

Review of periorbital nerve enlargement and biopsy techniques

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Purpose: Enlargement of periorbital nerves commonly indicates perineural invasion of a malignancy or benign conditions such as idiopathic orbital pseudotumor. The purpose of this study is to review the role of supraorbital and infraorbital nerve biopsies in patients presenting with radiographic enlargement of these nerves and to elucidate the surgical technique involved in obtaining these biopsies.

Methods: A retrospective chart review (1997-2014) was performed at a single tertiary center. Patients with radiographic confirmation of enlarged supraorbital and/or infraorbital nerves that underwent a biopsy were included in the review. Charts were reviewed for the following data: patient demographics and history, clinical symptoms and findings, radiographic findings, surgical method, and treatment.

Results: A total of 5 patients met the inclusion criteria. Four patients (80%) were female and 1 (20%) was male. Average age was 72.4 years, ranging from 36-90 years. Four of the 5 patients had a history of a cutaneous malignancy. All 5 patients presented with diplopia and/or dysesthesias on the affected side. Clinical examination confirmed decreased V1 and/or V2 sensation for 4 of the 5 patients. Imaging revealed enlargement of V1, V2, and/or V3 for all of the patients. Supraorbital nerve biopsies were performed for 2 patients via a sub-brow incision onto the superior orbital rim with reflection of the periosteum that revealed the nerve. The remaining 3 patients underwent infraorbital nerve biopsies via a transconjunctival fornix-based orbitotomy with subperiosteal dissection along the orbital floor followed by unroofing of the infraorbital canal. These biopsies confirmed squamous cell carcinoma in three patients, mucoepidermoid carcinoma in one, and idiopathic orbital inflammation in one. Three of the 5 patients had initiation of treatment in less than a month. One patient decided to follow-up closer to home and one was lost to follow-up.

Conclusions: For patients presenting with enlarged supraorbital and/or infraorbital nerves, biopsies of these nerves can rapidly confirm the underlying condition that can facilitate early treatment. A sub-brow approach offers a direct access to the supraorbital nerve while a transconjunctival fornix-based anterior orbitotomy with unroofing of the infraorbital canal allow access to the infraorbital nerve.