

## **Treating synkinesis with botulinum toxin: strategies, case examples, and treatment of buccinators**

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**Objective:** Synkinesis after facial nerve injury produces functional and cosmetic concerns for patients. The purpose of this study is to review our experience of treating buccinator synkinesis with botulinum toxin.

**Methods:** This was a retrospective medical records review. All patients seen at the University of Wisconsin Neuromuscular Retraining Clinic who were treated with botulinum injections to the buccinator muscle were included. After a period of neuromuscular retraining lasting 6-12 months, botulinum injections were administered to the mid and/or posterior aspect of buccinator by the senior author via an intra-oral approach. The sites and dosage of the injections depended substantially on input from the therapist (JD) overseeing the patient's neuromuscular retraining therapy. Data on patient age, gender, indication for treatment, location and dose of botulinum administration, and outcome were collected and analyzed. The Synkinesis Assessment Questionnaire (SAQ) was utilized as a patient-reported outcome measure. Descriptive statistics were computed for all recorded variables.

**Results:** A total of 42 patients with synkinesis involving buccinator were treated. Female to male ratio was 9:1. The indications for treatment included: significant retraction and immobility of the affected oral commissure at rest and during volitional and spontaneous facial expressions, difficulty manipulating food during mastication, and biting the inside of the affected cheek. Average age at first treatment was 53 years old (range 18-83). Mean total dose of botulinum administered per session was 54 units total with 2.0 units (range 1.25- 2.5 units) to buccinator. Mean follow up 5.5 years. SAQ scores improved from mean of 66.3 (33-88.8) preinjection to 49.5 (28.8-71.1) post injection. Two patients were bothered by temporary increased flaccidity of the cheek. In general, patient satisfaction with the procedure was high.

**References:** **1.** Couch SM, Chundury RV, Holds JB. Subjective and objective outcome measures in treatment of facial nerve synkinesis with onabotulinumtoxin A (Botox). *Ophthal Plast Reconstr Surg.* 2014; 30: 246-250. **2.** Lindsay RW, Robinson M, and Hadlock TA. Comprehensive facial rehabilitation improves facial function in patients with facial paralysis. *Physical Ther.* 2010, 90: 391-397. **3.** Laskawi R, Damenz W, Roggenkämper P, Baetz A. Botulinum toxin treatment in patients with facial synkinesis. *Eur Arch Otorhinolaryngol.* 1994:S195-9.