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Targeted Occipital and Auriculotemporal Nerve Blocks for Chronic Post-Retrosigmoid Craniotomy Neuralgia

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BACKGROUND

- Persistent headache follows ~17% of retrosigmoid vestibular schwannoma resections, yet chronic post-craniotomy pain remains underrecognized.
- The approach crosses territory of the greater and lesser occipital and greater auricular nerves. Scar traction, compression, and inflammation can cause neuropathic pain that radiates frontotemporally via trigeminocervical convergence.
- Postsurgical presentations may include persistent aching, dysesthesia, sensory loss, and allodynia, not only paroxysmal occipital pain.
- Evidence focuses on acute postoperative analgesia; data for neuralgia years after craniotomy are limited.

CASE

- **55-year-old man** with 3.5 years of right postauricular, frontotemporal, and occipital pain after right retrosigmoid craniectomy, IAC drill-out, and vestibular schwannoma resection.
- Deep aching with paresthesias and cold dysesthesia, worsened by pressure from an eye mask, hearing aid (>2 h), and glasses. Daily episodes lasting hours could trigger migraine with nausea and dizziness, rated 10/10 pain.
- **Exam:** focal nerve tenderness and sensory loss in the right greater occipital, lesser occipital, and auriculotemporal distributions.
- **Prior therapy:** NSAIDs limited by GI and endocrine comorbidities; gabapentin stopped for cognitive effects; botulinum toxin and CGRP antagonists without adequate relief.

INTERVENTION & OUTCOME

- Ultrasound-guided right GON, LON, and auriculotemporal blocks with bupivacaine: 4–5 days of near-complete cranial pain relief.
- Steroid-augmented repeat blocks ~4 weeks later: substantial facial pain relief, including restored tolerance for glasses.
- 2-month follow-up: pain a tolerable 4/10, marked quality-of-life gains, reduced NSAID use.

Targeted ultrasound-guided nerve blocks gave **effective relief** after **3.5 years** of refractory post-craniotomy pain.

10/10

Daily headache pain despite NSAIDs, gabapentin, botulinum toxin, and CGRP antagonists

4/10

tolerable pain at 2 months after steroid-augmented repeat blocks

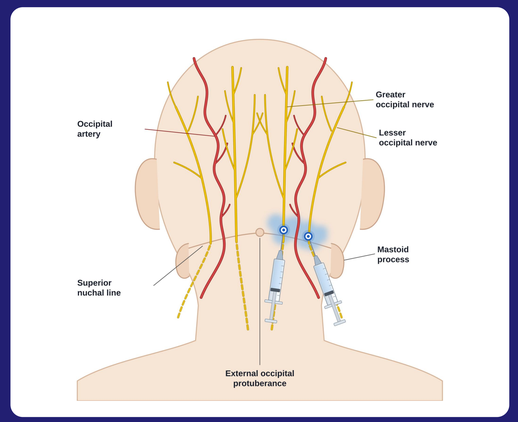


Figure 3. Greater occipital nerve located 1/3 and lesser occipital nerve 2/3 of the distance from the occipital protuberance to the mastoid process.

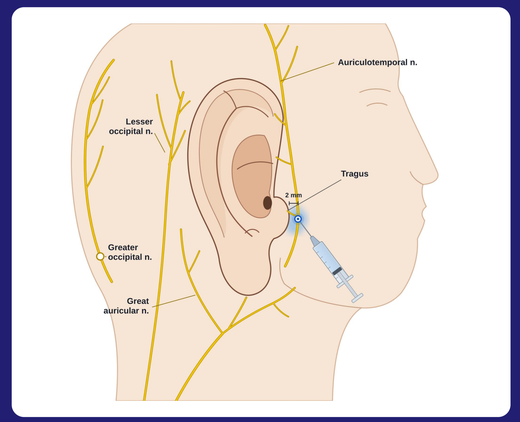


Figure 4. Auriculotemporal nerve located 2 mm anterior to the tragus.

PRE-OP IMAGING

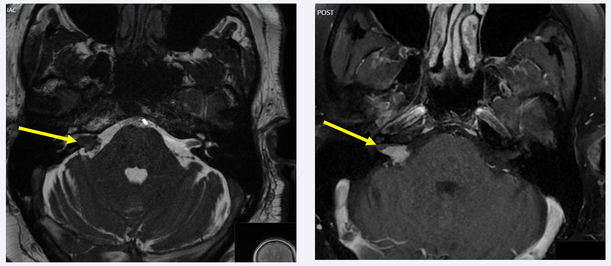


Figure 1. Axial FIESTA-C MRI of the IAC: lesion in the right cerebellopontine angle cistern extending into the right internal auditory canal.

Figure 2. Post-contrast axial T1 MRI: enhancing right vestibular schwannoma measuring 15 × 0.9 × 0.7 mm.

DISCUSSION

- A peripheral neuropathic pain phenotype went unrecognized for 3.5 years within a broader post-craniotomy symptom complex.
- Phenotype-based examination localized treatable targets: right greater occipital, lesser occipital, and auriculotemporal nerves.
- Literature supports nerve blocks for acute retrosigmoid analgesia but offers limited guidance for chronic postsurgical cranial neuralgia.
- Integrating pain specialists into postoperative pathways may mitigate central sensitization, prevent chronic pain entrenchment, and preserve function and quality of life.
- Future study: durability of serial blocks and escalation to radiofrequency ablation or peripheral nerve stimulation.

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