Outer-Diameter Narrowing of the Internal Carotid Artery in Moyamoya Disease

Peng-Peng Niu*
Department of Neurology, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China

*Corresponding Author: Peng-Peng, Department of Neurology, The First Affiliated Hospital of Zhengzhou University, Zhengzhou, China.

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A 38-year-old man presented with sudden decrease of consciousness. CT showed hemorrhage in left thalamus. CT angiography showed diffuse stenosis of left internal carotid artery (ICA) and occlusion of distal ICA and proximal middle cerebral artery (MCA) (Figure 1). CT angiography also showed abnormal vascular networks in the left M1 territory. High-resolution vessel wall imaging showed concentric stenosis of left ICA with a small outer diameter (Figure 2).

Figure 1: CT angiography shows diffuse stenosis of left internal carotid artery (ICA) and occlusion of distal ICA and proximal middle cerebral artery. Abnormal vascular networks were found in the left M1 territory (arrow).

Figure 2: High-resolution vessel wall imaging demonstrates concentric stenosis of left internal carotid artery (solid arrow) with smaller outer diameter compared with right internal carotid artery (open arrow). (A) 3D T1-weighted sequence. (B) 2D T2-weighted sequence.

Previous studies suggested that moyamoya disease is associated with small outer diameter of intracranial ICA and proximal MCA [1,2]. This case showed the constrictive change of ICA involving intracranial and extracranial segments.

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