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Microsurgical and Endoscope Assisted Resection of a Right Intracanalicular Vestibular Schwannoma Two-Dimensional Operative Video

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Abstract

A 36-year-old lady presented with tinnitus and hearing loss for 1 year which was progressively worsening. A hearing test revealed pure tone average (PTA) between 48 to 65 dB and speech discrimination of 56% at 95 dB. Brain magnetic resonance imaging (MRI) showed a right vestibular schwannoma 5 × 8 mm (►**Fig. 1**) which extended far laterally to the fundus of internal auditory canal (IAC). A translabyrinthine approach was suggested by another neurosurgeon/neurotologist team, but the patient decided to undergo operation by retrosigmoid approach with attempted hearing preservation.

She underwent a right retrosigmoid craniotomy, craniectomy, and mastoidectomy with far lateral approach. We performed petrous transcanalicular microsurgical approach with the assistance of neuroendoscope. Intraoperatively, the internal auditory artery was looping into the IAC between cranial nerves VII and VIII, and coming out inferiorly. The IAC was opened by the diamond drill, ultrasonic bone curette, and fine rongeurs. The tumor was grayish in color with filling the lateral aspect of the IAC. After circumferential dissection of the tumor capsule, the tumor was removed completely. It was arising from the inferior vestibular nerve which was stretched. The patient had vertigo and nausea postoperatively but it is steadily improving. Her hearing test has improved to a PTA of 22 dB and speech discrimination of 100% at 70 dB at 6 weeks. The postoperative MRI showed total resection.

This two-dimensional video shows the technical nuances of microsurgical retrosigmoid approach and endoscopic assisted resection of an intracanalicular vestibular schwannoma and the value of attempting hearing preservation in all vestibular schwannomas (►**Fig. 2**). The link to the video can be found at: https://youtu.be/KHrO_iDI2tw.

Keywords
- microsurgical
- endoscopic
- intracanalicular
- vestibular schwannoma
- retrosigmoid approach

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Statement Regarding Patient Consent

Informed consent was obtained from the patient prior to the surgery that included videotaping of the procedure and its distribution for educational purposes. All relevant patient identifiers have also been removed from the video and accompanying radiology slides.

Disclosure of Funding

None.

Conflict of Interest

None declared.

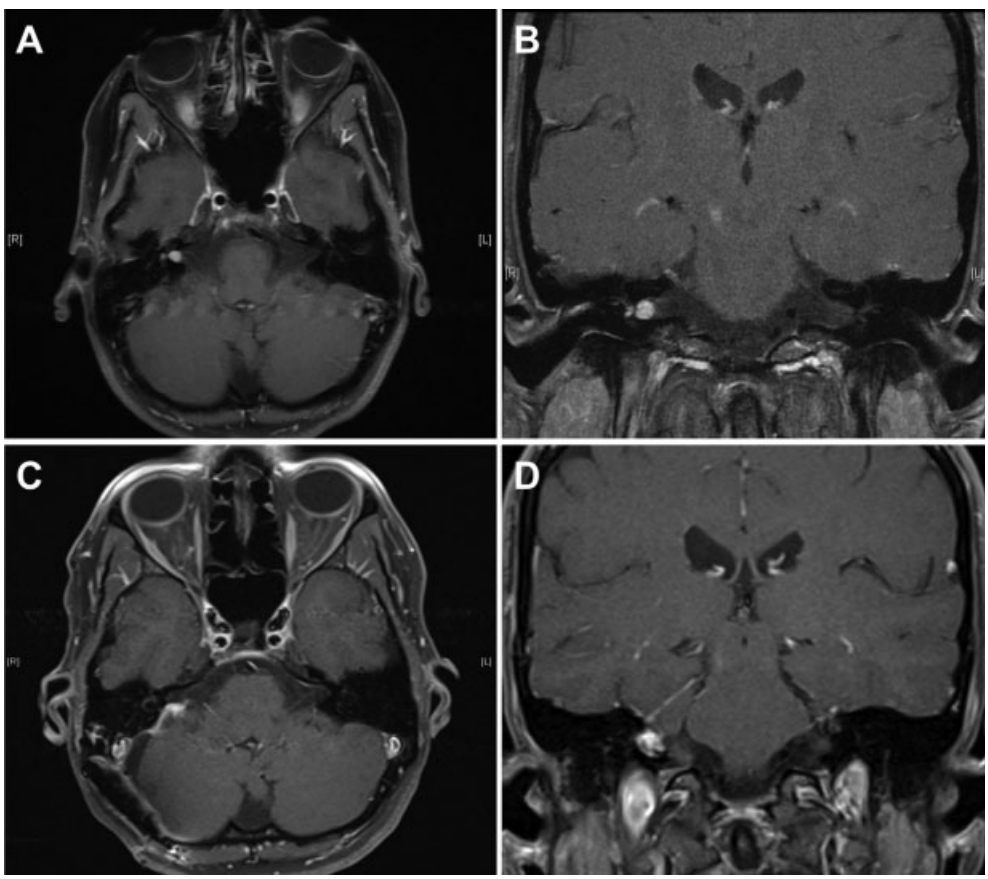

Fig. 1 Preoperative brain magnetic resonance imaging (MRI) with gadolinium contrast axial (**A**) and coronal (**B**) view showing a right intracanalicular tumor which extended far laterally to the fundus. At 6 weeks of follow-up, postoperative axial (**C**) and coronal (**D**) brain MRI with gadolinium contrast demonstrating complete resection of the lesion and scaring of the internal auditory canal.

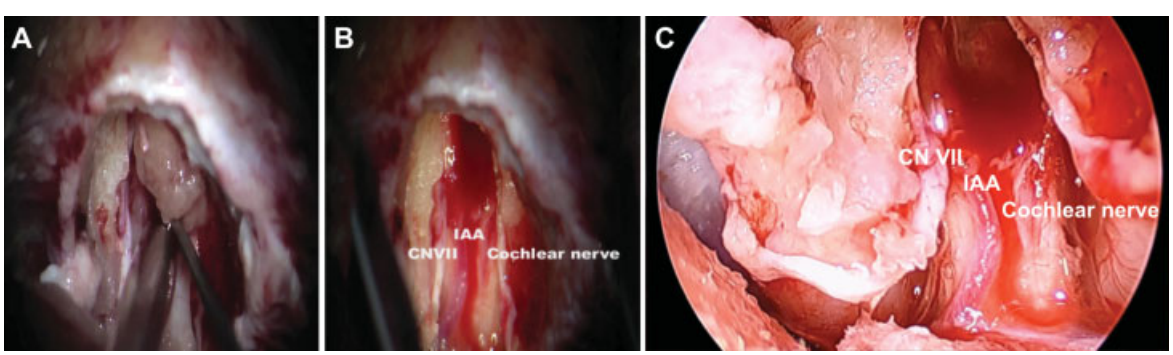

Fig. 2 Intraoperative resection of the tumor (**A**) transcancalicular dissection of the tumor; Complete resection of the tumor is achieved from microscopic view (**B**) from the endoscopic view (**C**). CN, cranial nerve; IAA, internal auditory artery.