

Comment. Selective laser trabeculoplasty has been shown to be effective both as a monotherapy and as additive treatment for lowering intraocular pressure in glaucoma, and it is likely effective when repeated.³ Our study shows that SLT becomes less costly than most brand-name medications within 1 year and less costly than generic latanoprost and generic timolol after 13 and 40 months, respectively. Although no study to date has specifically evaluated the duration of efficacy of SLT monotherapy, a single SLT treatment has been shown to be effective for 3 to 5 years when used in addition to topical medications.^{5,6} Thus, glaucoma treatment is probably less expensive with SLT compared with most brand-name medications. Selective laser trabeculoplasty may even be less expensive than a generic medication such as latanoprost, although the value of SLT is less clear when compared with generic timolol. Not surprisingly, this analysis is sensitive to the cost of the medications: for a patient using the least expensive formulation of generic latanoprost, 56 months are required for SLT to become less expensive than latanoprost.

Our cost analysis has several limitations. We did not model many aspects that would affect the costs of glaucoma therapy, including complications after SLT, need for subsequent surgery, or transportation costs for patients. We acknowledge that the clinical decision to initiate treatment for glaucoma with either SLT or a topical glaucoma medication depends on many factors aside from cost, including angle architecture, patient's ability to effectively administer eyedrops, patient's choice, and adverse effects profile.

This cost analysis provides information for clinicians deciding between SLT and topical treatment. Assuming equal efficacy between SLT and latanoprost, SLT may ultimately be less expensive.

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Painful Traumatic Neuroma After Orbital Decompression Surgery

Traumatic neuromas result from disorganized growth of nerve fibers following injury to peripheral nerves and can cause intractable pain. We report the first case, to our knowledge, of a histopathologically proven traumatic orbital neuroma following orbital decompression surgery.

Report of a Case. A 41-year-old woman had chronic severe pain involving the right cheek and orbit for 3 years. Seven years before her visit, she was diagnosed as having thyroid eye disease; 3 years earlier, she had undergone bilateral combined endoscopic transnasal medial wall and transconjunctival inferior orbital decompressions. Her right cheek discomfort began immediately after right decompression surgery.

On examination, the thyroid eye disease was inactive and there was no compressive optic neuropathy or strabismus. The right eye was displaced superiorly by 2 mm with minimal bilateral proptosis, right greater than left (**Figure 1A**). There was cicatricial right lower eyelid and midfacial retraction with lagophthalmos and exposure keratopathy. Palpation of a cartilage graft within the right lower eyelid transmitted pain to the right cheek, teeth, and naris.

Computed tomography (Figure 1B) confirmed right superior globe dystopia and bony decompressions involving both orbital floors and medial walls. There were multiple bone fragments remaining in the inferior and medial aspects of the orbit and unroofing of the right infraorbital canal.

The patient underwent right transconjunctival inferior orbital decompression with removal of the orbital strut and adjacent bone to reduce dystopia and proptosis of the right eye. Right lower eyelid and midface elevation was also performed. Intraoperatively, an extraordinary amount of scar tissue was encountered and excised from the posterior surfaces of the eyelid and cheek and along the orbital floor, extending into the muscle cone.

Pathologic examination of tissue from the inferior orbit immediately posterior to and along the interior orbital rim revealed multiple nerve bundles and twigs embedded in fibrous tissue, diagnostic for traumatic neuroma (**Figure 2A** and **B**). The bundles and twigs showed strong S-100 protein immunohistochemical positivity (Figure 2C). Giemsa staining showed numerous mast cells, many of which exhibited degranulation, principally near medium and small blood vessels (Figure 2D).

