

## CASE IMAGE

## Treatment of thrombotic subclavian artery stenosis involving vertebral artery ostium with maximum protection

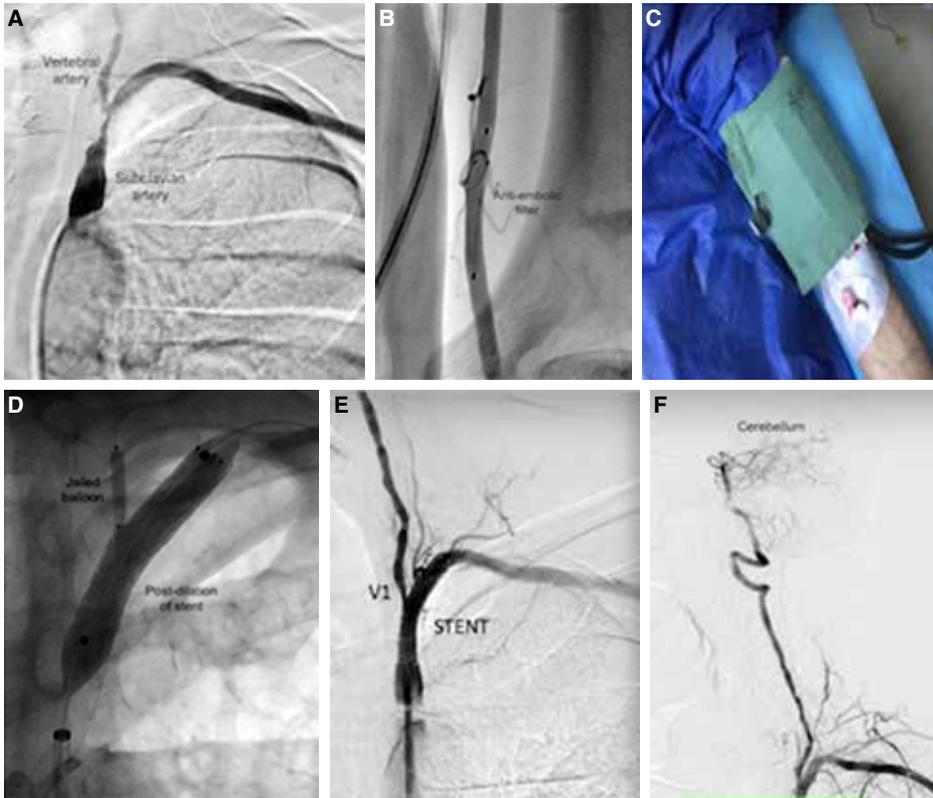
### Vertebral arter ostiumunu ilgilendiren trombotik subklavyen arter darlığının maksimum koruma ile tedavisi

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A 59-year-old male patient who had suffered from dizziness, vertigo, and left arm claudication during exercise was referred for diagnostic angiography. Physical examination revealed weak left brachial and radial artery pulses. Doppler ultrasound evaluation demonstrated reversed blood flow in left vertebral artery and findings compatible with subclavian steal phenomenon. Cranial magnetic resonance imaging had shown diffusion abnormalities in the left cerebellum. Angiographic images revealed severe thrombotic stenosis of proximal part of the left subclavian artery involving the left vertebral artery ostium (Figure A, Video 1\*). After placement of long guiding sheath, anti-embolic filter was placed into left brachial artery for distal protection (Figure B).

Blood pressure cuff was inflated over left brachial artery above measured maximum systolic arterial blood pressure for 10 minutes (Figure C). A 3.0x15 mm coronary balloon catheter was inflated at 3 atm at V1 segment of left vertebral artery (Figure D). Next, 8.0x40 mm self-expandable peripheral stent was implanted and postdilated at subclavian stenosis (Video 2\*). Jailed balloon was deflated, blood pressure cuff was deflated, and finally post-dilation balloon was deflated. Reactive hyperemia in left brachial artery was achieved and possible vertebrobasilar artery embolism risk was minimized. Jailed balloon catheter was retrieved from vertebral artery ostium without any difficulty (Videos 3 and 4\*) and with good angiographic result (Figures E and F). Prevention of plaque shift to vertebral artery, cerebral embolism, and distal embolism to upper limb was obtained via 3 different protection methods, both invasively (filter protection and jailed balloon technique), and noninvasively (reactive hyperemia).



**Figures–** (A) Thrombotic left subclavian artery stenosis involving the left vertebral artery ostium. (B) Anti-embolic filter apposition into the left brachial artery was checked. (C) Blood pressure cuff was inflated over the brachial artery. (D) Placement of self-expandable stent while coronary balloon catheter was inflated at V1 segment of vertebral artery (jailed balloon) (E) Final picture after stent implantation and jailed balloon retrieval. (F) Cerebellar flow was also normal without distal embolism. \*Supplementary video files associated with this presentation can be found in the online version of the journal.