"Unilateral Craniotomy with Tailored Posterolateral Orbitotomy, Extradural Anterior Clinoidectomy, and Subarachnoid Cistern Dissection, Provides Safe Clipping of Bilateral Posterior Communicating Aneurysms": A Technical Note (Video)

Martin M. Mortazavi MD; Farzad Hami Adl; Ghazaleh Ahmadi Jazi MD; Sajid S. Suriya MD; kianoush khalili; Asif Taqi
[Institution]

CNS 2018 ANNUAL MEETING
HOUSTON, TEXAS
OCTOBER 6-10, 2018

Click To Add Logo

Introduction

Bilateral anterior circulation aneurysms can be treated with neuro-intervention or through bilateral craniotomies. In certain cases, it would be beneficial to consider unilateral craniotomy to clip bilateral aneurysms. Although challenging, tailored skull base decompression, and dissection of the subarachnoid cisterns, provide a safe avenue to cross the circle of Willis and clip a contralateral aneurysm after the ipsilateral aneurysm has been secured. The latest on the literature and an illustrative case with a technical note and corresponding video are presented.

Methods

Literature search showed only one reported series of 8 patients with 16 aneurysms clipped through unilateral pterional craniotomy1. In this series, additional bony skull base decompression was not applied. We believe that bony skull bone decompression such as posterolateral orbitotomy, extradural anterior clinoidectomy, and intradural dissection including relaxation of the optic nerves through sectioning on the falciform ligament and dissection of the subarachnoid cisterns by sectioning the subarachnoid trabecules, altogether, provide satisfactory

Results

Unilateral craniotomy with tailored skull base bony decompression and intradural dissection can safely be performed for treating bilateral aneurysms in cases where craniotomy is preferred to neuro-intervention, with the excellent long-term outcome.

Conclusions

Unilateral frontotemporal craniotomy, posterolateral orbitotomy, extradural anterior clinoidectomy, intradural dissection of the optic canals and dissection of the subarachnoid cisterns allow retractorless and safe clipping of bilateral anterior circulation aneurysms (See Video). Further research with higher number of patients and long-term follow-up are needed.

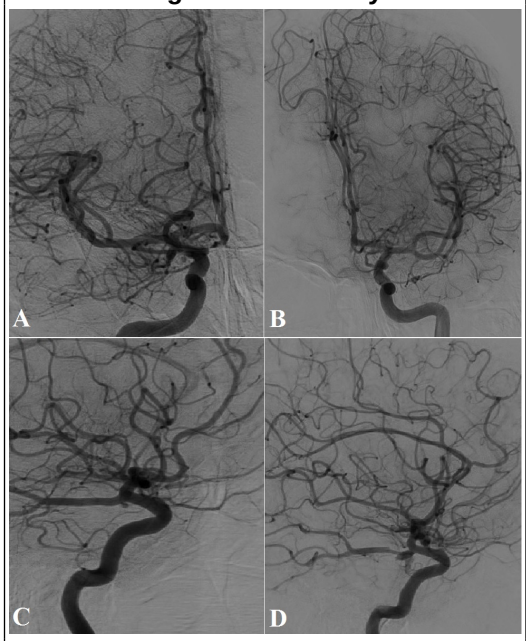
Learning Objectives

By the conclusion of this session, participants should be able to 1) Discuss various unilateral surgical approaches for clipping of bilateral PCoA aneurysms. 2) Describe the importance of safe and retractorless surgical approaches for cerebral aneurysms. 3) Understand the key role of bony decompression of the anterior skull base through posterolateral orbitotomy and extradural anterior clinoidectomy. 4) Understand the key role of intradural optic canal dissection and subarachnoid cistern dissection for retractor surgery of the anterior circulation aneurysms.

References

1.Hong T, Wang Y. Unilateral approach to clip bilateral multiple intracranial aneurysms. Surg Neurol. 2009 Aug; 72(Suppl 1): S23-S28

Preoperative digital subtraction angiography image showing both left and right PCoA aneurysms



(A)Right ICA anteroposterior view

(B)Left ICA anteroposterior view

(C)Right ICA lateral view

(D)Left ICA lateral view

Five month digital subtraction angiography image showing stable clipping in the bilateral PCoA aneurysms without any evidence of recanalization or residual