

## CASE IMAGE

**Treatment of aortic coarctation, saccular thoracic aortic aneurysm, and corresponding feeding collateral vessel with a fully percutaneous endovascular approach*****Aort koarktasyonu, sakküler toraks aort anevrizması ve ilişkili kollateral damarın tamamen perkütan endovasküler yaklaşımla tedavisi***

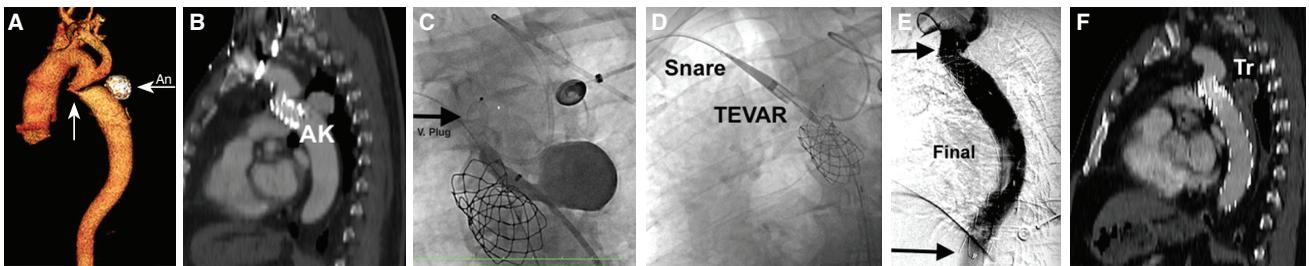
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A 54-year-old male patient with a history of hypertension for 10 years was referred with a diagnosis of aortic coarctation and hypertension in the upper extremities determined by physical examination and computed chest tomography imaging. After evaluation with contrast-enhanced chest tomography and aortography in the

catheterization laboratory, severe aortic coarctation was observed, with a pressure gradient of 87 mm Hg during pull-back, a saccular thoracic aortic aneurysm 5x5 cm in size at the lower edge of the coarctation segment, and a tortuous collateral feeding artery draining into the aneurysm sac from the thyrocervical trunk that was 7 mm in diameter (Figure A). The heart team elected to pursue an endovascular therapeutic approach. First, a covered Cheatham Platinum (CP) stent (diameter: 26 mm, length: 40 mm; NuMed, Hopkinton, NY, USA) was implanted in the coarctation segment using balloon-in-balloon dilatation (Figure B). The gradient was near zero after the stenting procedure. In another session, the collateral feeding artery was cannulated from the thyrocervical trunk, but unfortunately an antegrade cannulation was not possible due to severe tortuosity. Eventually, a retrograde cannulation

of the feeding vessel was performed via the aneurysm sac and embolized with a 12-mm Amplatzer vascular plug II (St. Jude Medical, St. Paul, MN, USA) (Figure C). In the same session, a thoracic endovascular aortic repair (TEVAR) graft (Relay Plus, ABS-Albyn Medical, SA, Saint-Michel-sur-Meurthe, France) 15 cm in length was also implanted into the coarctation segment extending toward the mid descending aorta with the support of a snare introduced from the right brachial artery (Figure D). The aneurysm sac was fully excluded after placement of the TEVAR graft (Figure E). All of these procedures were done fully percutaneously with Prostar XL vascular closure devices (Abbott Vascular, Inc., Santa Clara, CA, USA) positioned with local anesthesia. The patient was discharged the day after the procedure with dual antiplatelet treatment (clopidogrel 75 mg/day plus acetylsalicylic acid 100 mg/day). A routine chest tomography taken 2 weeks later demonstrated a fully thrombosed aneurysm sac and space between the TEVAR graft and the proximal descending aorta (Figure F). A staged procedural approach was preferred in this case due to reimbursement difficulties and long procedural time. This case demonstrates a successful presentation of fully percutaneous, staged endovascular treatment of aortic coarctation, saccular thoracic aortic aneurysm, and feeding vessel. Embolization of the collateral feeding vessel of a thoracic aortic aneurysm in an aortic coarctation patient is also a very rare finding in the literature.



**Figures– (A)** Three-dimensional reconstruction of aortic coarctation (AK) and thoracic aortic aneurysm (An). **(B)** Fully deployed covered Cheatham Platinum coarctation stent in the narrowed segment. **(C)** Embolization of the collateral feeding vessel with an Amplatzer vascular plug II (St. Jude Medical, St. Paul, MN, USA). **(D)** Placement of thoracic endovascular aortic repair (TEVAR) graft with the support of a snare catheter. **(E)** Final image of fully excluded aortic aneurysm and dilated coarctation segment (arrows depict the beginning and termination points of TEVAR graft). **(F)** Computerized tomography images of thrombosed aneurysm sac (Tr).