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## Introduction

Cerebral arteriovenous malformations (AVMs) pose a risk of rupture with possible subsequent neurologic injury. There are multiple modalities used in their treatment, including radiation, endovascular embolization, and microsurgical resection.<sup>1-5</sup>

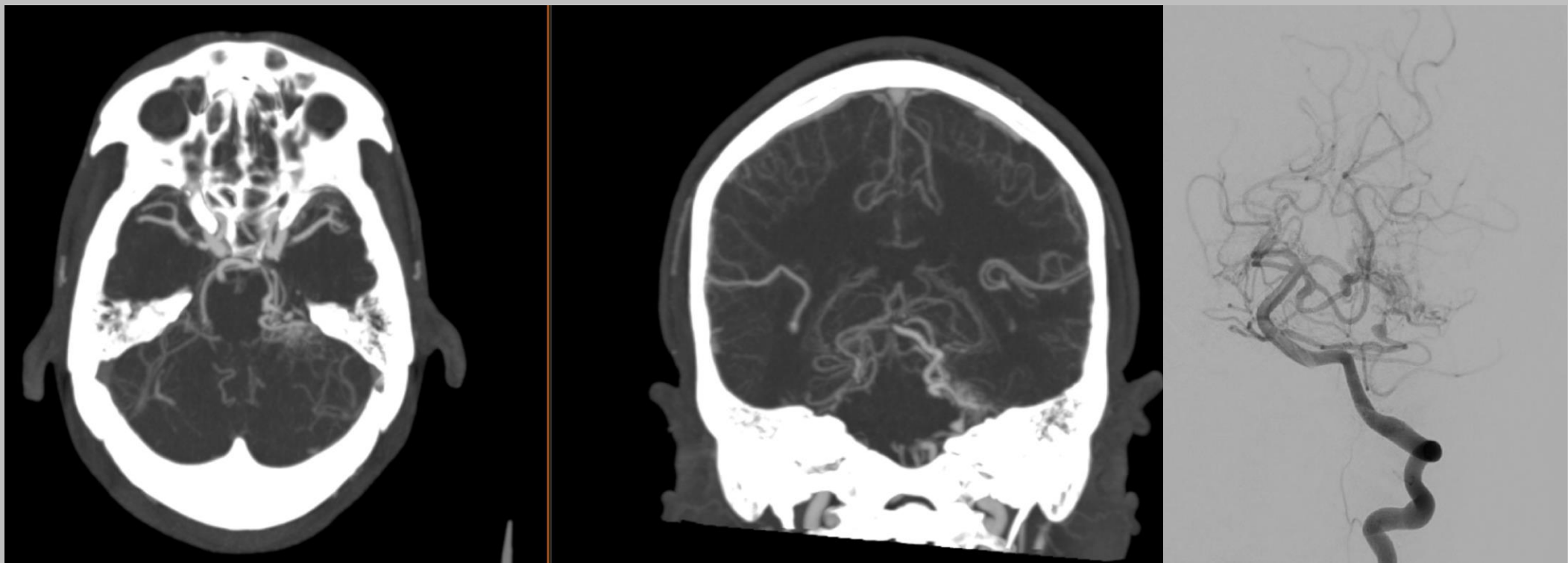


Figure 1. Admission CTA and cerebral angiogram of L VA (AP)

## Methods and Materials

A 45-year-old male experienced acute-onset severe occipital headache without subarachnoid hemorrhage on computed tomography (CT) scan, but concern for skull base vascular malformation on CT angiography. Catheter angiography revealed a left petrous tentorial arteriovenous malformation (Spetzler-Martin Grade III) with deep drainage and superior cerebellar artery (SCA) and anterior inferior cerebellar artery (AICA) feeders with associated aneurysm (Figure 1).

