Microsurgery of Spinal Dural Arteriovenous Fistula Using Indocyanine Green Video Angiography: 2-Dimensional Operative Video

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Spinal dural arteriovenous fistulas (SDAVF) develop by direct abnormal arteriovenous connection between both sides of the spinal dura matter. In this condition, there is no intervening nidus between a meningeal segmental artery and a radiculomedullary vein. Open microsurgery is one of the choices for patients with SDAVF. When the AVF is on the inner dural surface, we can easily block the radiculomedullary vein in a microscopic view. We herein report a 50-yr-old woman who presented with low back pain, was diagnosed with an SDAVF, and underwent surgical treatment under a microscopic view. The spinal angiography demonstrated abnormal arteriovenous connections between intercostal arteries at the level of Th11 to 12 and the intradural radiculomedullary vein. Operative indocyanine green (ICG) microangiography demonstrated the blood flow in meningeal vessels and their anastomoses between both sides of the dural surface. We easily identified the radiculomedullary vein fed by the surrounding meningeal feeding arteries and block completely under a direct microscopic view. We detected the change in hemodynamic during feeder ligation by Flow 800 (Zeiss Penteto Flow 800 microscope; Zeiss Corporation, Tokyo, Japan). After surgery, the patient’s symptoms disappeared and no recurrence of the disease has been noted in the past 23 mo. We have received the informed consent of this patient for the publication of this case report.

KEY WORDS: Spinal dural AVF, ICG microangiography, ICG venography, FLOW 800

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Disclosure

The authors have no personal, financial, or institutional interest in any of the drugs, materials, or devices described in this article.

COMMENT

The authors present a video of microsurgery of a spinal dural AVF using ICG video angiography. The patient underwent a routine resection of a Spinal dural AVF. The authors used operative ICG microangiography (Zeiss Penteto Flow 800 microscope; Zeiss Corporation, Tokyo, Japan) that revealed the in vivo blood flow in these meningeal vessels and their rich anastomoses between the outer and inner dural surfaces. A centrally located radiculomedullary vein fed by the surrounding meningeal feeding arteries could be easily identified and could be blocked completely on direct microscopic view. Educational for residents.

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