Utility of indocyanine green videoangiography in subcortical arteriovenous malformation resection

Oriela Rustemi, MD, Renato Scienza, MD, and Alessandro Della Puppa, MD

Department of Neurosurgery, Padua University Hospital, Padua, Italy

Subcortical arteriovenous malformations (AVMs) are surgically challenging. Localization is crucial for eloquent areas, and complete resection evaluation is uncertain. Indocyanine green videoangiography (ICG-VA) can assist this surgery. An illustrative video of a subcortical frontoparietal bleeding AVM resection assisted by ICG-VA is presented. A bleeding arterial feeder aneurysm was embolized in the acute phase to protect against rebleeding. ICG-VA helped to detect the AVM’s superficial arterialized draining vein, distinguishing it from normal cortical veins. This enabled a customized sulcus approach. ICG-VA showed normalized flow through the previously arterialized vein, confirming the AVM’s complete resection. This applies when there is a single drainage remaining.

The video can be found here: https://youtu.be/L7yJEE66kV0.

KEYWORDS AVM; brain arteriovenous malformation; subcortical AVM; indocyanine green videoangiography; ICG-VA