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Background

Intracranial arterial dolichoectasia (IADE) is defined by arterial elongation and tortuosity (dolichosis) with abnormal dilation (ectasia), most commonly involving the basilar artery. IADE can present with ischemic stroke and compressive complications, including cranial nerve compression.^{1,2,3}

Objective

To demonstrate microsurgical macrovascular decompression for trigeminal nerve compression from vertebrobasilar dolichoectasia using Gore-Tex sling transposition.

Case Presentation

A 63-year-old man with hypertension, hyperlipidemia, and prior hypertensive intracerebral hemorrhage presented with 4 years of progressive right-sided electric, stabbing facial pain in the V1 and V2 distributions, triggered by chewing, talking, and touch. He had transient benefit with medical management and diminishing relief. Examination was nonfocal with intact facial sensation (V1–V3) and preserved temporalis and pterygoid motor function. MRI confirmed right trigeminal nerve compression by a dolichoectatic basilar artery.



Figure 3. Intraoperative view of the Gore-tex sling secured to the clival dura with an aneurysm clip.

The dura was closed in watertight fashion with dural substitute and Prolene sutures, with muscle patch repair of a small defect, Adherus application, bony reconstruction, and layered closure. There were no intraoperative complications (bleeding, CSF leak, neurologic impairment), and postoperative recovery was uneventful. At follow-up, the patient reported approximately 75% pain relief with occasional flares managed with oxcarbazepine.

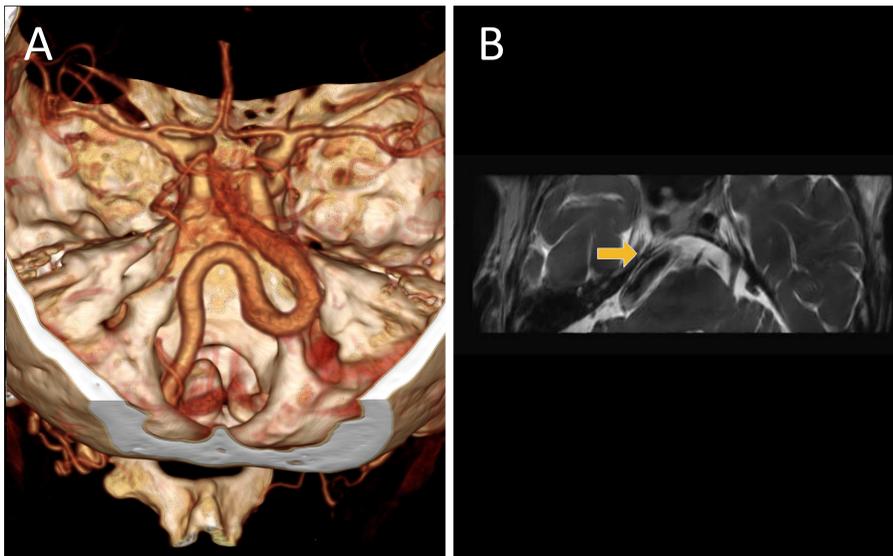


Figure 1. (A) Posterior view of 3D reconstruction of the dolichoectatic basilar artery and (B) axial MRI demonstrating compression of the trigeminal nerve (arrow) by the basilar artery.

