



Reanimation Surgery for the Management of Facial Paralysis

- Facial plastic surgeons at Penn Medicine are performing reanimation surgeries for patients with facial nerve dysfunction and paralysis resulting from trauma, disease or prior surgery.

Patients with facial paralysis endure the profound social stigma and isolation associated with disfigurement. In the absence of functional nerves that animate the face, normal facial responses to social stimuli and emotion disappear. The inability to contract the orbicularis oris compromises the normal labial seal, resulting in oral incompetence and articulation difficulties. The dilator nasal passages are often affected, leading to functional nasal obstruction, sleep disordered breathing and diminished sense of smell. When the orbicularis oculi are affected, dramatic cosmetic asymmetry occurs secondary to brow ptosis, lagophthalmos and lower eyelid laxity. The risks of corneal exposure in this setting may result in dryness, infection, corneal abrasions and/or ulcerations, and even blindness.

At Penn Medicine, the treatment goal for patients with facial paralysis is to restore them to an optimal quality of life, a renewed sense of confidence and a return to premorbid social activities and the workplace. Often, reanimation surgery is the best way to achieve these goals. Facial reanimation interventions have the potential to restore facial symmetry, oral competence, eyelid closure and, in some cases, voluntary animation of the facial muscles.

Penn facial plastic surgeons offer a variety of reanimation interventions, typically as a series beginning with periorbital surgery to protect the eye and restore symmetry to the upper face. These procedures might include brow lift surgery and ectropion repair accompanied by neuromodulator injections and other adjunct therapies. In time, with progressive dysfunction and asymmetry of the lower third of the face, hypoglossal facial anastomosis (facial nerve interpositional jump graft surgery), temporalis muscle transposition, gracilis free tissue transfer and other facial reanimation procedures may be performed.



► **Figure 1:** A 73-year-old patient before (left) and after (right) facial reanimation surgery involving a temporalis muscle transfer and orbital weighting to correct the effects of partial right-sided facial paralysis. [Images © Oren Friedman, MD]

Case Study

Mr. M, a 73-year-old man, was referred to the Division of Facial Plastic Surgery of the Department of Otorhinolaryngology-Head and Neck Surgery at Penn following surgery at another institution for a benign parotid tumor during which the facial nerve was inadvertently transected. This left him with partial right-sided facial paralysis (Figure 1A), resulting in frequent tearing from the right eye, drooling from the corner of his mouth and profound social inhibition. After a thorough consultation at Penn, Mr. M agreed to have facial reanimation surgery to address these concerns.

During his surgery, the temporalis muscle was transferred to his mouth, providing motion and the ability to smile. His lower eyelid was tightened to reduce the tearing that was associated with lost tone of the eyelid's orbicularis oculi muscle, and a weight was added to the upper eyelid to allow Mr. M to close (and thereby protect) his eye and vision from long-term drying and potential ulceration of the cornea.

Following his surgery, Mr. M remained in the hospital for two days, then went home to recuperate. At a follow-up visit a year later, he was able to demonstrate oral competence and regained facial expression on his right side (Figure 1B) and reported a higher quality of life and an ability to re-engage in family life and interactions with the outside world.

Faculty Team

The Department of Otorhinolaryngology-Head and Neck Surgery at Penn Medicine provides expert diagnosis and treatment of disorders in the ear, nose and throat as well as those in the head and neck area. The Department logs over 86,000 patient visits each year, the highest volume in the nation of any center or program performing otorhinolaryngology-head and neck surgery. The Department is actively involved in research, including investigations of the efficacy and safety of TransOral Robotic Surgery (TORS) in a variety of indications.

Performing Facial Reanimation Surgery at Penn Medicine

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