

Intraluminal Fibrous Webs in Brachial Artery Fibromuscular Dysplasia



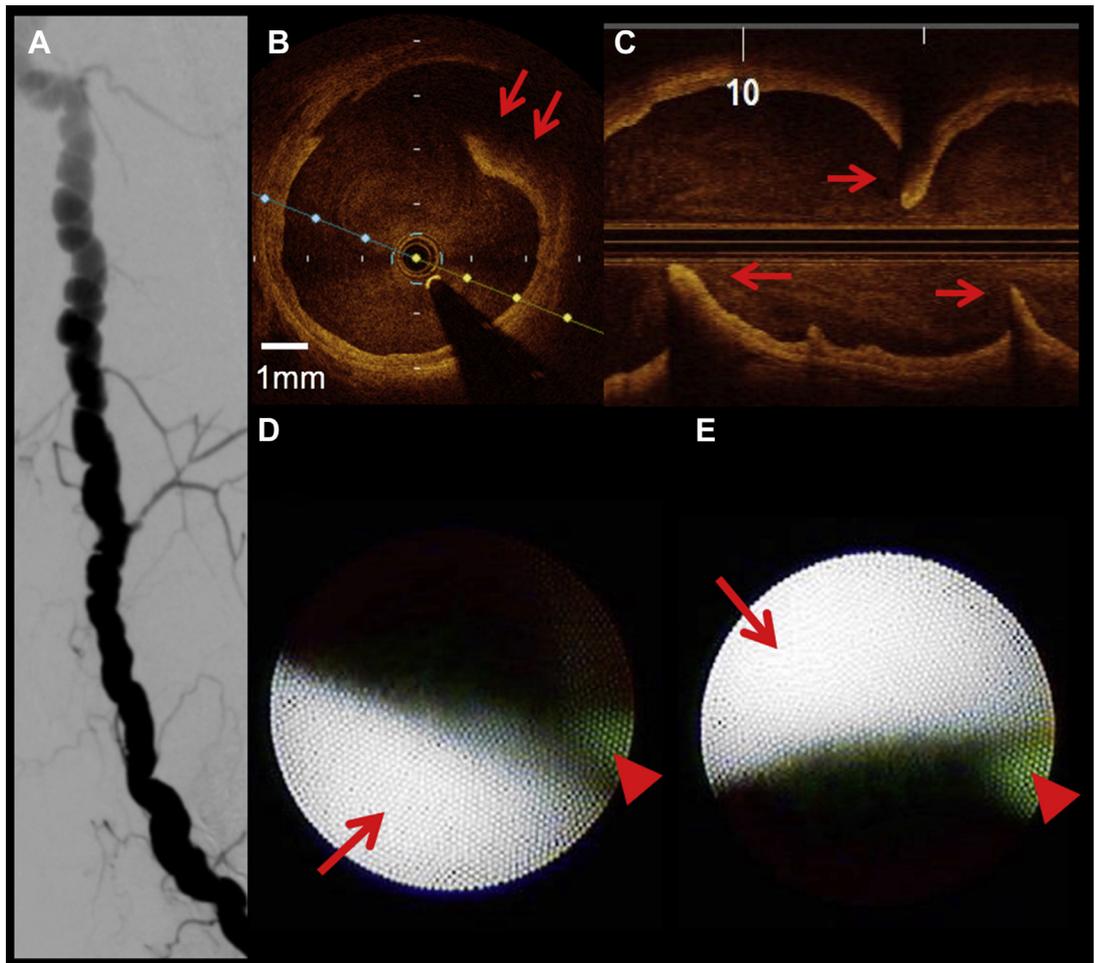
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An 80-year-old woman diagnosed as having severe aortic stenosis underwent preoperative coronary angiography through the left radial artery for transcatheter aortic valve implantation. A 0.025-inch guidewire was advanced into the left brachial artery for sheath insertion. Upper extremity angiography was performed because it was difficult to pass the wire through the artery; the angiogram showed alternating stenoses and dilatations (i.e., a “string of beads appearance”) in the left brachial artery (Figure 1A). The optical coherence tomography scan showed thickening of the middle layer (Figure 1B, Online Video 1), causing intraluminal protrusion of the arterial segment (Figure 1C). Angioscopy demonstrated intraluminal fibrous webs (arrows) as white, wall-like structures protruding into the lumen and contacting the wire (arrowheads); no thrombus was observed (Figures 1D and 1E, Online Video 2). Therefore, the diagnosis was brachial artery fibromuscular dysplasia (FMD). Because the patient was asymptomatic and no pressure gradient was observed across the FMD segment, no interventions or additional medical

treatment was performed. Subsequently, the sheath was successfully passed through the narrowing segment, and transradial coronary angiography was completed. Further investigation showed no FMD lesions in other arterial territories.

FMD is a nonatherosclerotic, noninflammatory angiopathy that causes narrowing of medium-sized arteries, and it is characterized by fibrodysplastic changes (1). Although catheter-based angiography is the gold standard for diagnosing FMD, it may be inadequate for visualizing intraluminal fibrous webs, whereas optical coherence tomography and angioscopic imaging can clearly show the presence of webs in the brachial artery. In the era of transradial catheter intervention, the importance of diagnosing brachial artery FMD should be recognized.

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FIGURE 1 Brachial Artery Fibromuscular Dysplasia

Upper extremity angiogram showing a "string of beads appearance" in the left brachial artery (A). Optical coherence tomography scan demonstrating thickening of the middle layer (arrows) (B, [Online Video 1](#)), causing intraluminal protrusion of the arterial segment (arrows) (C). Angioscopy showing intraluminal fibrous webs (arrows) as white, wall-like structures protruding into the lumen and contacting the wire (arrowheads). No thrombus is observed (D and E, [Online Video 2](#)).

REFERENCE

- Olin JW, Gornik HL, Bacharach JM, et al. Fibromuscular dysplasia: state of the science and critical unanswered questions: a scientific statement from the American Heart Association. *Circulation* 2014;129:1048-78.

KEY WORDS brachial artery, fibromuscular dysplasia

APPENDIX For supplemental videos and their legends, please see the online version of this article.