



Corneal Neurotization in the Setting of Previous Orbital Radiation Therapy

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Clinical Image

A 55-year-old man, a renal transplant patient with immunosuppression, presented with left midface squamous cell carcinoma with perineural spread to the skull base, leading to left corneal anesthesia and facial paralysis. His tumor was deemed surgically unresectable. He was treated with chemotherapy and high dose orbital and skull base radiation (total dose of 68 Gy). He had progressive corneal scarring and opacification despite upper eyelid weight placement, ectropion repair, and tarsorrhaphy (Figure 1A). He underwent Corneal Neurotization (CN) with sural nerve autograft coapted to the contralateral supraorbital trunk (Figure 1B), leading to marked improvement in corneal health and visual function (Figure 1C).

CN is a relatively new surgical procedure for treatment of neurotrophic keratopathy [1,2]. Patients with multiple cranial neuropathies secondary to skull base tumors are at risk for severe corneal complications due to coincidence of facial paralysis and corneal anesthesia [3,4]. To our knowledge, this is the first case documenting CN in a patient who has had high dose orbital radiation therapy. CN has been thus far viewed as contraindicated after high dose orbital radiation. Coaptation of the sural nerve to the non-irradiated contralateral supraorbital nerve was done as the ipsilateral supraorbital nerve was damaged from previous exposure to high dose radiation. Our patient experienced marked improvement in corneal health after CN.

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Figure 1: (A) Preoperative slit lamp photograph shows corneal opacification, scarring, and neovascularization of inferior cornea. (B) Intraoperative photo shows the sural nerve graft that was coapted to contralateral supraorbital nerve. (C) Postoperative slit lamp photograph shows significant resolution of corneal opacification and scar.

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