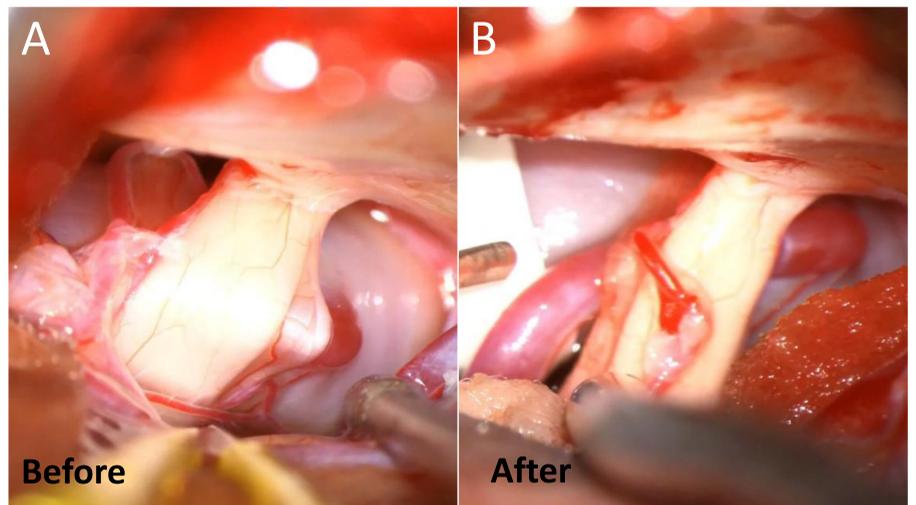


Figure 4. Intraoperative view of the trigeminal nerve before (A) and after (B) decompression and mobilization of the basilar artery with a gore-tex sling.

Surgical Technique and Outcome

Macrovascular decompression was performed via right retrosigmoid craniectomy with cranial nerve V and VII neuromonitoring. Severe basilar artery tortuosity with branch involvement, including the superior cerebellar artery, displaced and angulated cranial nerves V, VII, and VIII. After mobilization of the basilar artery and branches, a Gore-Tex sling was secured to the clival dura with a microsurgical clip, and Teflon felt separated the superior cerebellar artery from cranial nerve V; adequate decompression of cranial nerves V, VII, and VIII was confirmed.

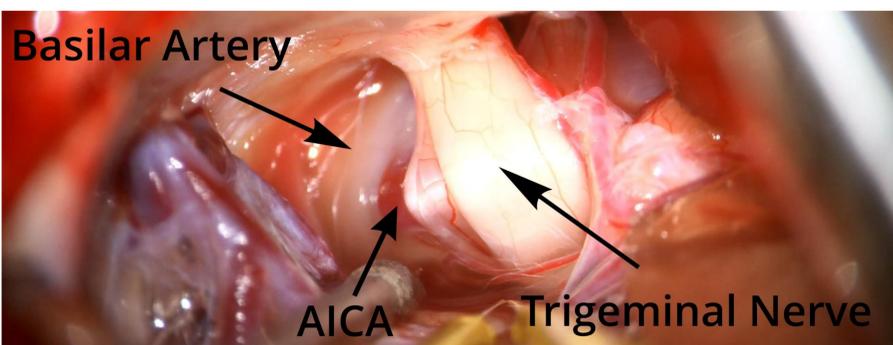


Figure 2. Intraoperative view of the compressed trigeminal nerve by the dolichoectatic basilar artery. The AICA may be contributing to the compression.

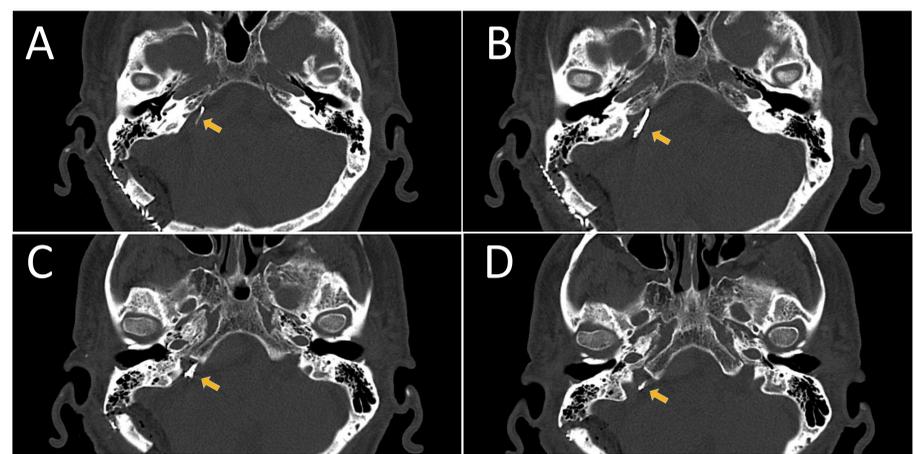


Figure 5. Post-Operative Ct scan demonstrating fixation of the gore-tex sling at the clival dura with an aneurysm clip

Conclusions

Sling-based macrovascular decompression provided marked pain improvement without perioperative complications in this vertebrobasilar dolichoectasia operative video case.

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References

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