Endovascular Treatment for Ostium of Brachiocephalic Artery with Bilateral Internal Carotid Artery Stenosis

Treatment of the brachiocephalic artery has a high risk of major bleeding due to vascular injury and cerebral infarction due to peripheral embolism. Hereby, we reported endovascular treatment for brachiocephalic artery complicated with bilateral stenotic lesion of carotid artery.

A 64-year-old male with renal failure was underwent surgical repair of abdominal aortic aneurysm. Preoperative duplex revealed moderate stenosis of right intermnl carotid artery, occlusion of left internal carotid artery. In addition, it was pointed out the severe stenosis of the right brachiocephalic artery by 3D-CTA. After surgery of abdominal aneurysm, he was referred to our facility.

We performed in two way approach of right brachial and right femoral artery. The pressure gradient was up to 60 mmHg and stenosis progressed to 99%.

We advanced a guide sheath (Destination 6Fr 45cm, Terumo) via right brachial artery was advanced to the right subclavian artery. The target stenosis was passed with 014 Cruise wire in combination with 4F-JR4 diagnostic catheter via right femoral. We did a wire rendezvous. IVUS image revealed that the brachycephalic artery was narrowed from the orifice and recognized a post-stenotic dilatation of 12mm.

Since the distal protection was considered difficult, so Epic 12 x 40 mm stent was directly placed in order to reduce the risk of embolism. The pressure gradient was decreased to 30mmHg. The pressure difference was improved to 16 mmHg after 5mm balloon, and 6 mmHg after 9mm balloon dilatation. As a result, the stenosis was improved to 25%, without progress of cerebral infarction symptom due to peripheral embolism.

We report a successful endovascular treatment case of brachiocephalic stenosis in which internal carotid artery on the contralateral side is obstructed and associated with severe stenosis on the same side.