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Abstract
A pure posteriorly posterior communicating artery (PCoA) aneurysm represents a surgical challenge. This is mainly when there is a need for good exposure of the aneurysmal neck, sac, PCoA, and anterior choroidal arteries. Ruptured pure posteriorly directed PCoA aneurysm imposes significantly extra challenge as the surgeon undergoes dissection through a tight brain. Even with measures commonly used to attain brain relaxation like the lumbar drain and cisternal fenestration.

Here, we describe a technique for posterior temporal pole mobilization (TPM) as an integrated part of microsurgical clipping of ruptured pure posteriorly directed PCoA aneurysms. This technique is implicated in twenty-three successive cases of ruptured PCoA aneurysms in the neurosurgery teaching hospital in Baghdad, Iraq, with no reported complications.

Pertinent Anatomy
The temporal pole is usually connected by bridging veins with the sphenoparietal sinus anteriorly and the cavernous sinus medially. These bridging veins are also known as the pre-uncal veins. These veins are neither described in the literature as a critical contributor to any of the essential surrounding veins (basal vein of Rosenthal and deep middle cerebral vein) nor described as a vital drainage pathway for the temporal parenchyma [3].
TECHNIQUE
Following the steps of the pterional approach, which include, 1) opening of the carotid cistern, 2) dissection of the proximal Sylvian fissure, then, 3) identifying the pre-uncal veins, and, 4) cutting the bridging veins between the sphenoparietal and the cavernous sinuses (pre-uncal veins) then, 5) releasing of the temporal pole followed by, 6) widening of the surgical corridor (at least 2 cm of free space posterior to the sphenoid ridge) [3,4]. To illustrate this technique, two cases of PCoA aneurysms approaches were described in the images below (Figure 1 and Figure 2).

Figure 1. Intraoperative images of case 1, through the left pterional approach (A) shows cutting and releasing by cauterization of the anterior temporal veins before temporal pole mobilization. (B) is showing the superficial retraction of the temporal lobe with TPM and now we can more appreciate the space lateral to the supraclinoid Internal carotid artery which widens the surgical field for safe and easy microsurgical clipping of the PCoA aneurysm. CNII: optic nerve, PCoA A: Posterior communicating artery aneurysm, ICA: Internal Carotid Artery.

Figure 2. Intraoperative view of case 2, through right pterional approach, showing more appreciated and widen surgical space lateral to supra clinoid ICA after TPM was performed (Balck arrows). CNII: optic nerve, ICA: Internal Carotid Artery.

ADVANTAGE
The requirement for temporal lobe traction is minimized or even absent (the retractor will hold the released temporal pole), which leads to easy identification of the PCoA aneurysm, wide exposure to the retro-carotid space, and may provide more dissection and clipping angles. The mobilization will render the temporal pole free as it does not disturb the medial (mesial) temporal cortex that usually adheres to the aneurysm. It is technically an easy and time-preserving technique.

LIMITATIONS
Generally, the temporal lobe mobilization (usually it used to be retracted) should not be encouraged for all ruptured PCoA aneurysm cases. However, TPM has a peculiar advantage in pure posteriorly directed PCoA aneurysm cases. Here, we describe mobilization of the temporal pole only, and no distribution of the mesial temporal cortex is required. Also, the TPM technique includes the sacrifice of the bridging veins connecting the temporal tip. Thus, there is at least a theoretical risk of venous congestion and subsequent infarction [1]. Here, our technique depends on the size of the bridging veins and knowing the pattern of drainage, including a physiological principle that governs the venous drainage in the brain. If the vein is small, its counterpart or alternative pathway will be large and dominate venous drainage. This will lessen the possibility of the development of consequences. When the scarification of the temporal veins is not possible, which may be due to the larger in size, it’s critical to dissect enough of the superficial Sylvian vein from the temporal lobe, especially around the temporal tip, to retain temporal veins [2,3]. Our patients had not developed such complications, and
the literature showed no report of venous complications after sacrificing the temporal veins. However, a larger series is required before approving this additive surgical step.

REFERENCES