Bilateral, Localized Orbital Neurofibromas and Charcot-Marie-Tooth Disease

Localized neurofibromas are rare in the orbit and, unlike plexiform neurofibromas, are not typically associated with von Recklinghausen neurofibromatosis. To our knowledge, bilaterality of such localized neurofibromas has been reported only once. We report a patient known to have Charcot-Marie-Tooth disease (CMTD) who developed multiple localized neurofibromas in both orbits.

Report of a Case. A 35-year-old man, known to have CMTD polyneuropathy since the age of 12 years, was referred to us because of the accidental finding of bilateral orbital tumors on magnetic resonance imaging of the brain. The brain imaging had been requested by a neurologist after the patient developed a right-sided trigeminal neuralgia.

On evaluation, bilateral exophthalmos was noted, and this was reported by the patient to be of long-standing duration (at least 5 years). Best-corrected visual acuity was 20/30 in either eye. Hertel exophthalmometry measurements were 23 mm in both eyes. There was mild limitation of supraduction in both eyes. Tonic pupils were noted. There were no enlarged corneal nerves and no iris Lisch nodules. Fundus examination showed mild pallor of both optic nerve heads. No café au lait spots were noted on physical examination. Extensive distal muscle atrophy was seen (Figure 1A). Family history was negative for neurofibromatosis.

Orbital computed tomography was performed and showed large masses filling the superior aspect of both orbits, displacing the globes inferiorly (Figure 1B). The bony orbital roof was expanded and thinned in some areas.

Figure 1. A, Right hand of patient showing extensive atrophy of the dorsal interossei muscles with flexion contracture of the fingers, which is characteristic of Charcot-Marie-Tooth disease. B, Computed tomographic scan of coronal cuts showing bilateral superior orbital tumors with thinning of the adjacent bone (top) and axial cuts showing 2 adjacent, interconnected tumors in each orbit (bottom).
The patient underwent bilateral anterior orbitotomies for excisional biopsy of the tumors. Two adjacent, interconnected tumors were found in each orbit, arising from the supraorbital branch of the frontal nerve, which was noted to be thickened and in turn was resected. Postoperatively, the patient did well.

Pathologic Findings. The specimens were of comparable size, about 2.5 × 1.0 × 0.5 cm each. They consisted of well-circumscribed, non-encapsulated masses with homogeneous, soft, tan-white cut surfaces. Microscopic examination disclosed wavy bundles of proliferating, benign, spindle-shaped Schwann cells separated by collagen-producing fibroblasts that expanded the peripheral nerve tissue and formed a fusiform mass (Figure 2A). There was no nuclear atypia, mitotic figures, or necrosis. Immunohistochemistry results revealed a mixture of S100-positive and S100-negative cells (Figure 2B). These findings are consistent with neurofibroma.

Comment. Charcot-Marie-Tooth disease is one of the most frequently encountered inherited neurolologic syndromes.2 It affects both motor and sensory peripheral nerves. Typical features consist of distal muscle weakness and atrophy, impaired sensation, and hypoactive or absent deep tendon reflexes, initially involving the feet and legs and then slowly progressing to the hands and forearms. Onset is most often during the first or second decade of life. The variation in clinical manifestation is exceptionally wide.2 Several ocular abnormalities have been associated with CMTD: retinitis pigmentosa, external ophthalmoplegia and ptosis, optic atrophy, and nystagmus.3 Pupillary abnormalities have been reported in patients with CMTD, secondary to either sympathetic denervation or parasympathetic abnormalities. To our knowledge, this report presents the first case of bilateral, localized orbital neurofibromas in a patient with CMTD.

Localized neurofibromas are typically located in the superior orbit in the distribution of the ophthalmic division of the trigeminal nerve (V1). These tumors are amenable to surgical treatment because they are well circumscribed and relatively avascular. The possibility of malignant transformation of these tumors, though more common when associated with von Recklinghausen disease (10%-15%), necessitates total excision when possible.

Lately, the few reports on the simultaneous occurrence of neurofibromatosis and CMTD point to a possible genetic relationship between these 2 disorders.4 Both diseases involve the same gene locus of PMP22 on chromosome 17.

To our knowledge, bilateral, localized orbital neurofibromas were only reported once previously in a patient who had associated multiple endocrine neoplasia.1 In addition, localized orbital neurofibromas in association with CMTD
have not been previously reported, and a thorough literature search revealed only a single case of neurofibroma of the facial nerve associated with CMTD.3

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Treatment of Recurrent
Corneal Erosion With
Substance P–Derived
Peptide and Insulin-like
Growth Factor I

A 32-year-old woman was referred to us in September 2002. In February
1999, she experienced a traumatic corneal erosion in her right eye. After initial corneal healing, she de-
veloped several episodes of ocular pain, photophobia, and profuse tear-
ing upon awakening. She visited an ophthalmologist and the diagnosis of recur-
rent corneal erosion (RCE) was made. She was treated with eye drops
and ointments containing 5% sodium chloride for several months, but the ep-
ithelial erosion did not heal. She visited another ophthalmologist who
added a therapeutic contact lens to her treatment, but there was no im-
provement.

On her initial visit to us, her vi-

Figure 1. A, Slitlamp image of corneal erosion. B-D, Confocal microscopic findings. B, Round brightly reflecting cells (suspected to be inflammatory cells) or debris in the superficial corneal epithelial layer. C, Abnormal structures (islets), interspersed among normal basal epithelial cells (arrow). D, Hook-shaped nervelike structures and irregular anterior keratocytes (representing activated forms) in the stromal region.