**Endoscopic Optic Nerve Decompression/Traumatic Optic Neuropathy**

Optic nerve decompression can be performed for both traumatic optic neuropathy (TON), as well as for relieving compression from fibro-osseous lesions and various neoplasms. The optic nerve may be injured in 0.5% to 1.5% of all cases of closed head injury, and often involve the optic canal. The endoscopic approach offers several advantages over more traditional approaches, including decreased morbidity, preservation of olfaction, rapid recovery, absence of external scars, and less operative stress.

The optic nerve can be divided into three segments: intraorbital, intracanalicular, and intracranial; the main goal in optic nerve decompression is to relieve compression of the intracanalicular portion. The optic canal, which carries both the optic nerve and ophthalmic artery, is formed by the lesser wing of the sphenoid bone. The optic nerve is encased by the three different meningeal layers within the canal. At the orbital apex, lies the fibrous annulus of Zinn, the most susceptible site for nerve compression. Injury to this fixed intracanalicular segment can be attributed both to primary and secondary ischemic injury from resultant shearing and swelling. TON is a clinical diagnosis and should include both a thorough history and physical, as well as a complete ophthalmologic examination. Once the diagnosis is suspected, high resolution CT scans of the orbit and sphenoid sinus are invaluable in evaluating the optic canal for injury and impingement.

The treatment for TON is controversial; in fact, 20-38% of these patients will experience spontaneous recovery of vision. The benefit of intervention of any kind is unclear. Many recommend conservative treatment with corticosteroids to reduce edema and inflammation, while others recommend surgical decompression alone or in combination with steroids. Treatment options and management strategies should be individualized to specific patients.

Endoscopic optic nerve decompression involves first opening the sinus cavities via endoscopic sphenoethmoidectomy. The optic canal is then located and meticulously drilled with a diamond burr, thus decompressing the nerve. The true success rate of optic nerve decompression is difficult to quantify, as randomized, prospective studies are lacking; moreover, many patients have significant improvement in vision with just observation alone. Complications of this procedure may include CSF leak, meningitis, visual loss, and carotid artery injury.