A Simple Botulinum Toxin Injection Technique for Masseter Reduction

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Aesthetic Surgery Journal
2021, Vol 41(12) NP2104–NP2105

https://doi.org/10.1093/asj/sjab273
www.aestheticsurgeryjournal.com
OXFORD UNIVERSITY PRESS

Editorial Decision date: June 24, 2021; online publish-ahead-of-print July 5, 2021.

The off-label use of Botulinum toxin for masseteric hypertrophy is well-established in the Eastern Asian population and of growing interest in the West.[1] Much variation in injection techniques has been described, with up to 5 reported recently.[2] Not surprisingly, according to a recent literature review of more than 4000 such cases from 1994 to 2018,[3] a myriad of complications can develop. These include pain on the injection site being the most common, followed by localized swelling, bruising, headache, chewing weakness and aching, and the development of an asymmetric smile, among others.[3]

Indeed, such concerns had already been alluded to in a Cochrane review in 2013, which concluded that there was a lack of high-level evidence for the efficacy and safety of intra-masseteric injections of Botulinum toxin for patients with bilateral benign masseteric hypertrophy.[4] More recently, investigators have even looked into ultrasound-guided injections of Botulinum toxin for the masseters and claimed superiority of such over the "conventional" blind technique.[5] Curiously, this so-called conventional blind technique was not included in the recent review of techniques[2] above.

Herein, we would like to share a simple injection technique for masseter reduction with Botulinum toxin that has been in use by the senior author (T.Y.) since 2010 and utilized successfully by a less experienced practitioner (Z.Y.N.) during the period October 2019 to July 2020 in 55 patients with only 1 case of inadequate treatment response.

Prior to entering the treatment room, Eutectic Mixture Local Anesthetics cream (AstraZeneca, Cambridge, UK) is applied for approximately 30 minutes bilaterally at the lower masseter area, near the angle of the mandible. Patients are then asked to clench and hold their teeth to enable the anterior border (Line A) and most prominent bulge (X) of the masseter to be marked (Figure 1); they are allowed to relax after. Depending on individual anatomy, a second line is then drawn from either the tragus (Line B) or the inferior border of the ear lobe (Line B') to the corner of the mouth, with the aim of capturing the majority of the masseter bulk within these 2 lines (Figure 1) to minimize the risk of diffusion into the zygomaticus complex.

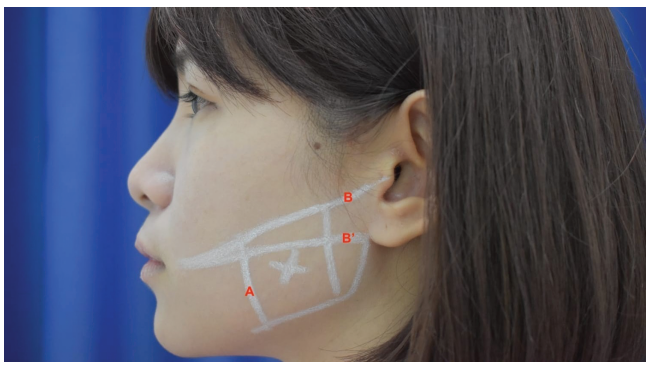

Figure 1. Markings for a single Botulinum toxin injection point for masseter reduction in this 28-year-old female representative patient. Line A is drawn along the anterior border of the masseter with teeth clenched and the most prominent bulge of the muscle marked (X). Line B or B', depending on individual anatomy, is then drawn towards the oral commissure to capture most of the masseter bulk.

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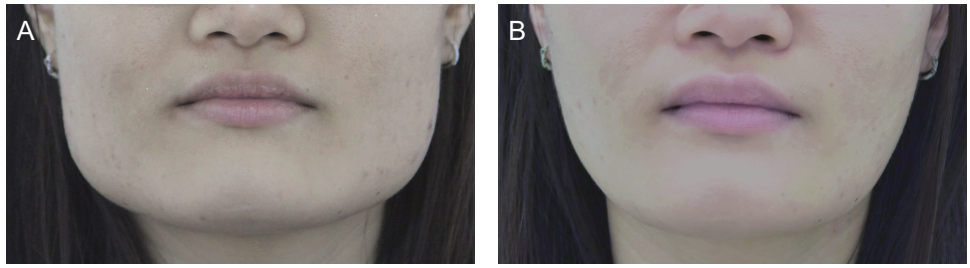

Figure 2. (A) Pretreatment, frontal view of this 37-year-old female representative patient with bilateral, benign masseteric hypertrophy. (B) At 2-year follow-up, this photo demonstrates maintenance of the results with treatment at 6-month intervals.

Skin cooling with a cold pack is then applied over the most prominent point followed by injection perpendicularly with a 30G needle in a 1-cc syringe until the mandible is felt. At this point, the needle is withdrawn slightly, and one-third of the Botulinum toxin is deposited. The needle is then re-oriented without withdrawal from the skin and advanced slightly for the next 2 deposits, usually anteriorly and superiorly; this is then repeated for the other side. The total time taken for the actual injections (×2 total) is usually less than 1 minute. Post procedure, there may be some punctate bleeding, but this resolves almost immediately with slight pressure. Pain and bruising are rare, and occasionally some patients report mild discomfort, but this is otherwise self-limiting and resolves within a few days.

In our experience, patients with bilateral benign masseteric hypertrophy can be treated safely with this simple technique (Figure 2). Our preference is to use Dysport (Ipsen, Wrexham, UK), but Botox (Allergan plc, Dublin, Ireland) can be similarly administered, depending on patient preference and budget. Repeat procedures are performed, usually at the patient's request at 4- to 6-month intervals. We hope to have demystified the treatment of masseteric hypertrophy with Botulinum toxin and believe that ours is a simple, fast, and safe technique with an overall, very high level of patient satisfaction.

Disclosures

The authors declared no potential conflicts of interest with respect to the research, authorship, and publication of this article.

Funding

The authors received no financial support for the research, authorship, and publication of this article.

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