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Arterial occlusion to treat basilar artery dissecting aneurysm

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ABSTRACT

Object: To explore the clinical feasibility of employing occlusion to treat basilar artery dissecting aneurysm.

Methods: One patient, male and 46 years old, suffered transient numbness and weakness on the right limbs. Cerebral angiography indicated basilar artery dissecting aneurysm. The patient underwent the stent-assisted coil embolization of aneurysm and the result is satisfactory. Digital subtraction angiography (DSA) reviews were performed at 1 month and 4.5 months, respectively after the operation and indicate that the basilar artery is unobstructed and there was no recurrence of the aneurysm. DSA review 1 year after the first treatment indicates the aneurysm recurrence, stent-assisted coils dense embolization of aneurysm was performed again and the result was satisfactory. Ten months after the second operation, DSA review found the basilar artery aneurysm recurrence again and occlusion of the basilar artery was performed.

Results: The basilar artery occlusion was effective. The bilateral posterior inferior cerebellar arteries and the bilateral posterior cerebral arteries are unobstructed. Five months of follow-up found that the patient recovered well. DSA reviews performed 5 months after occlusion indicate no recurrence of the aneurysm.

Conclusions: Occlusion to treat basilar artery dissecting aneurysm is clinically feasible, but surgical indications should be considered strictly.

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1. Introduction

Vertebrobasilar dissecting aneurysms (VBDA) occur at a rate of 1–1.5 per one hundred thousand individuals per year [1]. Cases restricted to the basilar artery are even rarer. At present, the strategies used to treat basilar artery dissecting aneurysms are controversial, and include pure stent implantation and stent-assisted coil embolization [2]. The treatment of artery occlusion in previous studies has mainly been by the unilateral vertebral artery occlusion to deal with pure vertebral artery dissecting aneurysm. In such cases the contralateral vertebral artery must be well developed. In this case report, we performed an occlusion of the basilar artery to treat a case of multi-recurrent basilar artery dissecting aneurysm. We present and discuss our results here. Our results indicate a satisfactory patient outcome for the duration of follow-up reported.

2. Methods and results

The patient, male and 46 years old, suffered transient numbness and weakness of the right limbs on June 26th, 2011, and recovered spontaneously 1.5 h later. The patient had a history of hypertension for more than ten years, and his blood pressure had, at one point, reached as high as 180/120 mmHg. It was being maintained at around 150/100 mmHg after six years of medication. The physical examination on admission did not show any positive features. Angiography on June 30th, 2011 indicated basilar artery dissection aneurysm. The left posterior communicating artery was bulky, and supplied blood in compensation to the bilateral posterior cerebral arteries and the brainstem area (see Fig. 1).

Before the surgical intervention, the patient took Plavix 75 mg/d, and Bayaspirin 100 mg/d orally. On July 5th, 2011, the patient underwent stent-assisted coil embolization of the basilar artery dissecting aneurysm. Prowler14 micro-tube was used to send Presidio 18 microcoil-cerecyte coil 12 mm × 40 cm micro-coil, and the framework was satisfactory. Then, a Presidio 18 microcoil-cerecyte coil 11 mm × 37 cm and a Presidio 18 microcoil-cerecyte coil 8 mm × 30 cm were placed. Angiography indicated that the distal tamponade of the aneurysm was satisfactory. After the stent was semi-released, a Presidio 10 microcoil-cerecyte coil 6 mm × 26 cm and a Presidio 10 microcoil-cerecyte coil 5 mm × 17 cm were placed. Next, the stent was released fully, and it was found that the stent covered the aneurysm neck and the narrow place. Finally, a Microplex complex 4 mm × 10 cm, a cashmere 14 microcoil-cerecyte coil 4 mm × 8 cm, and a Microplex complex 4 mm × 10 cm were placed (see Fig. 2).

