Perineural Squamous Cell Carcinoma Presenting as Facial Paralysis: A Two-Case Series

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Introduction

New onset facial paralysis has a broad differential. Features concerning for neoplasm include slowly progressive paralysis, zonal distributions of weakness, pain, and associated cranial neuropathies.

A diagnostic dilemma arises when appropriate diagnostic imaging (including CT/MRI) is **negative** despite a concerning clinical picture.

- **Facial nerve biopsy may be indicated for definitive diagnosis; however, limitations** include scheduling constraints and sacrifice of facial nerve function in biopsied distribution
- In the appropriate clinical context, in-office **great auricular nerve (GAN) biopsy may be performed** to expediate diagnosis and enable earlier initiation of targeted therapy

Materials & Methods

This is a two-case series of patients who initially presented with isolated facial paralysis who were diagnosed with perineural invasion (PNI) of cutaneous squamous cell carcinoma (SCC) by biopsy of the great auricular nerve.

- **Review of two clinical records**
- Literature review

Results

Case 1

75-year-old male with history of previous cutaneous malignancies of the head and neck region treated with Mohs, who presented with **progressive zonal** left-sided upper division facial paralysis over the past year.

- Imaging including CT/MRI was **negative**
- On day of planned 5-to-7 nerve transfer, static suspension, and extratemporal facial nerve biopsy, he was noted to have progression of his facial paralysis and a newly-absent masseteric bulge. The 5-7 nerve transfer was aborted.
- Intraoperative biopsies of facial nerve and GAN showed PNI from cutaneous SCC

Case 2

88-year-old male with history of follicular lymphoma presented with **progressive** left-sided facial paralysis over the past 9 weeks, with **negative** work up.

- When asked, patient endorsed some numbness of the ipsilateral ear lobe.
- Same-day in-office GAN biopsy demonstrated SCC with PNI

Management

Both patients were referred for radiation and systemic chemotherapy.

Discussion

GAN biopsy had been previously described to **confirm radiographically apparent** SCC with PNI, GAN schwannoma, infectious nerve enlargement, and diagnosis of leprosy.

Description of GAN biopsy:

1. Prepare skin and infiltrate with 2 cc 1% lidocaine + 1:100,000 epinephrine
2. Mark a ~2 cm incision in a neck crease that is centered posterior to the EJV, approximately 6.5 cm directly inferior to the external auditory canal
3. Incise through skin and platysma
4. Identify and expose the GAN at the midpoint of the posterior border of the SCM; vertical spreads with a hemostat can be helpful
5. Mobilize the nerve with a vessel loop
6. Dissect and obtain a ~1 cm biopsy of nerve. Recommend clips on the cut edges to minimize risk of neuroma formation.
7. Close the incision in layers

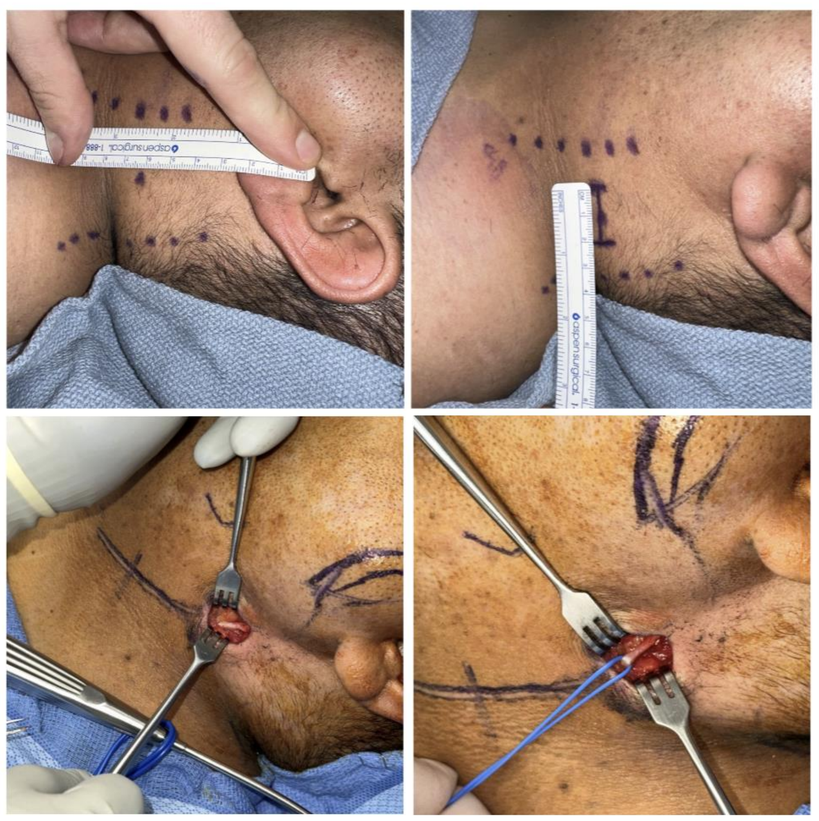


Figure 1: Stepwise technique of great auricular nerve biopsy with representative images showing external landmarks and nerve identification

Conclusions

- Progressive unilateral facial paralysis should raise concern for neoplasm even in the setting of negative imaging
- Facial nerve biopsy performed in the operating room is an established diagnostic option but requires general anesthesia and precludes recovery of facial function in that distribution if biopsy is negative for malignancy.
- Patients should be asked about numbness around the ear; if there is a high clinical suspicion for GAN involvement, in-office GAN my be performed to expedite diagnosis.