### Preoperative Onyx-18 embolization of SCA feeder, aided with Scepter mini balloon

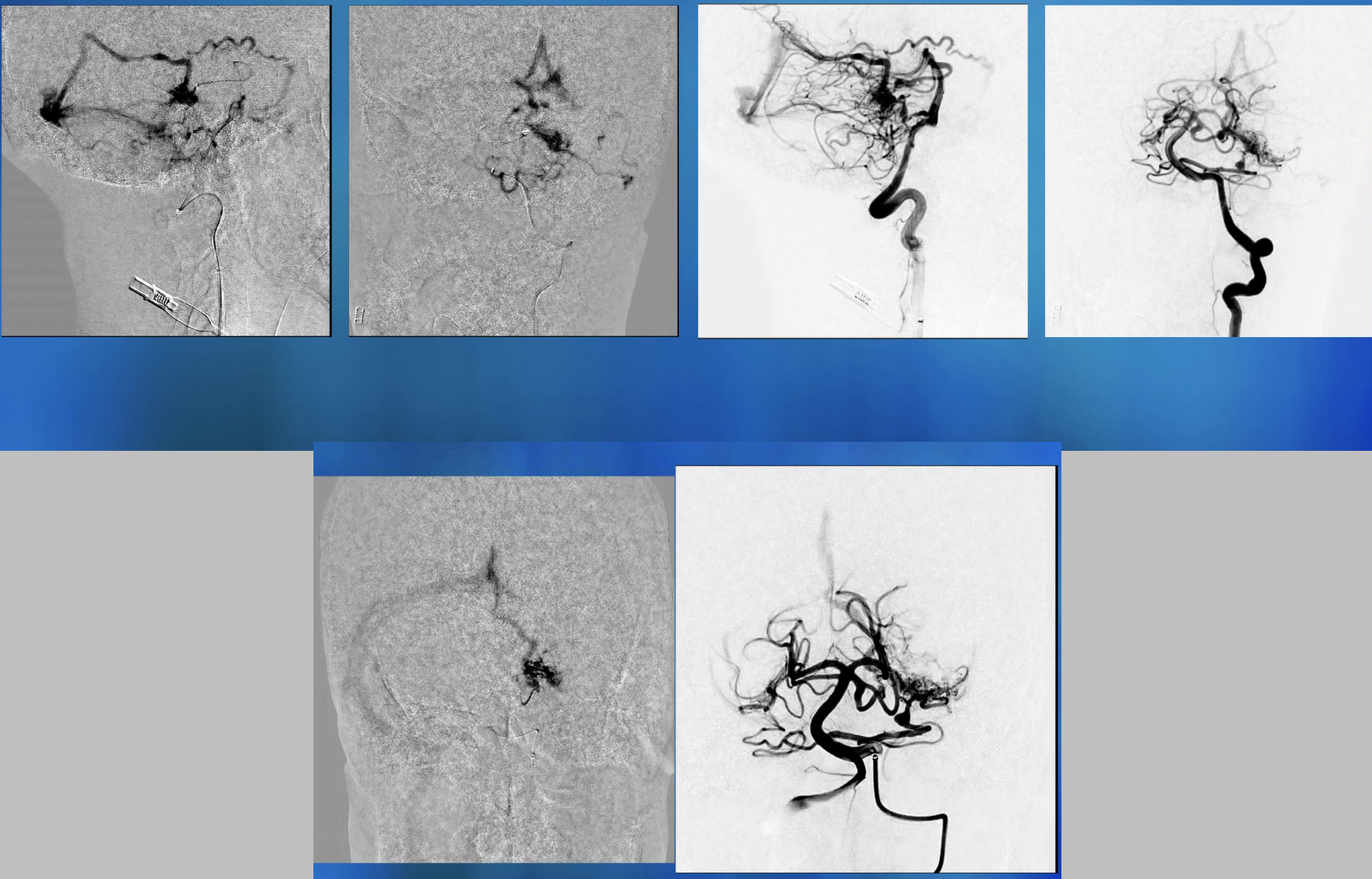


Figure 2. Lateral and AP angiograms of L VA with Onyx embolization of L SCA feeder.