The patient took Plavix and Bayaspirin as prescribed. One month after stent-assisted coil embolization, patient suffered transient numbness and weakness of the right limbs again. On August 9th, 2011, the patient returned to the hospital and underwent craniocerebral CT, which indicated no brain infarct (see Fig. 3). On August 10th, 2011, cerebral angiography showed that the basilar artery was unobstructed and that there was no recurrence of aneurysm (see Fig. 4). The patient continued to take Plavix 75 mg/d and Bayaspirin 100 mg/d, orally as prescribed. The patient recovered satisfactorily.

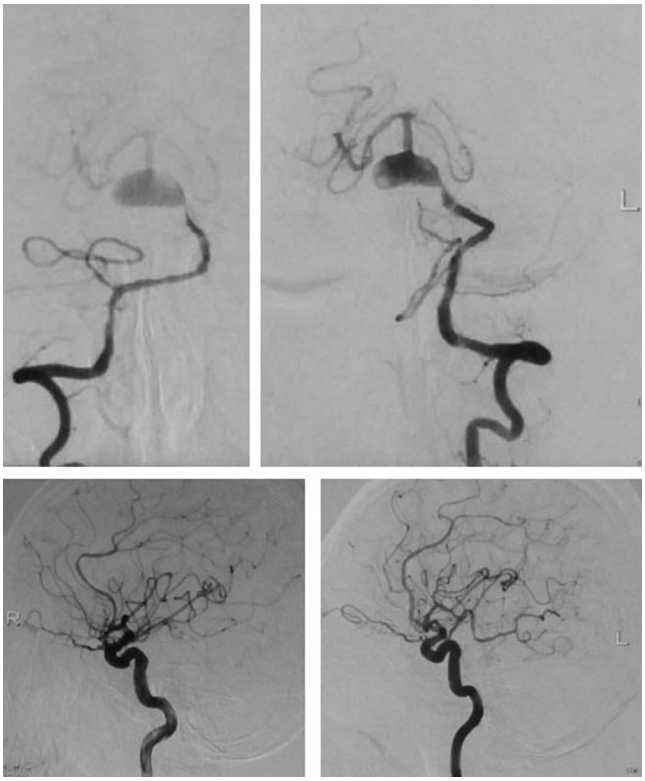

Fig. 1 – Angiography on June 2011 indicated basilar artery dissection aneurysm. The left posterior communicating artery was bulky, and supplied blood in compensation to the brainstem area. Upper left: RVA, upper right: LVA, lower left: RICA, lower right: LICA.

On November 24th, 2011, another cerebral angiography indicated that the basilar artery remained unobstructed and that there was no recurrence of aneurysm (see Fig. 5). The patient continued to take Plavix and Bayaspirin. On June 12th, 2012, a Digital Subtraction Angiography (DSA) indicated the

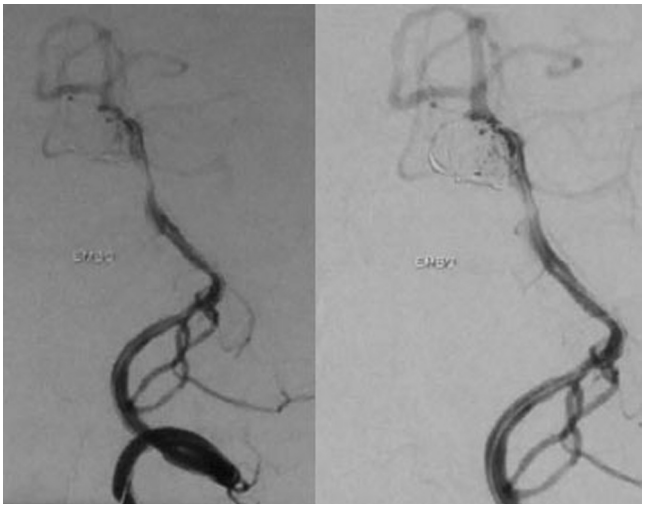

Fig. 2 – The first embolization of aneurysm by stent-assisted coils on July 2011.