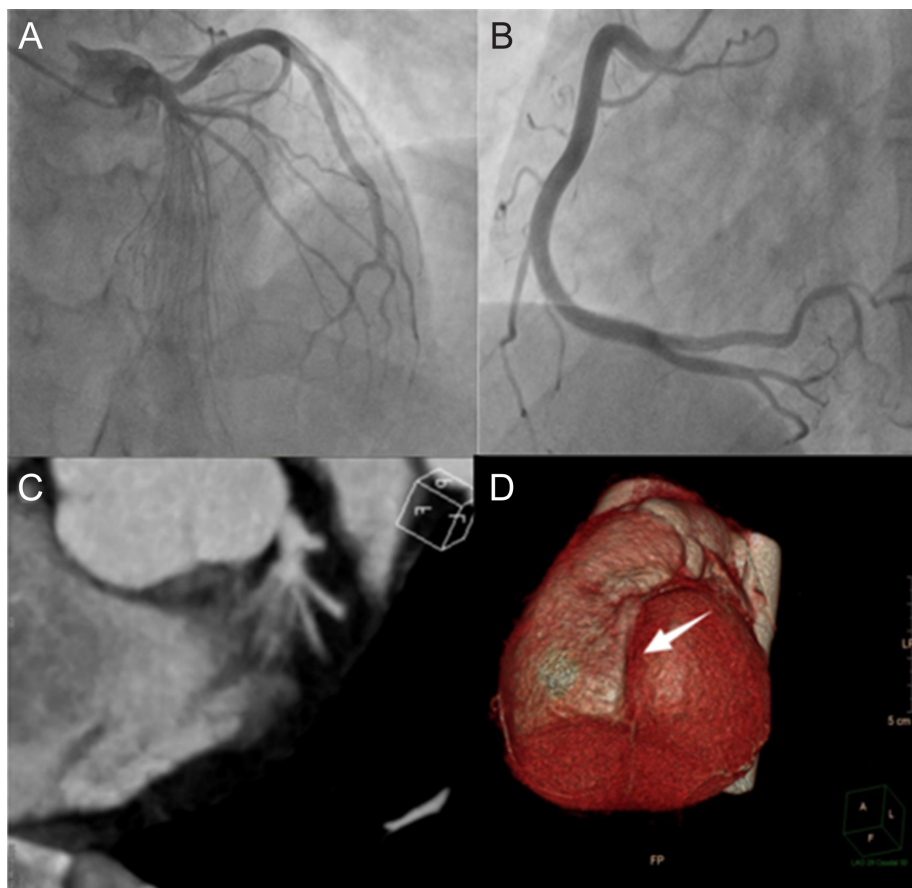


## The Left Anterior Descending Branch Showed A Brush-Like Appearance in the Context of Hypoplastic Coronary Artery Disease Accompanied By Chest Pain

A 37-year-old male presented with chest pain 3 months ago. No ST-T changes on the electrocardiogram. A transthoracic echocardiogram revealed decreased diastolic function. A cardiac magnetic resonance imaging showed no evidence of myocardial ischemia. Coronary angiography revealed that the coronary artery originated from a normal ostium. The left anterior descending branch (LAD)

### E-PAGE ORIGINAL IMAGE



**Figure 1. (A) Coronary artery angiograms showed that brush-style LADs can be observed, and the left circumflex branch is normal. (B) Coronary artery angiograms showed that the right coronary artery had a normal origin, and their lumen diameters were normal. (C) Coronary CTA showed brush-style LADs. (D) Coronary CTA showed that the volume reconstruction was observed from the basal aspect of the heart, revealing an absence of the LAD within the anterior interventricular sulcus (arrow). CTA, computed tomography angiography; LAD, left anterior descending branches.**

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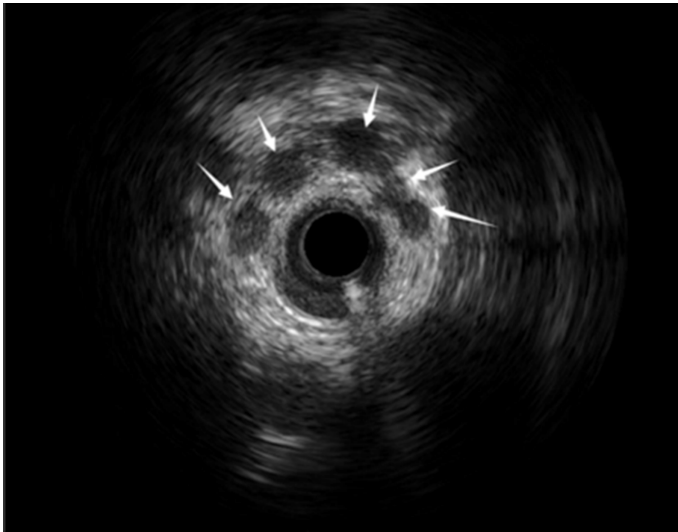
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**Figure 2.** Image from coronary IVUS. The largest LAD selected for IVUS inspection was chosen, and multiple vascular openings were observed (arrows). IVUS, intravascular ultrasound; LAD, left anterior descending branches.

extends to the apex cordis, giving it a brush-like appearance. The remaining coronary arteries exhibit normal diameters (Figures 1A and 1B). Multiple slender LADs were visible in the coronary computed tomography angiography (CTA), but no LAD was found in anterior interventricular sulcus (Figures 1C and 1D). Coronary intravascular ultrasound (IVUS) revealed

multiple thin branches with a maximum diameter of approximately 1.5 mm and little coronary plaques (Figure 2).

Hypoplastic coronary artery disease (HCAD) is the presence of abnormally small arteries that measure less than 1.5 mm in diameter and a lack of compensatory collateral circulation. Hypoplastic coronary artery disease is an infrequent congenital abnormality that commonly manifests as sudden cardiac death in young individuals, with only a few reported cases of survival. The disease can present either asymptotically or with cardiovascular symptoms such as syncope, dyspnea, angina, or vertigo. We first report on “brush-like” LADs, although the LADs are dysplastic. He has a lot of slender LADs, and the large other coronary arteries jointly provide an abundant blood supply to the heart muscle. Therefore, there were no obvious events of ischemia or malignant arrhythmia in this patient. However, the overall prognosis for HCAD is poor. Once diagnosed, it is crucial to avoid disease triggers such as strenuous physical activity and emotional fluctuations while also considering necessary pharmacological interventions and the use of an implanted implantable pacemaker defibrillator.

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**Declaration of Interests:** The authors have no conflict of interest to declare.

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