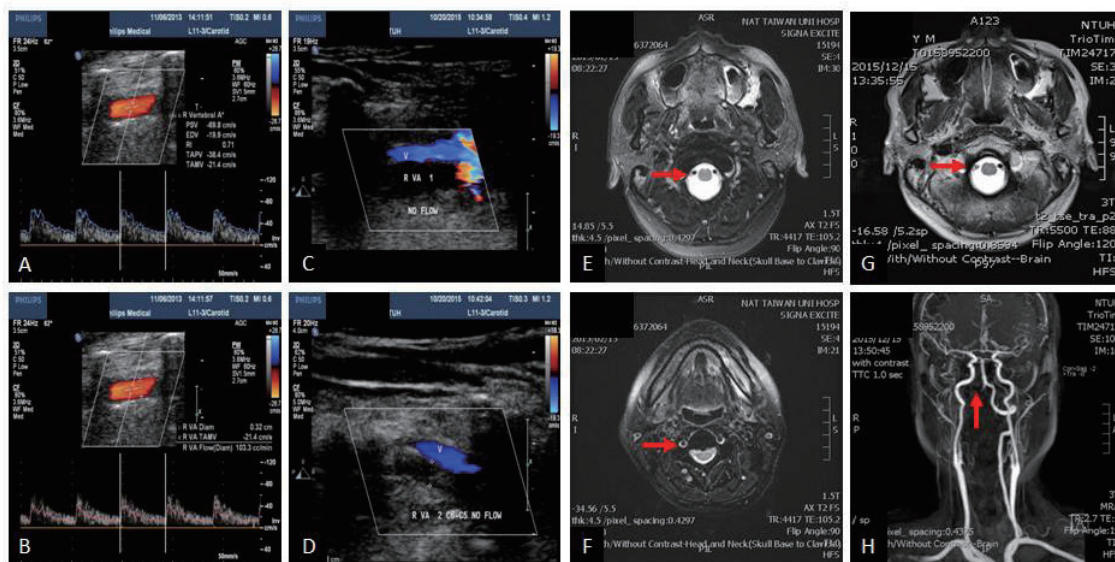


# Rapid Progression of Vertebral Artery Occlusion After Radiotherapy for Nasopharyngeal Carcinoma

Tzu-Ching Chen, Sung-Chun Tang, Jiann-Shing Jeng

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**Figure 1.** Carotid duplex examinations revealed normal flow pattern (A), flow diameter (0.32cm) and adequate flow amount (103.3 ml/min)(B) in the right vertebral artery in 2013, but occlusion in both V1 (C) and V2 (D) segments in 2015. Magnetic resonance imaging examinations showed patent right vertebral artery in February 2015 (E and F) but occlusion in December 2015 (G and H).

Radiotherapy for neck malignancies may accelerate the process of atherosclerosis, especially for common carotid artery (CCA) and internal carotid artery (ICA) (1-3). However, rapid progression of atherosclerosis in vertebral artery (VA) in patients undergo irradiation was less mentioned(4). Here we reported a 56-years-old man who had no conventional vascular risk factors, was

diagnosed nasopharyngeal carcinoma with skull base invasion and bilateral neck lymphadenopathy in 2009. He received cervical radiotherapy with the dosage of 7000cGy in 33 fractions. Carotid duplex ultrasonography was firstly performed in 2013 which revealed mild atherosclerosis in bilateral CCAs and the left carotid bulb and ICA with adequate total VA flow amount (Fig.

From the Department of Neurology, National Taiwan University Hospital, Taipei, Taiwan.  
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Correspondence to: Chia-Kuang Tsai, M.D., Ph.D. Department of Neurology, Tri-Service General Hospital, National Defense Medical Center, No. 325, Section 2, Cheng-Kung Road, Neihu 114, Taipei, Taiwan, Republic of China.  
E-mail: jkiakuang@mail.ndmctsgh.edu.tw

A and B). Follow-up carotid duplex ultrasonography in October, 2015 showed similar results in bilateral CCAs and ICAs, but total occlusion of the right VA (Fig. C and D). Repeated magnetic resonance imaging examinations in February (Fig. E and F) and December 2015 (Fig. G and H), respectively, confirmed the occurrence of VA occlusion within a short period of time. No symptomatic or asymptomatic cerebral ischemia developed during the course. In summary, not only in carotid arteries, radiation could cause rapid steno-occlusive change predominately in posterior circulation vessels. Our case highlights the importance of regular surveillance of neck vessels, including bilateral VA in patients with neck malignancy after radiotherapy.

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