

Endovascular Treatment of Acute Aortic Dissection Stanford Type A



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A 48-year-old man was admitted to our emergency department in a critical condition with aortic dissection Stanford type A extending from the aortic arch after the ostium of the brachiocephalic trunk to both iliac arteries with severe compression of the true lumen. The supra-aortic arteries were patent, the visceral arteries were arising from the true lumen, however, the right common iliac artery was with obliterated true lumen (Figure 1). Because of the critical condition of the patient and the presence of a single entry in the middle portion of the ascending aorta, our team decided to perform an immediate entirely percutaneous endovascular procedure—implantation of 2 Multilayer Flow Modulator (MFM) stents (Cardiatis, Isnes, Belgium) from the proximal ascending aorta to the distal thoracic aorta with final result of centralization of the blood flow in the true lumen, and normal blood flow in the coronary and supra-aortic arteries (Figure 2, Online Video 1). The critical right lower limb ischemia due to the obliterated right common iliac lumen was resolved with implantation of 2 self-expanding stents Complete SE (Medtronic, Minneapolis, Minnesota) resulting in fully restored flow in the iliac artery with no residual gradient. The patient's condition improved immediately. His hospital stay was short and uneventful, without any intensive care unit stay. He was fully mobilized on the first post-procedural day and discharged asymptomatic on the fifth post-procedural day.

After an uneventful 1-month follow-up, control computed tomography angiography showed excellent patency of the 2 MFM stents from the proximal ascending aorta to the distal thoracic aorta, with

FIGURE 1 CTA Type A Aortic Dissection



Aortic dissection Stanford type A extending from the aortic arch after the ostium of the brachiocephalic trunk (**upper arrow**) to both iliac arteries. The true lumen is severely compressed in the abdominal part with almost occluded right common iliac artery (**second and third arrows**).

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FIGURE 2 Angiography After MFM Stent Implantation



Complete centralization of the blood flow in the true lumen. Patent flow in the coronary and supra-aortic arteries (Online Video 1). MFM = Multilayer Flow Modulator.

FIGURE 3 Control Computed Tomography After 1 Month



Patent Multilayer Flow Modulator stents (Cardiatis, Isnes, Belgium) from the proximal ascending aorta to the distal thoracic aorta with complete isolation of the false lumen. Normal blood flow in the supra-aortic and visceral branches. Patent stents are shown in the right iliac segment.

complete centralization of the flow in the true lumen and isolation of the false lumen. All supra-aortic, visceral, and peripheral arteries had normal blood flow and pressure indexes (Figure 3).

The novel MFM device differs from conventional endografts given that it does not seal but rather redirects the blood flow from the proximal landing zone to the true lumen, isolating in such a way the false lumen. At the same time, by design (multiple interlocked layers of cobalt metal wire, braided together to create a mesh) it has sufficient porosity to provide excellent flow in all side branches arising from the stented zone.

There are only few reports in the published data regarding complete endovascular repair of acute type

A dissection (1). To our knowledge, this is the first reported case of endovascular treatment with multilayer flow modulation in acute aortic Stanford type A dissection. The MFM endovascular treatment has proved to be a successful life-saving option in this particular case and is a promising alternative to open surgery in selective patients with type A aortic dissection.

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APPENDIX For a supplemental video, please see the online version of this paper.