

Abstract

We present a case of a female in her fifties who presents obtunded with a large posterior fossa hemorrhage from a ruptured vermian arteriovenous malformation and perinidal aneurysm. Emergent suboccipital craniectomy achieved decompression and clot evacuation. Angiography revealed a vermian AVM supplied by PICA and SCA branches with a perinidal aneurysm, which was successfully coiled. Definitive resection was performed via a supracerebellar infratentorial approach. Postoperative angiography confirmed complete cure. Despite requiring VPS, tracheostomy, and PEG, the patient improved to GCS 11T at discharge and continues to recover.

Introduction

Clinical History:

Female in her sixth decade of life otherwise healthy who presents with sudden onset loss of consciousness. She was intubated at an outside hospital then transferred for further care.

Exam:

GCS 3T
Pupils 2mm bilaterally, reactive
+Cough, - Gag
Flaccid in all extremities

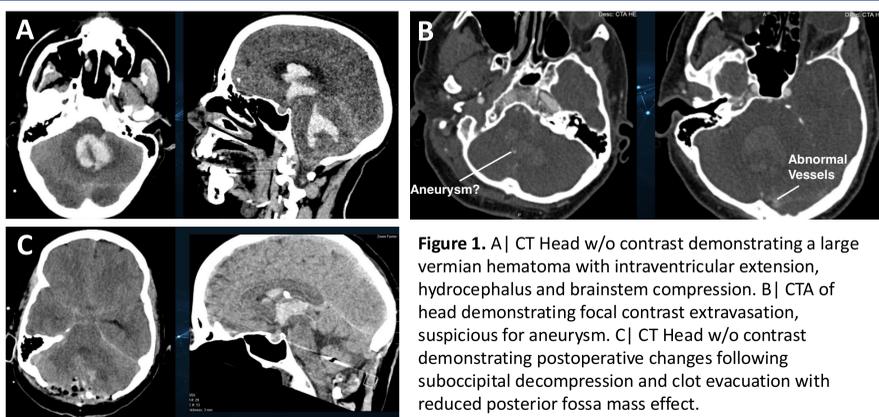


Figure 1. A | CT Head w/o contrast demonstrating a large vermian hematoma with intraventricular extension, hydrocephalus and brainstem compression. B | CTA of head demonstrating focal contrast extravasation, suspicious for aneurysm. C | CT Head w/o contrast demonstrating postoperative changes following suboccipital decompression and clot evacuation with reduced posterior fossa mass effect.

Operative Plan

Given large posterior fossa hematoma with brain stem compression and poor neurological status, patient was taken for emergent decompression suboccipital craniectomy and hematoma evacuation.

Patient was taken for Cerebral Angiogram and treatment postoperatively.

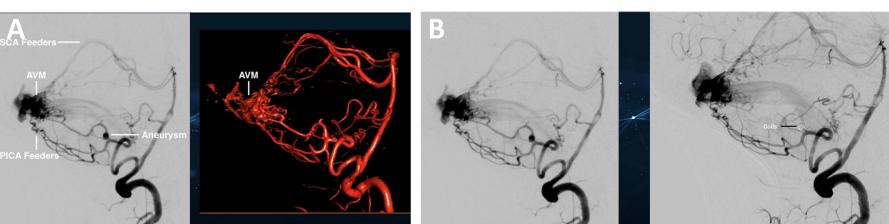


Figure 2. A | Angiogram with 3D reconstruction demonstrating vermian AVM with feeders from SCA, AICA, and PICA with a PICA perinidal aneurysm. B | Angiograms pre and post coiling treatment of perinidal aneurysm.

Operative Decision Making:

Patient presented with significant and acute neurological decline due to ruptured vermian AVM and perinidal aneurysm. The aneurysm was successfully treated endovascularly. Given the low overall grade of the AVM, the patient's neurological condition, the acuity of the bleed and location, surgical resection was offered.

Spetzler Martin Grade 1¹
Supplemented Spetzler Martin Grade 4²
Combined Grade 5 —> 78.9% Improved, Unchanged²

Position:

Sitting position, mayfield head holder, neck flexed

Approach:

