

Gummy Smiles. What are the options?



Dr Giulia D'Anna

By Dr Giulia D'Anna

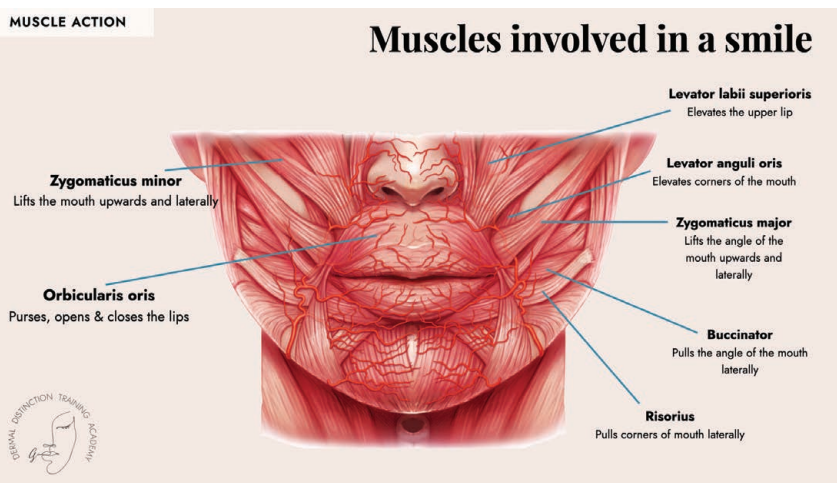
In years gone by, the traditional approach to correcting a patient with excess gum display was usually surgical. The patient would be directed to an orthodontist for treatment, which usually involved resection of the maxilla to impact the bone and teeth, followed by revision orthodontic treatment once the surgical scars had healed. From a patient point of view, this is an extraordinary decision to make in terms of time-frame, surgical recovery, risk and financial burden. Not only in the cost of the treatment itself, but also in the loss of income from their usual occupation. As I am sure you can appreciate, this type of surgery generally takes place once the patient is an adult as the bones have ceased growing, so that the surgical and orthodontic outcome is more stable.

This exact clinical problem was what first sparked my interest in cosmetic injectables. Surely there had to be another option. But before we jump ahead, let's look at what actually is the cause of a gummy smile.

Smiling can be in-sincere, where we engage just a couple of muscles, whereas a genuine smile engages many pairs of muscles in the middle third of the face. Often the upper lip becomes quite thin when the muscles that create a smile engage. There are several muscles involved in a smile; namely the Risorius, Zygomaticus major, Zygomaticus minor and Levator Labii Superioris Aqualae Nasalis (LLSAN), and Levator Labii Superioris. However each set of these muscles pulls in a slightly different direction. The Risorius is mainly responsible for the horizontal pull (or the insincere smile), whereas the Zygomaticus major and minor muscles pull in a more oblique upward and outward direction on the oral commissures. The two muscles that are mainly responsible for the vertical component of the smile action are the Levator Labii Superioris and the LLSAN.

Muscles are just one part of the smile. Obviously there are the associated bones, particularly the maxilla, the periodontal tissues and gums, and the teeth themselves. Each of these components can be responsible in part or entirely for the formation of a gummy smile.

MUSCLE ACTION



What is a gummy smile?

Excess gum display is defined as an excessive gum display of 3mm or more above the upper front teeth when smiling. So given that there are multiple parts to a smile, each part may be responsible for a gummy smile. Gummy smiles can often cause distress to our patients, such that they never fully animate when there is a camera present. I know that many of my patients have admitted to training themselves to smile in a certain way, so that the amount of gum they show is hidden. It is exhausting.

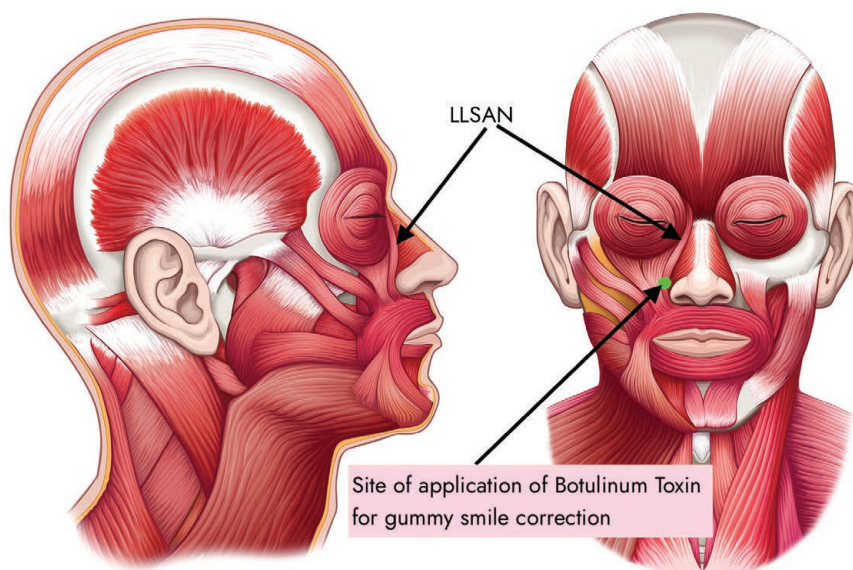
Gummy smiles may be caused by:

