

Case 6: Far-Lateral Approach for a Posterior Inferior Cerebellar Artery Aneurysm Clipping

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Summary

This case illustrates the potential issues in a posterior inferior cerebellar artery (PICA) aneurysm clipping.

Case Presentation

A 71-year-old male presented with an incidental finding of a PICA aneurysm on a workup for progressive swallowing trouble and weight loss (Fig. 27.1). Past medical history was significant for stroke and transient ischemic attack, likely due to chronic small vessel ischemic disease. Exam revealed lower cranial nerve dysfunction and partial tongue weakness on left.

Supplementary Information The online version contains supplementary material available at [\[https://doi.org/10.1007/978-3-031-12507-2_27\]](https://doi.org/10.1007/978-3-031-12507-2_27).

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Fig. 27.1 Preoperative digital subtraction angiography, 3D reconstruction

Approach

A right-sided Clipping, using a far lateral approach was planned [1].

Alternatives

Conservative medical management with serial observation is one alternative as is interventional radiology for coiling.

Positioning

The patient was put in a neutral, right lateral position.

Incision

The previous surgery incision was reopened to avoid ischemic skin necrosis (Fig. 27.2).



Fig. 27.2 Incision

Operation

After induction of general anesthesia, a lumbar drain was placed at the L3-L4 interspace through a percutaneous catheter with clear spinal fluid. Normal pressure was obtained, and the fluid was allowed to drain intermittently throughout the procedure. Postoperatively, the drain was tunneled and secured. A left-sided craniectomy was then performed as well as a hemilaminectomy at C1, exposing the left lateral skull base with additional drilling of the occipital condyle using a high-speed drill to allow access through the skull-base approach. A very large multilobulated, wide-necked, partially calcified posterior circulation PICA aneurysm was identified intradurally and addressed with intermittent temporary clip occlusion. Clip reconstruction of the PICA vertebral artery was then performed using a fenestrated clip, after intraoperative rupture and difficulty with control, which required sacrifice of intervening rootlets of cranial nerve XII. Complete occlusion of the aneurysm was confirmed with indocyanine green, video angiography, and microvascular Doppler. The wound was then copiously irrigated (See Video 27.1).

Post-op

Computed tomography of the head showed post-op changes (Fig. 27.3). The patient experienced difficulty swallowing. He was discharged to rehab on postoperative day 5.

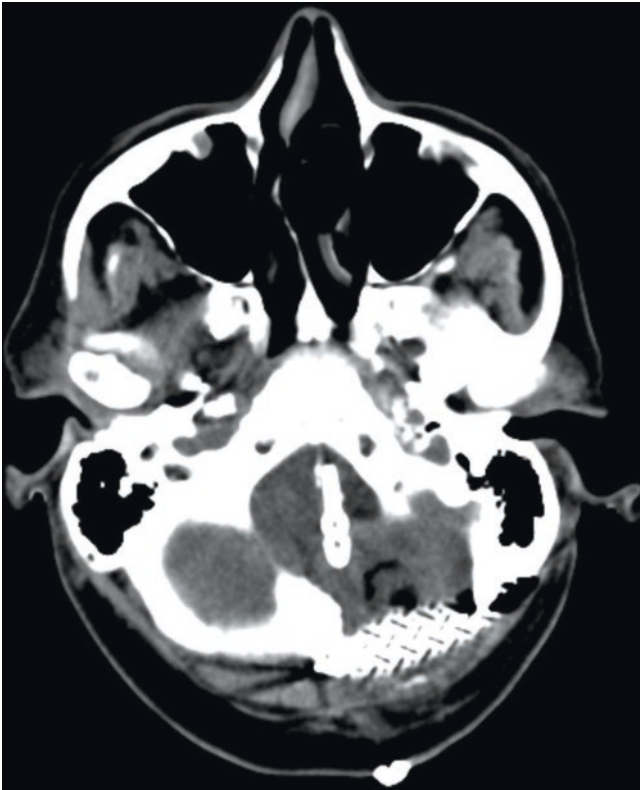


Fig. 27.3 Postoperative CT

Outcome

The patient was doing well at his 6-week follow-up. Cranial nerves were intact with mild left tongue deviation. His difficulty swallowing had resolved. Per the patient's wife, he had been refusing to eat and, therefore, was referred to a dietician for his weight loss and taste changes.

Discussion

There are few data on the incidence of postoperative dysphagia after PICA aneurysm clipping. Nelson and colleagues demonstrated that postoperative dysphagia occurred in the majority of patients undergoing craniotomy for trapping and bypass of a PICA aneurysm, with half requiring placement of a percutaneous endoscopic gastrostomy tube [2]. However, by the 6-week follow-up examination, all surviving patients had recovered normal swallowing function.

Pearls and Pitfalls

- This case illustrates clipping of a PICA aneurysm with postoperative dysphagia.
- The decision for open surgery versus endovascular treatment was made because of a wide aneurysm neck and presumed mass effect causing symptoms.
- Due to the location of the PICA in the posterior fossa, lower cranial nerve dysfunction is of particular concern.

Video used with permission from the Congress of Neurological Surgeons, CNS Nexus Cases. 2018. <https://www.cns.org/nexus/cases>

References

1. Bambakidis NC, Nakaji P, Amin-Hanjani S, Spetzler RF. Cerebrovascular surgery: an interactive video atlas. Shelton, CT: PMPH-USA; 2015.
2. Nelson J, Bambakidis NC. The incidence of post-operative dysphagia and gastrostomy tube placement in a series of six patients with posterior inferior cerebellar artery aneurysms treated by cerebrovascular bypass and aneurysm trapping. CNS Annual meeting 2016. San Diego, CA.