Treating the lower third of the face with Botulinum Toxin A

The majority of patients seeking treatment for fine lines and wrinkles will be initially with the upper third of the face, notably the forehead, frown and eye areas. In practice I have found out that once they have experienced your clinical and patient skills they will seek additional areas to be corrected with Botulinum Toxin A.

In this article I will look at the areas we can treat in the lower third of the face. Before we look at specific areas, I need to draw your attention to the slightly different approach we have for treating the lower third of the face compared to the upper third.

In the upper third of the face the muscles are large and generally independent of each other, therefore we are not overly concerned with the spread and diffusion of the toxin. However, in the lower third of the face, the muscles are generally much smaller and in closer proximity to a number of other muscles and structures. Therefore we need to be wary of the diffusion and spread of our toxin much more. I practice the technique of ‘baby stepping’ when treating the lower third of the face with toxin. I would rather they come back for a review appointment and administer any top ups than over dose and cause unwanted side effects on neighbouring muscles which cannot be corrected.

* When discussing specific units, I will be referring to Azzalure® and Speywood units in the following examples.

Bunny Lines

Not technically in the lower third of the face, but I thought it would be advantageous to talk about this area. These lines appear on the side of the nose when the patient scrunches their nose (Figs - markings relaxed and markings active). The lines are the result of the contraction of the nasalis muscles.

I would normally inject (Fig Bunny lines injecting) 10 Speywood units on each side at a superficial level, no more than 4mm depth maximum. You don't want to go to deep since you will hit bone and this will be painful to the
patient. You would inject where the biggest mass of muscle is. It can make a huge difference as seen in figures before and after.

**Smokers lines**

These are vertical rhytides that occur in the upper lip and lower lip region - Figs smokers lines relaxed and before. These lines occur from the contraction of the Oribcularis Oris. This is a circular muscle around the lower and upper lip. It is responsible for the closure of the lip and pushing the lips forward (puckering/pouting). These lines are common, but not limited to smokers.

There are 3 ways to treat these lines:

(i) toxin only
(ii) dermal fillers only
(iii) combination of both

My criteria for treating with toxin only is if the lines are superficial, worsen when the patient pouts their lips and the patient does not want any fillers to increase the size of their lips - Figure Smokers lines markings. I do warn these patients that we cannot guarantee to eliminate the lines. The toxin is placed very superficially (Figure smokers lines injecting) and I would place as a starting point no more than 5 Speywood units per injection site. I avoid the philtrum area and inject close the the vermilion border. I warn the patient that they may feel numb and find it hard to whistle or say certain letters for a couple of days post procedure. results can be seen on Figures after and before/after example 2.

Dermal filers would be used in isolation if the patients main concerns are the lack of volume in the lips or lack of definition of the vermillion border. There are also a small proportion of patients that do not want any toxin placed.

If the lines are very deep and do not worsen when the patient pouts their lips, then I would use a combination of toxin and dermal fillers. The toxin will help relax the muscle and the dermal filler will increase the volume of the lips/borders to help stretch the skin and reduce the appearance of these lines.

In addition to placing fillers in the lip borders and lips themselves, I will also consider using a fine filler to directly ‘fill’ the smokers lines. My protocol is to
use toxin first and when reviewing, assess whether we need to place a fine filler directly.

I always tell my patients that we cannot guarantee to eliminate the smokers lines and they may need additional treatments such as laser skin resurfacing.

**Corners of the mouth**

Some patients have a reverse smile where the corners of the mouth are going downwards - Figures DAO relaxed and DAO active. This is the result of an over active Depressor Anguli Oris (DAO) which is responsible for lowering the corners of the lips and subsequently Marionette lines. The DAO is a triangularly shaped muscle. The easiest way to locate this muscle is to get the patient to do a sad face and you will see the muscle contracting just above the jaw line - Figure DAO markings. It can also normally be found by drawing a line from the corner of the nose down to the corner of the mouth and continue this line just above the jaw. I inject 10 Speywood units per side - Fig DAO injecting, perpendicular to the muscle and superficially.

Complications can occur if you inject too medially. The toxin can potentially diffuse into the Depressor labii inferiors and cause a protrusion of the lower lip, known as a Gomer Pyle appearance. if you inject too laterally, the toxin can diffuse into the Buccinator, causing the patient to bite and traumatise the buccal mucosa.

Figure DAO After.

**Gummy smile**

This is the result of an over active Levator Labii Superioris Alaeque nasi (LLSAN) muscle. By administration toxin into the LLSAN you can lengthen the upper lip. Markings are as shown in Figure Gummy smile markings. You are looking to inject in the naso facial groove which is adjacent to the Ala. I inject at 45 degrees, deep and 5 Speywood units per side - Figure Gummy smile injecting. Noticeable results can be seen in Figures Gummy smile before and after.

It is worth being in mind Rubin’s 3 classifications of smile patterns:
(i) Mona Lisa smile - dominated by the Zygomaticus Major which elevates the oral commissures as the highest point of the smile. Do not treat with toxin as this will exaggerate the Mona Lisa smile pattern.
(ii) Canine smile pattern - dominated by the Levator Labii Superioris where the highest part of the smile is the central upper lip.
(iii) Gummy smile - excessive display of the upper gingival when smiling

I will sit the patient down and will get them to look at a mirror at eye level. then i will push the upper lip down by 3/4mm to show then the expected result and if agreeable, then will carry out the procedure.

**Masseter**

Over activity of this muscle can cause a square jaw look and potentially bruxism. I would get my patient to clench their teeth and observe where the bulk of the muscle contracting and bulging and mark accordingly (Figure Masseter markings) I normally give 3 injection sites per side (Figure Masseter injecting) and would start of with 15 Speywood units per injection site and then review in 2 weeks for any top ups. Over dosing can reduce their biting force. I would inject deep into the belly of the muscle at 30 degrees to the muscle.

**Chin**

The Mentalis is responsible for pushing out the lower lip and contributes to chin wrinkles, also known as ‘orange peel’ (Figure Chin markings) This appearance is more common amongst gummy smilers and in anterior open bites. Even though the Mentalis is a pair of muscles, my preferred injection technique is for one injection site in the midline, very deep at 90 degrees - Figure Chin injecting. I would normally inject 10 Speywood units and the results can be seen via Figure Chin after.

**Neck**

Contraction of the Platysma can lead to bands and premature ageing of the neck region. Toxin is rarely used in isolation in this area and normally treatments to improve the skin complexion such as mesotherapy will yield the optimal results for the patient. Ask the patient to contract their neck via clenching their teeth and then mark along the bands - Figure Neck markings. I would normally inject between 4/5 sites per band and 10 Speywood units
per site very superficially whilst the non injecting hand is pulling out and squeezeing the band - Figure Neck injecting.

In conclusion, I would rather under dose and get the patient back for any necessary top ups than be over optimistic on the first visit and over dose causing complications. By baby stepping in the lower third of the face you will greatly reduce the risks and have a happier patient and less sleepless nights.

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