Utility of Video Indocyanine Angiography to Detect the Cortical Entry Point of a Draining Vein with a Superficial Vein During Arteriovenous Malformation Surgery

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Rejection of brain arteriovenous malformation (AVM) is challenging, particularly if the feeder arteries and draining vein are not directly visible on the surface. Indocyanine green video angiography can assist in detection of the connecting point of the draining vein with the superficial vein and can thus localize the cortical entry point for AVM resection. Here, we present a case of a 27-year-old man with headache. Computed tomography scan showed right occipital atypical bleeding. Computed tomography angiography and digital subtraction angiography confirmed the cortical AVM fed by the posterior cerebral artery branches. We decided on surgical treatment because the small posterior cerebral artery feeders were not easily accessible for endovascular treatment. We used an OPMI PENTERO 900 microscope to perform microsurgical resection of AVM. We present an illustrative video showing the surgical approach, microsurgical anatomy, and technical aspects of the utility of video indocyanine angiography (video-ICG) in deep cortical small AVM surgery. Video-ICG assisted detection of the cortical arterialized draining vein that was anastomosed with a sprawled superficial vein. This enabled a customized approach for the AVM resection (Video 1). Postsurgical video-ICG showed normalized flow in the superficial vein supporting the complete resection of AVM. ICG is potentially helpful for detecting the cortical entry point of a deep draining vein with a sprawled superficial vein. ICG should be used as an adjunct to better understand the microvascular anatomy that may aid decision making during AVM surgery.