Extended Suboccipital Craniectomy, Supracerebellar Infratentorial Approach

Operation

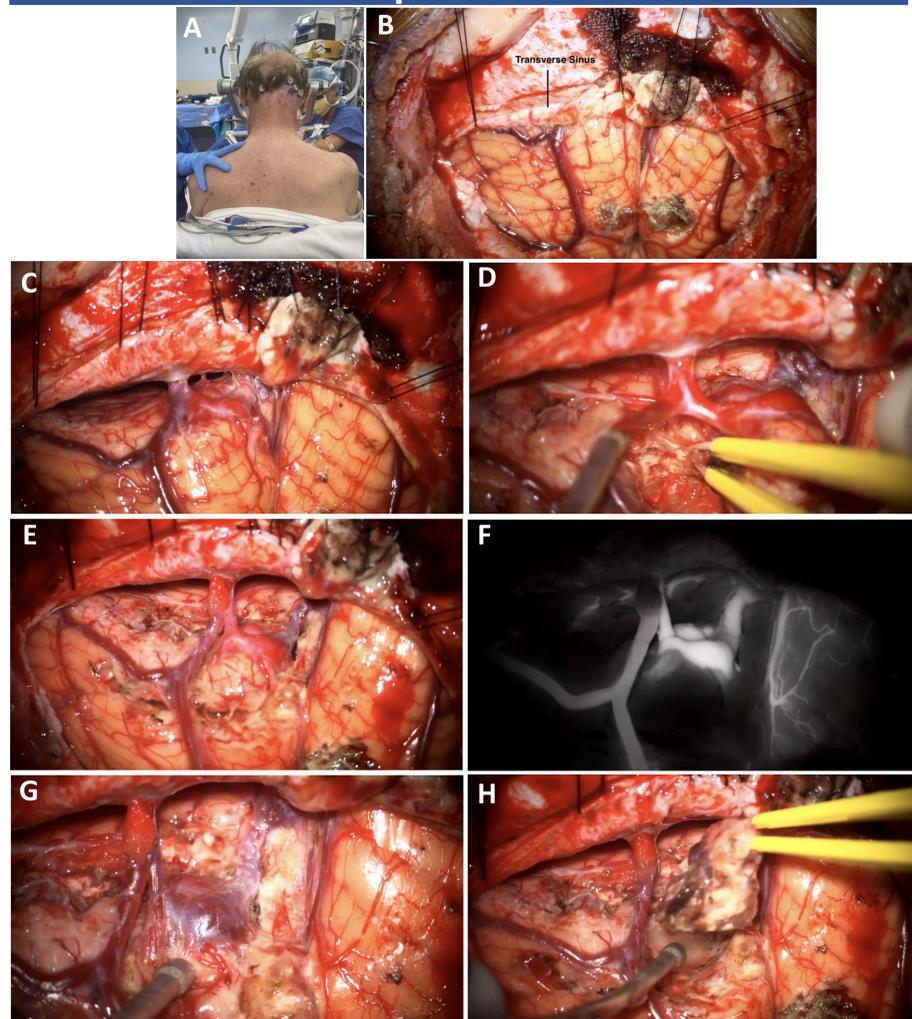


Figure 3. A | Patient positioned sitting, neck flexed, in a mayfield headholder. B | Wide suboccipital craniectomy exposure up to the transverse sinus, Dura is tacked up and occipital sinus is lighted. C | AVM is identified along the superior surface of the cerebellum. D | The nidus is circumferentially dissected and arterial supply is occluded. E | complete dissection of nidus, venous outflow is intact. F | ICG angiography is performed intraoperatively revealing superficial draining veins. G | The draining veins were ligated and transected. H | AVM was resected and with no residual.

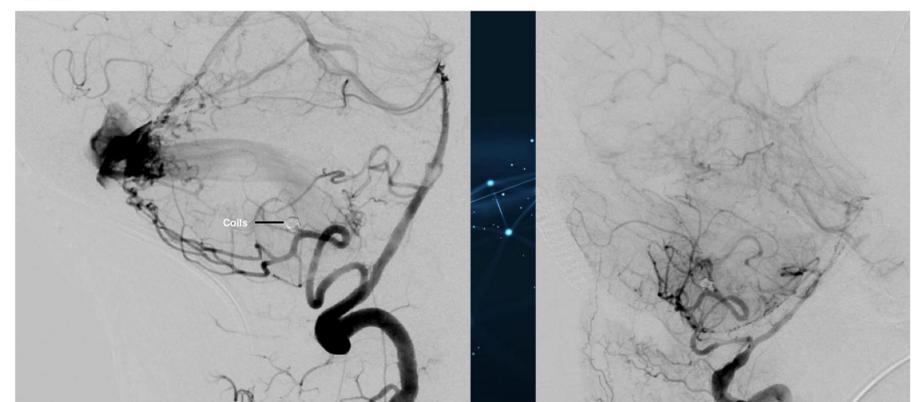


Figure 4. Angiograms pre and post resection demonstrating complete resection and treatment of AVM and redemonstrates coiled perinidal aneurysm.

Post Operative Course

Postoperatively the patient made a significant neurologic improvement. During the first weeks after surgery, patient required ventriculoperitoneal shunt, trach, and PEG.

At the time of D/C to Rehab, 1 month after admission, exam was markedly improve - GCS 11T (eyes open spontaneously and following commands x4)

At 6 months postoperative the patient continued to demonstrate significant improvements in cognition and gait.

Conclusions

In summary, the supracerebellar infratentorial approach provided safe and effective access for resection of this ruptured vermian AVM. A staged treatment strategy with life-saving decompression, targeted aneurysm coiling, and definitive microsurgical resection allowed for complete cure and meaningful recovery.

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References

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