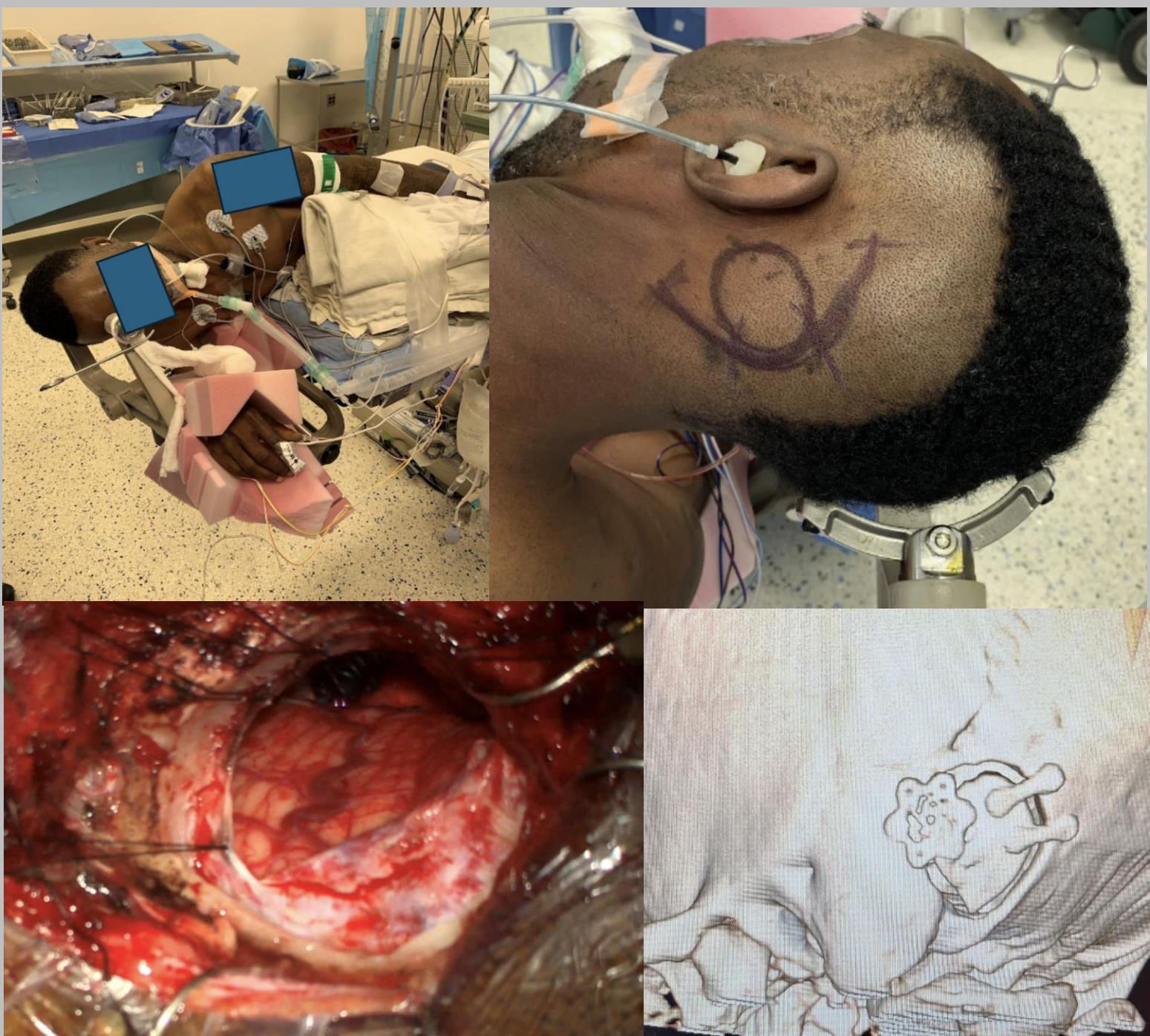


Figure 3. Lateral park bench positioning for expanded retrosigmoid craniotomy. Auditory brainstem response (ABR) and CN VII monitoring were used.

## Results

Preoperative Onyx embolization of a left SCA feeder was completed (Fig 2). The left AICA feeder with a flow-related aneurysm was determined to be more accessible microsurgically.

Subsequently, the patient underwent microsurgical resection of the AVM via extended retrosigmoid craniotomy (Fig 3).

