Letters to the editor*

Botox for excessive gingival display

I just read Dr Mario Polo's article, "Botulinum toxin type A in the treatment of excessive gingival display" (Am J Orthod Dentofacial Orthop 2005;127:214-8), and I found it quite interesting and of important clinical significance.

Is further research planned in this area? It would be interesting to know whether there is a way to increase the duration of Botox on the hyperfunctional elevator muscles of the upper lip. It seems that this study might have tapped into an alternative treatment for these patients, once careful differential diagnosis has been done.

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Am J Orthod Dentofacial Orthop 2005;127:645
0889-5406/$30.00
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doi:10.1016/j.ajodo.2005.04.02510.1016/j.ajodo.2005.04.025

More on Botox treatment

I would like to comment on "Botulinum Toxin type A in the treatment of excessive gingival display" by Dr Mario Polo in the February issue of the *Journal* (Am J Orthod Dentofacial Orthop 2005;127:214-8).

First, I want to say that the article is timely, well written, and controlled. It also provides an impressive history of treatment options for excessive gingival display. This treatment for excessive gingival display is not, however, novel, as the author reported. It has been well described and used over the past decade. My office is a physician-training facility for Allergan, and I teach doctors from all over the world the cosmetic uses of Botox. In addition, I am a member of the Botox National Training Faculty, a group of several hundred international physicians. (I am the only member with a dental degree.) We meet several times a year to learn and teach new techniques about Botox. I have published many articles on the cosmetic use of Botox in maxillofacial surgery.[1-5]

Dr Michael Kane, a colleague and plastic surgeon, has been performing Botox injections for excessive gingival show since 1992.[6] Dr Jean Carruthers, the Vancouver ophthalmologist credited with the cosmetic use of Botox, has also lectured extensively on this technique and published it in 2001.[7]

As Dr Polo eloquently pointed out in his article, many surgical procedures have been described to treat excessive gingival show. In dentistry, we are most familiar with maxillary impaction via LeFort osteotomy to decrease the amount of vertical maxillary excess. This is the standard, permanent treatment for gummy smile secondary to vertical maxillary excess. As Dr. Polo pointed out, factors other than maxillary excess can contribute to a gummy smile.

I am impressed by the author's quantification of the lip movement and the photographic standardization. It would, however, have been preferable to crop most of the faces so that the readers could concentrate on the mid and lower facial areas. Nonetheless, the standardization is well done. The study also used electromyographic guidance for the injection of the toxin. I think this is unnecessary; although it was used in early experience, it has fallen out of favor except when precision is functionally imperative. An example would be the lateral pterygoid muscle when treating temporomandibular problems. As for the mimetic muscles, they rarely are a single, discernable muscle but, rather, interdigitate with neighboring muscles of facial expression. For this reason, there is no neccessity for the time and expense of the electromyography. The article also mentions aspirating before injecting. Although this is always a safe maneuver, the amount of Botox that would be injected intravascularly is insignificant and would cause no serious problems.

I personally have treated many patients with Botox for excessive gingival exposure but have abandoned the procedure. Although I was successful in decreasing the action of the lip elevators and hence the amount of gingival tissue exposed, most patients reported unnatural smiles and lip function. The trade-off was not worth the unnatural look to the patients. Saying this, I fully realize that this could have been my particular technique, but I have continually observed this finding when closely examining the before-and-after images of other practitioners who used this treatment modality. I also believe that the smiles in Dr Polo's posttreatment photos also show unnatural labial smile esthetics. In my personal experience, most patients looked fairly improved in the "after" image, but, when I observed the patient in live animation, the result was an esthetic compromise. I have also observed this in patients who have had Botox treatment for nasolabial fold effacement. The folds are sometimes improved, but usually at the cost of animated function and esthetics. In some patients, the trade-off of showing less gingiva might be worth the appearance of a "stiff upper lip," but, again, in my personal experience, these patients did not opt for continual repetitive therapy.

An additional concern I have is that this procedure is frequently touted by physicians and nondental health-care providers as the solution for excessive gingival display. Although it is a treatment option, it is not a permanent or standard of care treatment for vertical maxillary skeletal excess. This might cause some patients to remain uninformed about the option of orthognathic surgery.

I applaud Dr Polo for a well-controlled study and a well-written article that sheds light on a contemporary and minimally invasive, temporary treatment option for excessive gingival exposure. I am by no means being overly critical of his work but believe it is important to highlight another practitioner's observations and results with this technique. Obviously, many variables exist in the treatment and outcome of any procedure, and I hope articles

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like Dr Polo's will lead us to better understand this condition and treatment option.

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Am J Orthod Dentofacial Orthop 2005;127:645-6
0889-5406/$30.00
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doi:10.1016/j.ajodo.2005.04.026

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