1. Teeth that have yet to undertake passive eruption, such that there is gum tissue overlying the enamel of the teeth. The most common treatment for this non-pathological type of gummy smile



is removal of the excess gum tissue with a scalpel or laser gingivectomy procedure. Once performed, sometimes complete correction of the gummy smile is achieved

2. In some patients, there may be a short cutaneous upper lip, causing lip incompetence. Assuming that the occlusion of the patient is within normal limits, correction of this less than ideal smile position may be surgical. An approach may be a lip-lengthening procedure, where the gingival tissues in the sulcus are repositioned under local anaesthetic to allow for the lip position to advance in a downward position. For some patients this may also involve more radical surgery, where the muscle attachments are also repositioned.



3. Maxillary excess may also be the cause of a gummy smile. In these cases, both an orthodontic and surgical approach may be warranted. This will initially correct any compensation that may have occurred in tooth position, followed by surgical removal of the excess bone. Finally refinement orthodontics are then required to better align the teeth for a pleasing result.
4. Hyperactive muscles may also cause a gummy smile, where the elevator muscles simply pull too hard, causing the upper lip to rise into a position that displays excess gum.

Of course there are many patients that show excess gum which is caused by multiple factors.

What are the non-surgical options?

Botulinum Toxin can be used to alter the action of muscles of facial expression, and have widely been used in the medical and dental community for a long period of time. There are many high-quality patient-centred studies around the use of Botulinum to modify, soften or completely freeze the muscles in the face.

A particularly useful application of Botulinum toxin is for the treatment of gummy smile. By applying a small dose to the elevator muscles of the upper lip, we can achieve a softer, less gummy appearance of the smile. Not only that, but the risk to the patient is low, the financial burden is minimal and the time taken for treatment is barely a few minutes of clinical time.

Botulinum toxin works by interrupting the release of acetylcholine from the neuromuscular junction, such that muscle contraction is weak or completely "switched off". The nerves involved eventually regain connection with the muscle, whereby nerve sprouts begin forming, causing the muscle

to begin action once again. Full return of muscle activity is resumed at around the three to four month mark after initial treatment. By applying a dose to the LLSAN muscle, the main elevator of the upper lip is partially disabled. This then drops the central portion of the upper lip, whilst retaining the patient's ability to smile. The treatment has the added bonus of reducing the depth and appearance of the nasolabial fold, which with repeated hyperactivity of the LLSAN muscle, becomes exceedingly deep over the course of a life-time. So intervening with botulinum toxin will also reduce this under-desirable long-term side-effect of the hyperactivity of the LLSAN muscle.

What are the benefits of botulinum toxin treatment?

This does mean that patients that are treated with botulinum toxin will need re-treatment three to four times a year to retain the benefit of reduced gummy smile. However, let's look at the benefits of this treatment:

1. Non-surgical treatment. Orthognathic surgery comes with risk. Although the benefits are huge, not all patients opt for surgery due to fear, cost, time and other factors associated with medical history and so on. With Botulinum Toxin, there is very little risk to the patient with this non-surgical approach. Aside from the potential for a bruise, some mild discomfort in the procedure itself, and allergy, the patient usually find this procedure very tolerable and comfortable.
2. Low financial cost. The average treatment will cost the patient around \$50-100, depending upon how the practitioner decides to charge the patient. When you consider the



Botulinum toxin

alternatives, the cost is very low per year. The cost and need to repeat treatment will also considerably reduce over the life-time of the patient. With ageing, the facial tissues will stretch and drop, and the natural downward progression of the face with ageing, will result in little to no gummy smile with advancing years.

3. Patient lifestyle is retained. Given that the usual traditional treatment of gummymiles is undertaken as an adult, orthodontic and surgical treatments can interrupt the work and lifestyle habits of the patient. Advancement in career may be slowed, time taken away from work with surgical recovery can be intense and protracted. Botulinum toxin takes 15 minutes of clinical time, with no downtime at all.

In no way am I discounting the traditional treatment options for the correction of a gummy smile. They work well, and are highly successful. But not every patient will opt for these treatments. There is downtime and high cost involved – both in financial term, and in terms of timeframe. And maybe not every patient is suitable for medical or other reasons for a surgical approach. Botulinum Toxin application is a reliable, predictable and highly successful treatment associated with low cost, low risk and no downtime. I believe it should be offered to every patient with a gummy smile to ensure that you offer a complete array of applicable treatment options to your patient. ♦

If you would like to learn more about the use of Botulinum Toxin and Dermal fillers, especially with the use of botulinum toxin for correction of gummy smile and other cosmetic treatments, visit: www.dermaldistinction.com