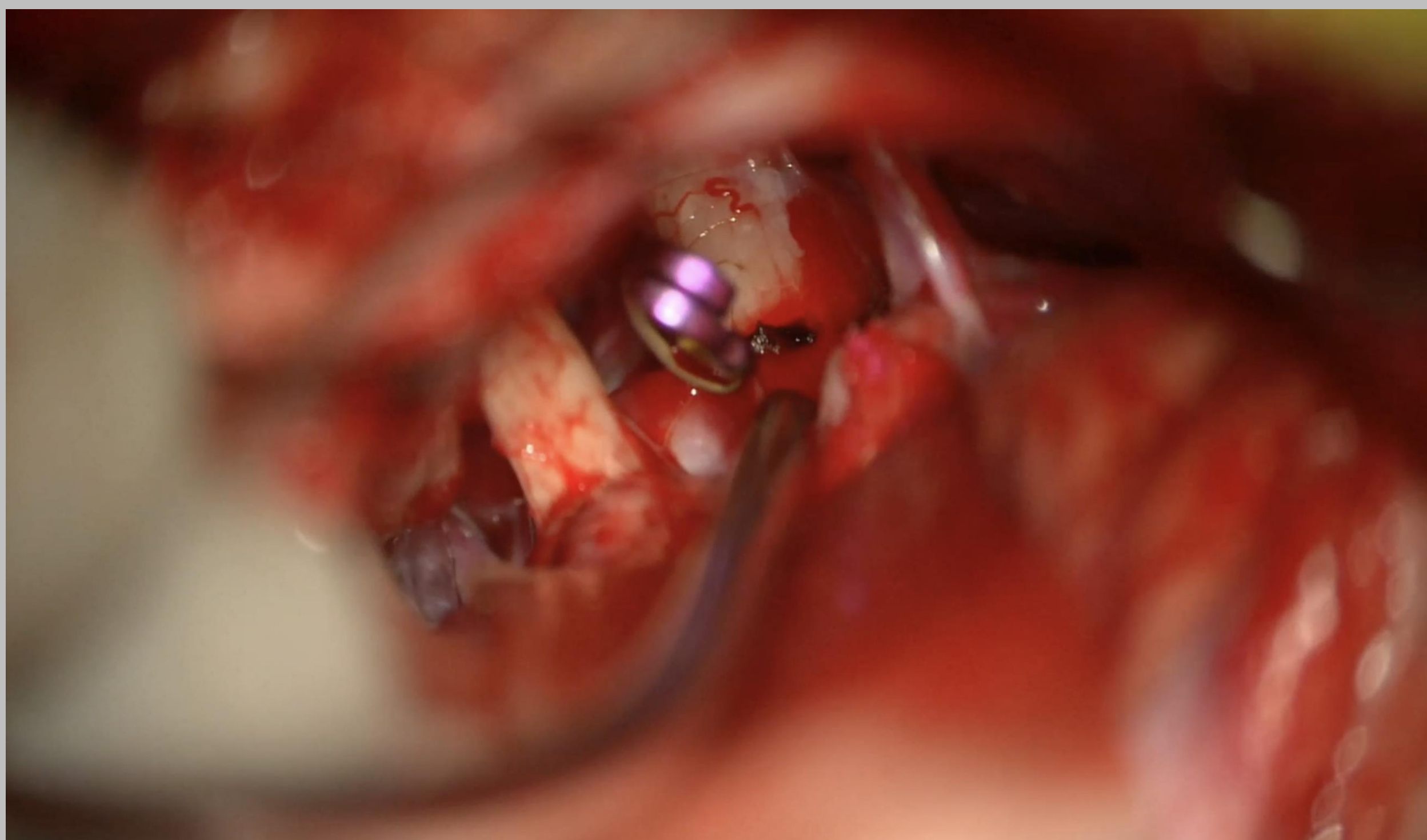


Figure 4. Temporary clip of flow-related AICA aneurysm in association with CN VII/VIII complex, CN V, and SCA.

The AVM-associated AICA aneurysm ruptured intraoperatively and was treated with definitive clip ligation.

Postoperatively, he had intact strength, with transient gait imbalance, mild L facial droop, and persistent L hearing loss.

