

Aortic stent implantation in patient with subtotal aortic interruption

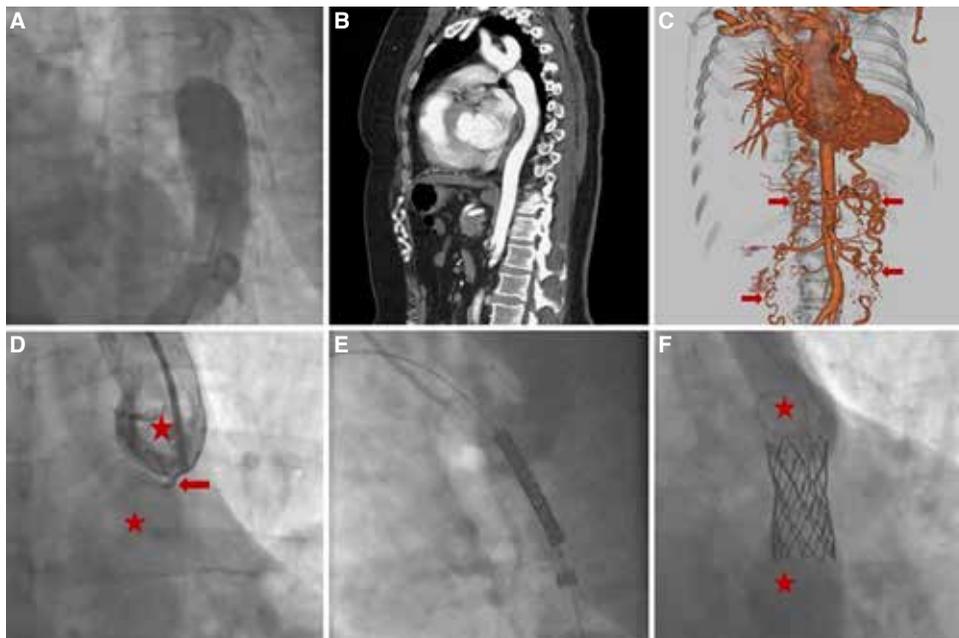
İleri aortik koarktasyonlu hastada aortik stent uygulaması

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A 51-year-old woman presented with uncontrolled hypertension, though she was taking ramipril, nifedipine, and indapamide. On physical examination, systolic blood pressure was approximately 170 mmHg in both upper extremities. Electrocardiogram showed left ventricular hypertrophy. Echocardiogram revealed ascending aorta of 4.3 cm and moderate left ventricular hypertrophy. Left ventricular ejection fraction was moderately reduced (45%). Coronary angiography was warranted, and the patient was referred to interventional cardiology. Total aortic interruption was coincidentally found on coronary angiography using femoral arterial approach (Figure A). On coronary angiography performed via radial approach, coronary arteries were normal. Computed tomography (CT) showed interruption of the descending thoracic aorta just distal to the left subclavian artery (Figure B). The interruption consisted of a thick septum at the aortic isthmus. The internal mammary, intercostal, and epigastric arteries were

enlarged to provide collateral flow to the descending thoracic aorta, distal to the interruption (Figure C). Trans-stenotic gradient was 43 mmHg before intervention. As aortic intervention was indicated, stenting of the aorta was planned. Because the lesion was subtotally occluded, proximal of the coarctation was unable to be reached with retrograde dye. It was difficult to delineate the diminutive channel by retrograde dye injection. Thus, the coarctation was antegradely crossed from a radial approach, using multi-purpose catheter and very soft-tip guidewire (Figure D). Then, it was exchanged for an Amplatzer super-stiff wire. The wire was snared on the other side of coarctation and externalized at the femoral arterial site. Covered CP 45-mm stent was pre-mounted on NuMED Balloon-in-Balloon catheters (NuMED, Inc., Hopkinton, NY, USA) with 5.0-cm outer balloon length. The selected stent/balloon combination was advanced over a wire through a long sheath, into the region of the coarctation (Figure E). Stent was deployed upon inflation of the outer balloon. After stent placement, pressure measurements were obtained in the ascending aorta, immediately above the stent, and in the descending thoracic aorta. Post-implantation angiography was performed and trans-stenotic gradient following procedure was 5 mmHg (Figure F). No complications were observed during 6-month follow-up.



Figures– (A) Retrograde angiography suggested aortic interruption. (B) CT demonstrated interruption of the descending thoracic aorta just distal to the left subclavian artery. (C) CT also showed enlarged arteries providing collateral flow to the descending thoracic aorta, distal to the interruption. (D) Antegrade angiography via radial approach demonstrated extremely narrow continuity. (E) The selected stent/balloon combination was advanced over a wire through a long sheath into the region of the coarctation. (F) A covered stent was then deployed. Antegrade angiography demonstrated good result.

