LETTER TO THE EDITOR

Delayed Shortening and Shifting of Carotid WallstentRong Zhao,¹ Xiao-Yan Feng,¹ Min Zhang,² Xiao-Lei Shen,¹ Jing-Jing Su¹ & Jian-Ren Liu¹¹ Department of Neurology, Shanghai Ninth People's Hospital, Shanghai Jiaotong University School of Medicine, Shanghai, China² Department of Internal Medicine, Hangzhou Armed Police Hospital, Zhejiang Province People's Armed Police Corps, Hangzhou, China**Correspondence**

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Carotid angioplasty and stenting (CAS) is a minimally invasive technique that is a reasonable alternative to carotid endarterectomy (CEA), especially in patients at high risk for surgery [1]. Although CAS is technically simple and is considered to be a low risk procedure, intracranial hemorrhage, distal embolization, transient hypotension, hyperperfusion syndrome, and other complications have been reported [2,3]. However, there have been few reported cases of delayed shortening of the Carotid Wallstent (Boston Scientific Corporation, Natick, MA, USA) used in the procedure. We report a case of delayed Carotid Wallstent shortening and shifting and discuss the possible causes of this complication.

A 64-year-old male was admitted for inarticulacy and limb weakness of 1 month. The patient had a history of hypertension for 15 years (up to 205/130 mmHg) but was usually taking Adalat with good blood pressure control. He also had a history of smoking for more than 40 years (20 cigarettes/day) and drinking for decades (0.5 kg/day). On physical examination, the patient had mild facial and lingual paralysis of the right side; the rest of the neurological examination was normal. Brain MRI showed an acute cerebral infarct lesion in the right basal ganglia. Contrast-enhanced magnetic resonance (MR) angiography showed a significant stenosis of the proximal segment of the right internal carotid artery (Figure 1A). A CAS procedure was performed under local anesthesia with embolic protection devices. Stent deployment was performed with a 7 × 30 mm self-expandable Carotid Wallstent (Figure 1B), and postdilatation was performed with a 4-mm balloon (Sterling, Boston Scientific, Natick, MA, USA) because of

residual stenosis (Figure 1C). Three weeks after the operation, the patient developed diplopia; on examination, he had limited adduction of the left eye on right gaze. He had persistent mild facial and lingual paralysis of the right side. The patient did not have limb weakness, and the left Babinski sign was positive. B-ultrasonography showed no stenosis or occlusion of either carotid artery. The patient was considered to be having another stroke. Medication for secondary prevention was continued. Ten months after the operation, the patient underwent cranial digital subtraction angiography (DSA) follow-up; the right Carotid Wallstent was found to have shortened and shifted to the common carotid artery (CCA), and there was mild intimal hyperplasia within the stent (Figure 1D).

Shortening and shifting of the carotid artery stent have rarely been reported. The only previous report is from Yoon et al. [4] who reported that four patients who had received Carotid Wallstent implantation experienced delayed shortening and shifting of the Wallstents and restenosis. The Carotid Wallstent can be shortened or elongated to comply with the vessel diameter during implantation; however, such a phenomenon has rarely occurred after implantation.

There are two possible causes for shortening of the Wallstent in this case. Firstly, the marked mismatch of diameters between the CCA and the internal carotid artery (ICA) may have induced the shortening of the stent. In our case, the CCA was approximately 7.7 mm in diameter, whereas the ICA diameter was 3.8 mm. This resulted in a rather conical-shaped Wallstent implantation. A slow further expansion of the Wallstent at the CCA level could have

Figure 1 (A) Preprocedural digital subtraction angiography (DSA) shows stenosis of the proximal internal carotid artery (the diameter of the common carotid artery is 7.8 mm and the diameter of the internal carotid artery distal to the stenosis is 3.8 mm); (B) The Carotid Wallstent (7 × 30 mm) is positioned across the stenosis before releasing; (C) The Carotid Wallstent has been released and is well located; (D) Ten months postprocedure, the Wallstent has shortened and shifted to the common carotid artery.

caused stent shortening, pulling the distal end of the stent downward. Secondly, the stent size (7.0 mm) was smaller than that of the CCA (7.7 mm), which may have prevented the proximal part of the stent from staying in the CCA.

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Conflict of Interest

The authors declare no conflict of interest.

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