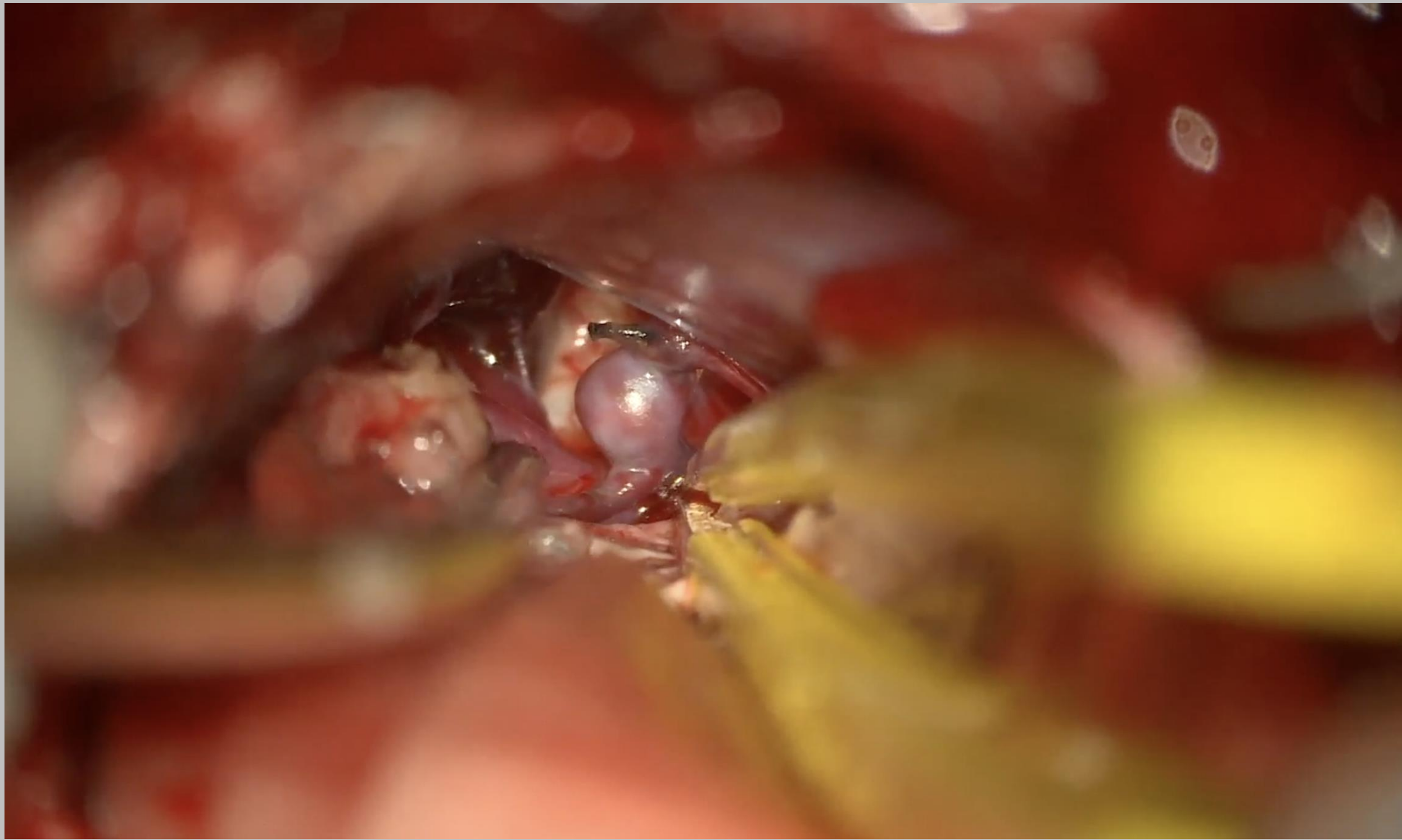


Figure 5. Ligation of feeding vessels to AVM nidus, including Onyx casting.

## Discussion

A combined approach involving pre-surgical endovascular embolization and microsurgical resection may safely treat a petrous tentorial AVM. Preoperative embolization allows for the treatment of potentially anatomically-challenging feeders.

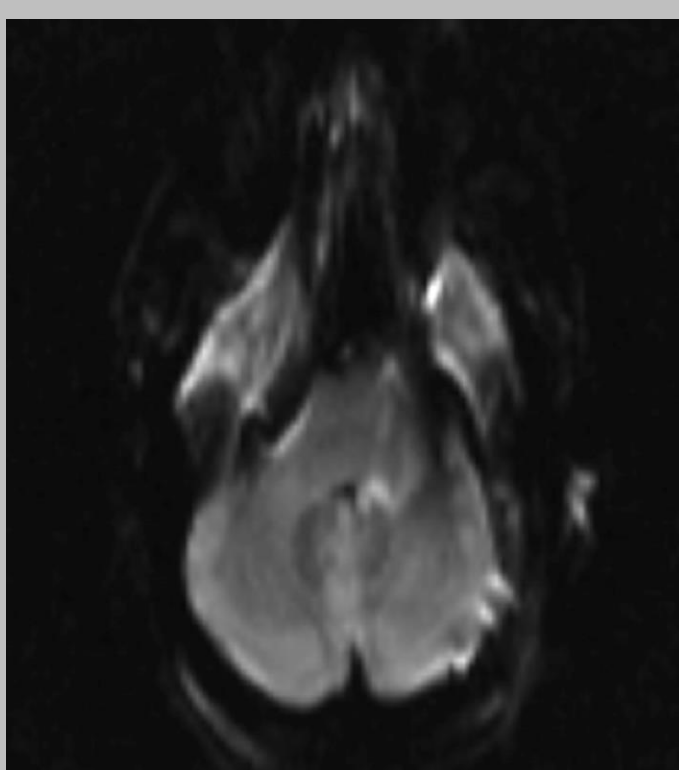


Figure 6. Postoperative DWI



Figure 7. Postoperative L VA (AP).



Figure 8. Postoperative L VA (Lat).

## References

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