Restoration of Sensibility Following Intentional Infra-Orbital Nerve Transection in Unilateral Cleft Lip Repair

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INTRODUCTION: Repair of the wide cleft lip in which presurgical orthopedics is not used can present challenges to achieving a tension-free reconstruction. In order to limit tension during wide cleft lip repair, we routinely sacrifice the infraorbital nerve during mobilization of the lateral lip elements. Prior studies in pediatric hand trauma demonstrate return of sensibility in the absence of nerve repair through the phenomenon of adjacent neurotization. *Faivre et al* demonstrated good return of light touch sensation in all patients with Semmes-Weinstein monofilaments in the 2.83 to 3.83 range.[1] All patients in that study demonstrated return of discriminatory sensation and excellent functional results. The aim of this study is to evaluate the medium-term sensibility outcomes after infraorbital nerve transection during radical cheek dissection at the time of wide cleft lip repairs.

MATERIALS AND METHODS: A 3-year single-surgeon retrospective review of patients undergoing unilateral cleft lip repair with radical cheek dissection was performed. Radical cheek dissection was defined as supraperiosteal dissection across the entire face of the maxilla as far superior as the infraorbital rim, transecting the infraorbital nerve. Recorded variables include age at the time of sensory exam, other diagnoses, and results of Semmes-Weinstein monofilament testing (4.31, 3.61, and 2.83 levels) on the side of surgery and the unoperated side.[2]

RESULTS: Fifty-seven patients underwent unilateral cleft lip repair during the study period and 9 patients met inclusion criteria (Table 1). The mean age at the time of sensory examination was 4.9 years (range 3.9 to 6.2 years). Nine patients had intact lip sensibility on the operated side when stimulated with the finest Semmes-Weinstein monofilament (2.83). None of the patients examined reported a subjective change in sensation across the upper lip. All patients reported an elicited sensory response on the operated side when stimulated with all tested filament levels. There were no patients that had a difference in sensibility compared to the control side (p = 1.00).

CONCLUSIONS: Transection of the infraorbital nerve during primary cleft lip repair has no detrimental effect on upper lip sensibility. There should be limited concern for sacrifice of upper lip sensibility during lateral lip mobilization. Prospective, randomized analysis would be required to compare the potential benefit to outcomes that the described technique may offer.

REFERENCES:

1. Faivre S, Lim A, Dautel G, Duteille F, Merle M. Adjacent and spontaneous neurotization after distal digital replantation in children. Plastic Reconstr Surg. 2003;111:159-165

2. Bell-Krotoski J, Tomancik E. The repeatability of testing with Semmes-Weinstein monofilaments. J Hand Surg Am. 1987;12:155-161

LEGENDS:
Table 1. Patient Summary.

Patient	Age at Evaluation (Years)	Age at Surgery (Months)	Cleft Side	Other Anomalies
1	4.3	3.5	Left	
2	6.2	6.8	Right	
3	5.3	13.4	Right	CHARGE
4	5.5	6.1	Right	van der Woude
5	3.9	3.5	Left	
6	4.2	3.2	Left	
7	5.7	4.0	Left	
8	4.6	2.6	Left	
9	4.4	3.4	Left	