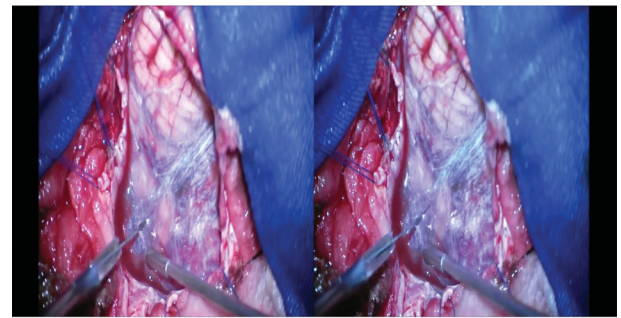


Microsurgical Clipping of Ruptured Distal Posterior Inferior Cerebellar Artery Aneurysm: 3-Dimensional Operative Video

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The distal posterior inferior cerebellar artery (PICA) is a rare site of aneurysm formation. Only small case series and case reports regarding surgical treatment are found in the literature.

The PICA is divided into 5 segments (anterior medullary, lateral medullary, tonsilomedullary, telovelotonsillary, and cortical), and the distal ones represent the most complex, due to anatomic variations. We present a case of a 69-yr-old female patient who has suffered from a sudden and intense occipital headache, associated with nausea and vomiting. CT scan showed intraventricular hemorrhage, and further investigation with MRI and MR Angiography revealed a small distal PICA

aneurysm, at the superior part of the medial aspect of the left cerebellar tonsil. Digital angiography has demonstrated the aneurysm at the tonsilomedullary segment of the PICA. In this 3-dimensional video, the authors show the microsurgical clipping of a saccular distal PICA aneurysm in the close relation to a choroidal branch, performed by median suboccipital craniotomy. Step-by-step of the dissection, relevant surrounding anatomy and aneurysm clipping is demonstrated. The patient signed the Institutional Consent Form, which allows the use of his/her images and videos for any type of medical publications in conferences and/or scientific articles.

KEY WORDS: Distal PICA, Saccular aneurysm, Microsurgical clipping, Brain aneurysm

Operative Neurosurgery 0:1–2, 2018

DOI:10.1093/ons/opy153

Received, July 3, 2017. Accepted, May 22, 2018.

Disclosure

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

COMMENT

The video demonstrates the microsurgical technique for clipping a ruptured distal posterior inferior cerebellar artery (PICA) aneurysm through a midline suboccipital craniotomy. Distal aneurysms are infrequent, accounting for less than 30% of all PICA aneurysms.¹ Surgical anatomy is complex and seldomly explored, thus, treatment becomes a major challenge to most neurosurgeons. Besides their rarity, management

is further challenged by the tortuous course of the PICA, a considerable incidence of fusiform aneurysms, and the fact that there is a considerable proportion of cases that must be treated after rupture, which usually carries a poor prognosis.^{2,3}

To date, there is no clear consensus regarding the optimal management for aneurysms in this location, with a growing tendency in literature towards endovascular treatment. However, some issues should be discussed regarding this choice. Distal aneurysms have an increased risk of endovascular complications such as thrombosis and rebleeding.^{2,4} Complex or large-neck aneurysms pose a difficulty during these procedures, often requiring balloons, stents, or even occlusion of the artery to effectively exclude the aneurysm.^{2,3,4}

From the microsurgical point of view, distal PICA aneurysms are superficial, which facilitates identification and manipulation, but proximal vascular control is usually limited, and rather frequent requirement of advanced vascular techniques such as trapping, bypass, or reimplantation limits the capability of some centers to surgically treat these cases.^{5,6}

This video is an excellent example of the relevance of microsurgical vascular techniques for the management of posterior circulation aneurysms, and the need for its continuous development in the “endovascular era”. Lately, our group has benefitted from the use of virtual reality and 3-dimensional biomodels for planning the best approach to these rather uncommon vascular entities.⁷

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