Brain Holding with Minimum Brain Retraction in the Transsylvian and Basal Interhemispheric Approaches for Aneurysm Clipping..

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Introduction

Currently retractorless surgery has been presented by the master neurosurgeon. This may be the ultimate goal of microneurosurgery. Brain retraction may affect focal cerebral functions even though it is mild. In the endovascular era, aneurysm clipping should be less invasive to the brain with lower morbidity rate. Surgical morbidity is often associated with significant brain retraction.

Methods

Current video-recorded 100 aneurysm clipping cases by the transsylvian or basal interhemispheric approach were reviewed to describe necessary microsurgical anatomy and our surgical techniques for minimum brain retraction.

Results

Extensive arachnoid dissection allowed "brain holding" and less retraction. In cases with wider and deeper arachnoid dissection, brain retraction was minimum for final clip application. Unilateral holding was enough for clipping in many cases.

In the transsylvian approach, the arachnoid dissection should be initiated from the very distal part, needs to be done down to the insular cortex to expose the M3 and M2 segment of the MCA first, and then be extended proximally from the deep to superficial area, down to the proximal sylvian fissure or carotid cistern as needed.

In the basal interhemispheric approach, at first, the fissure should be dissected at the level of the genu of the corpus callosum to expose the bilateral A2 segment of the ACA, and then be extend down to the optic chiasm and anterior communicating artery complex. Superficial and limited arachnoid dissection usually results in significant brain retraction.

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Movie