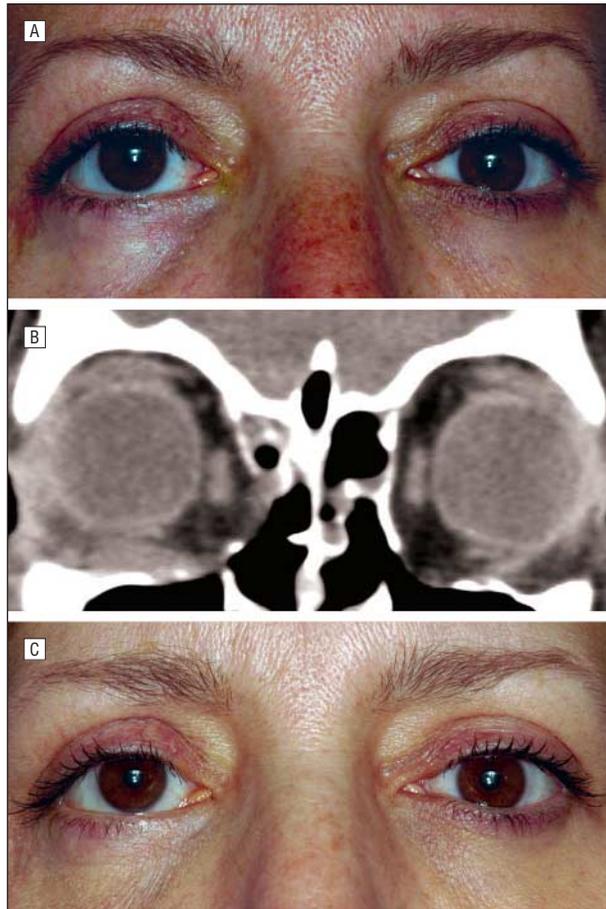


Figure 1. Preoperative right superior globe dystopia and lower eyelid and cheek retraction (A), computed tomographic image showing bony decompression of both orbital floors and medial walls and soft-tissue thickening of the right inferior orbital traumatic neuroma (B), and postoperative improvement of the right dystopia and lower eyelid position (C).

Postoperatively, globe dystopia, proptosis, and retraction of the lower eyelid and midface were all reduced (Figure 1C). The patient also had marked improvement of pain, which required only nightly medication.

Comment. Following peripheral nerve injury, axons often regenerate. Pathologic regeneration may result in a traumatic neuroma causing debilitating pain. Although rare in the orbit, some cases after enucleation, pterygium excision, and strabismus surgery have been reported.^{1,2} Baldeschi et al³ reported a traumatic neuroma following orbital decompression based on history, symptoms, and radiologic findings. However, no histopathologic confirmation was reported. In our case, traumatic neuroma was confirmed by histopathologic and immunohistochemistry findings.

Neuroma is a well-known complication of orthopedic procedures. Medical management includes treatment with oral gabapentin and pregabalin. If no effect is achieved by 6 months, surgery is often required to relieve pain. Neuroma resection with proximal nerve-end transposition to muscles, veins, or bone or coverage of the neuroma with vascularized flaps have been studied. To our knowledge, there are no studies in the ophthalmic literature to guide treatment of orbital traumatic neu-

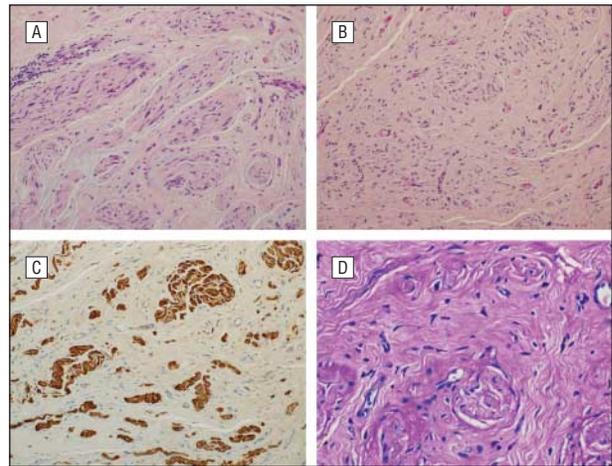


Figure 2. Densely packed neural bundles (A) and small branching twigs (B) (hematoxylin-eosin, original magnification $\times 200$). C, Sequential sections from the specimen in B show S-100 protein immunopositivity of medium and small nerve twigs in random distribution within scar tissue (original magnification $\times 200$). D, Many densely stained mast cells are seen throughout the specimen, principally perivascularly (Giemsa, original magnification $\times 400$).

roma. In our patient, surgical debulking reduced her chronic pain.

The finding of mast cells (Figure 2D) is consistent with mast cell migration to sites of nerve amputation in mice and humans.⁴ Mast cell degranulation, often induced by minimal trauma,⁵ can cause vascular permeability and pain from histamine release. Neurogenic pain may also be the result of mast cell release of substance P, calcitonin gene-related peptide, and 5-hydroxytryptamine.^{4,6} Thus, mast cell-depleting or mast cell-stabilizing agents may be considered in treating pain from traumatic orbital neuromas.

Orbital decompression complications include strabismus, eyelid entropion, dystopia, infraorbital hypoesthesia, and sinusitis. Although uncommon, traumatic neuroma is another important but rare complication to recognize because of potentially disabling pain.

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