

Invited Commentary

Happy Birthday Facial Nerve

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One of the worst moments in the early lives of children occurs when they awake the morning after their birthday and realize that 364 days separate them from their next birthday. The seemingly endless, yearlong wait that faces the unhappy child the day after his or her birthday is exactly the same “treatment” that we recommend to many of our patients with facial paralysis. As treating physicians, we likely fail to fully appreciate the isolation, sadness, and subtle but innumerable reminders of facial disability that fill each of those 364 days of our patients’ lives.

Without readily available alternative options, treating physicians are forced to recommend this yearlong “wait and watch” approach for patients having facial paralysis resulting from skull base surgery with known facial nerve integrity. Yet, given all the advancements in medical technology, how is this approach still considered the standard of care? Certainly, the prolonged purgatory of inaction is a bitter pill to give our patients, when most of us prefer offering expedited surgical solutions. Options are improving in part because of articles such as the one published in this issue of *JAMA Facial Plastic Surgery* by Albathi et al,¹ from The Johns Hopkins University, Baltimore, Maryland.

The Hopkins group has published extensively on the topic of facial paralysis, including the social cost of paralysis, the options for regional muscle



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transfer, and the advantages and timing of neural coaptation. In the present article, Albathi et al¹ further develop the concept that lack of improvement in facial nerve function among patients with an intact facial nerve after skull base surgery may be used as a reliable predictor of the appropriateness of early surgical intervention. Their work not only challenges the concept that a 12-month wait is appropriate but also suggests that a 12-month wait may in fact be detrimental.

Although every experienced facial nerve surgeon may recollect a circumstance in which a patient “suddenly” realized some spontaneous recovery of facial nerve function after his or her first anniversary of paralysis, we realize that this awareness occurs rarely. Consequently, in a model developed by the Hopkins group, lack of recovery of facial nerve function by 6 months predicted ultimate paralysis with 97% specificity and 97% sensitivity.²

What is the rush then of intervening at 6 months if 3% of patients might experience some degree of spontaneous recovery thereafter? Albathi et al¹ demonstrate that there is little to gain and valuable time to lose with waiting. Their patients with intact facial nerves who underwent no surgical intervention for facial paralysis experienced minimal ultimate recovery by 18 months, a House-Brackmann grade V on average. The patients who did undergo surgical intervention experienced an ultimate mean result of House-Brackmann grade III. While

there was no clinical benefit of intervening surgically at a mean of 8.3 months (the early group) vs 16.3 months (the late group), the patients in the early group gained valuable time.

Intraoperative electromyography with direct nerve stimulation was used to further ensure that no patient with incipient spontaneous recovery underwent unnecessary neural coaptation. Assuming that this is an accurate surrogate for lack of subclinical reinnervation, there does not appear to be any benefit of “watchful waiting” beyond 6 to 8 months after onset of paralysis, at least in the cohort of 27 patients in the study by Albathi et al.¹

It is clear that earlier surgical intervention yields earlier ultimate reanimation, but the exact form that intervention should take has been somewhat unclear. While the window of opportunity for reinnervation is still open, there is no doubt that reinnervation is the best choice. The only question is which donor nerve should be used. Until recently, the choice lay between a cross-facial nerve graft and a hypoglossal nerve to facial nerve transfer. Cross-facial grafts are known to take longer to reinnervate, and with 2 coaptations they are also known to contribute fewer axons than similarly sized nerve transfers with a single coaptation site.^{3,4}

This topic leads us to another major trend in the field of facial paralysis that was addressed in the article by Albathi et al,¹ namely, the great usefulness of the masseteric nerve for facial reinnervation. Initially conceived as a temporizing maneuver or “babysitter graft” for patients in whom more sophisticated reconstructions were planned, the masseteric nerve has become a popular and permanent choice for reinnervation of gracilis microneurovascular free tissue transfers and for selective facial reinnervation.⁵

This sea change occurred in the midst of the study by Albathi et al,¹ with the use of the masseteric nerve completely replacing the use of the hypoglossal nerve for facial nerve reinnervation. The masseteric nerve lies in proximity to the facial nerve and offers a single coaptation site. It is readily identified in the subzygomatic fossa and offers less morbidity than other regional nerves used for facial reanimation.^{6,7} When used selectively for the buccal and zygomatic branches, the masseteric nerve is associated with excellent commissural excursion and minimal synkinesis. The study by Albathi et al¹ identifies a notable feature associated with the use of the masseteric nerve, namely, the speed with which it achieves a clinical response. It seems that a mean of 5.2 months may be saved by performing neural coaptation with the masseteric nerve instead of with the hypoglossal nerve.

When considering treating patients with intact but non-functional facial nerves after skull base surgery, more than 11 months may be reduced from the ultimate wait for recovery by following the strategies used in the study by Albathi et al,¹ including 6 months by intervening earlier (at 6 months instead of the standard 12 months) and 5.2 months by using the

masseteric nerve instead of the hypoglossal nerve (5.6 months instead of 10.8 months). This time frame approximates the entire 12-month purgatory of the wait and watch strategy. While early intervention with the masseteric nerve may not be as-

sociated with necessarily better outcomes than standard intervention with the hypoglossal nerve, it can represent virtually a full year of time saved. What a nice birthday present to give our patients!

ARTICLE INFORMATION

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