



Botox Therapy – A Conservative Approach to the Management of Gummy Smile

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Abstract

Gummy smile is the excessive gingival display upon smiling. It is the result of numerous etiological factors that includes the gingival, musculoskeletal and combination. It has psychological impact on some individuals resulting in self-consciousness and embarrassment. Varieties of surgical and non-surgical approaches have been described in the literature for the management of gummy smile. Botulinum (Botox[®]) is an exotoxin procured from the anaerobic bacteria, the clostridium botulinum. Treatment with botox is a conservative alternative to the invasive surgical procedures. This article briefs the important clinical aspects of botox use in the treatment of gummy smile.

Keywords: Botox; Botulinum Toxin; Gummy Smile

Introduction

The essential goal of dentists worldwide has been to achieve an aesthetically pleasing smile irrespective of their specialty [1]. Harmonizing an aesthetic smile requires a perfect integration of facial and dental composition [2]. The essentials of a smile involves relationship between three primary components; the teeth, lip framework and the gingival scaffold [3]. When the patient smiles, a nominal exposure of 1 to 3 mm of gingiva from the most apical extent of the free gingival margin to the inferior border of the upper lip line is exposed [3]. The excessive maxillary gingival display during smiling is termed as the “Gummy smile”. Sexual dimorphism in smile types indicates that the females are twice as likely as males to have gummy smiles [4].

The etiological factors for gummy smile may occur alone or in combination, these include skeletal problems (dental and bone), gingival disorders (gingival overgrowth and passive eruption) and muscle problems (upper lip length and muscular hyperactivity) [5]. The appearance of lip framework which is one of the reason for gummy smile is determined by the activity of various facial muscles [6]. These include the levator labii superioris, the levator labii superioris alaeque nasi, the levator angulioris, the zygomaticus minor and the zygomaticus major muscles [6].

There are a number of different modalities for the treatment of gummy smile. These includes both surgical and non-surgical options including Le Fort I osteotomy, crown lengthening procedure, maxillary incisor intrusion, self-curing silicone implant injected at the anterior nasal spine and finally myectomy and partial resection of the levator labii superioris or muscle repositioning [7]. The surgical procedures may lead to frequent relapse and undesirable side effects such as scar contraction [8].

Botulinum (Botox[®]) is an exotoxin procured from the anaerobic bacteria, the clostridium botulinum. Treatment with botox is conservative alternative to the invasive surgical procedures. Botox does not affect the statics of smile (e.g. lip length), only the smile dynamics (e.g. muscle activity on smile) [9]. The use of botox is appropriate in case of hypercontraction of elevator muscle of upper lip determined by the elimination of other etiologies.5 The botox molecules act at nerve terminals and prevents the release of acetylcholine by cleaving SNAP-25, which leads to muscle relaxation.

Indications

General: Juvenile cerebral palsy, over active bladder, urinary incontinence, upper limb spasticity, severe axillary hyperhidrosis, blepharospasm and strabismus

Dentofacial: Gummy smile, bruxism, trismus, TMJ disorders, myogenic pain, sialorrhea, mandibular spasm, masseter hypertrophy, oromandibular dystonia, hemifacial spasm, hyper functional larynx and trigeminal neuralgia.

Contraindications

Known hypersensitivity, infection at the injection sites, psychological instability, patients with unrealistic expectation, pregnancy, lactation, neuromuscular disorders and intake of drugs such as aminoglycosides.

Adverse Effects

Mild tingling sensation or burning sensation with injection, mild headache, ecchymosis, paresthesia and myalgia.

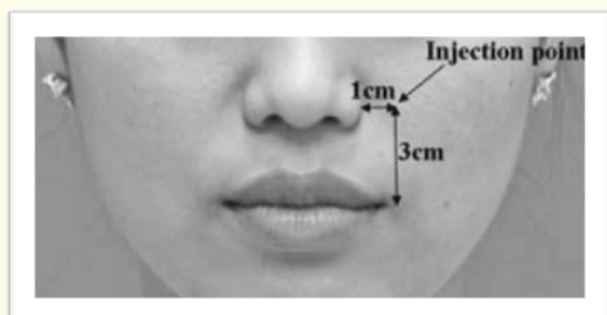
Complications

Asymmetric smile and upper lip drooping – ‘Joker’ smile.

Injection technique

To reconstitute the botox prior to the injection, 4 ml of 0.9% sodium chloride without preservative is slowly injected into the vial containing 100U freeze dried botulinum-A toxin as per the manufacturer’s instruction. It results in the dose of 2.5 U/0.1 ml.

Site of injection: For the treatment of gummy smile, intramuscular injection of the Botox is given at the Yonsei Point. Yonsei point is located at the centre of the triangle formed by levator labii superioris, levator labii superioris alaeque nasi and zygomaticus minor [10] (Figure 1).



Location of Yonsei point [11]

The effect of botox is seen within 5 - 10 days and lasts about 6 months, with a range of 4-8 months, at which the patient can return to repeat the process [1].

Conclusions

Botulinum toxin is an effective, minimally invasive alternative to the complicated surgical procedures for improving the unaesthetic orofacial conditions such as gummy smile. Botox therapy can be easily accomplished by the general dental practitioners with proper training.

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