Check for updates

Microsurgical Disconnection of Ruptured Intracranial Pial Arteriovenous Fistula Guided by Indocyanine Green Videoangiography

Francesco Signorelli[1], Raffaella Messina[1], Rodolfo Maduri[2], Giuseppe Barbagallo[3], Leonello Tacconi[4]

Key words

- Brain vascular malformation
- Indocyanine green
- Pial arteriovenous fistula
- Videoangiography

Abbreviations and Acronyms

ICG-VA: Indocyanine green videoangiography

From the[1]Division of Neurosurgery, Department of Basic Medical Sciences, Neurosciences and Sense Organs, University "Aldo Moro" of Bari, Bari, Italy; [2]Division of Neurosurgery, University Hospital of Vaud, Lausanne, Switzerland; [3]Division of Neurosurgery, Policlinico "G. Rodolico" University Hospital, Catania, Italy; and [4]Division of Neurosurgery, University Hospital of Trieste, Trieste, Italy

To whom correspondence should be addressed: Francesco Signorelli, M.D.
[E-mail: francesco.signorelli@uniba.it]

Supplementary digital content available online.

Citation: World Neurosurg. (2019) 126:280.
https://doi.org/10.1016/j.wneu.2019.03.045
*Journal homepage: **www.journals.elsevier.com/world-neurosurgery***

*Available online: **www.sciencedirect.com***

1878-8750/$ - see front matter © 2019 Elsevier Inc. All rights reserved.

Intracranial arteriovenous fistulas, rare causes of spontaneous intracerebral bleeding, are direct communications between an arterial feeder and an arterialized vein that drains a normal brain. Arteriovenous disconnection is the only effective treatment for this type of vascular malformation, which is often reached microsurgically due to the difficult endovascular access. Intraoperative indocyanine green videoangiography (ICG-VA) is a valuable help in identifying the arterialized draining vein and its direct communication with the arterial feeder and in confirming real-time interruption of the fistula. We describe the case of a 46-year-old man presenting with sudden onset of headache and left arm motor and sensory deficits associated with a frontoparietal hematoma evacuated 1 week earlier in another institution. Digital subtraction angiography showed a direct communication between an anterior parietal branch of the right middle cerebral artery and a parietal vein. Given the difficulty to reach the point of the fistula endovascularly because of the small caliber and tortuosity of the arterial feeder, as well as the short and relatively rapid flow through the arteriovenous communication, we decided to proceed with microsurgical treatment. Under intraoperative neurophysiologic monitoring the fistula was located with the aid of ICG-VA and interrupted (Video 1). Both control ICG-VA and postoperative angiogram confirmed resolution of the fistula. At a 3-month follow-up the patient had a complete neurologic recovery.

Conflict of interest statement: The authors have no conflicts of interest or personal financial or institutional interest in any of the drugs, materials, or devices described in this article. No funding has been received for the conduct of this study and/or preparation of this manuscript.

Received 29 January 2019; accepted 5 March 2019

Citation: World Neurosurg. (2019) 126:280.
https://doi.org/10.1016/j.wneu.2019.03.045

*Journal homepage: **www.journals.elsevier.com/world-neurosurgery***

*Available online: **www.sciencedirect.com***

1878-8750/$ - see front matter © 2019 Elsevier Inc. All rights reserved.