

# Aesthetics

MONTHLY JOURNAL FOR MEDICAL AESTHETIC PROFESSIONALS



## STYLE YOUR AGE

### Dermal Filler Aspiration CPD

Dr Ahmed El Houssieny reviews the literature on aspiration for dermal fillers

### Special Feature: Injectable Case Studies

Three interesting case studies from ACE 2020 speakers

### Considering Facial Nerve Anatomy

Dr Munir Somji outlines facial nerve anatomy for safe treatments

### Understanding VAT Exemptions

VAT advisor Veronica Donnelly looks at aesthetic treatments and tax payment



## Considering Facial Nerve Anatomy

Dr Munir Somji outlines the importance of understanding facial nerve anatomy for safe and successful dermal filler treatments

The goal of every injectable procedure is to perform an effective, safe treatment with minimal pain. Therefore, a thorough knowledge of the neurovasculature in this area is desirable. Injectable vascular anatomy features heavily within literature, with good reason, given the possibility of intra and extra vascular occlusion and its sequelae. There is, in contrast, a paucity of guidance and appreciation for the nervous distribution of the face when injecting dermal fillers.

### Nerve distribution in the face

The facial nerve and the trigeminal nerve are the two major nerves we encounter upon injecting the face. The trigeminal nerve splits into three main parts: the ophthalmic nerve, the maxillary nerve and the mandibular nerve. The trigeminal nerve passes through the foramina of the skull and divides into independent facial sensory components. In contrast, the facial nerve has one nerve trunk that passes through the stylomastoid foramen and separates into two divisions: the cervicofacial and temporofacial divisions within the parotid gland. Later, it branches off into temporal, zygomatic, buccal, marginal mandibular and cervical branches.<sup>1</sup> Nerve injury secondary to dermal filler injection may be transient, reversible or permanent. Inadvertent nerve damage is a rare complication of dermal filler procedures and can occur as a result of both sharp and blunt force trauma where the nerve is encountered by the needle or cannula. This can cause the nerve to either be pierced or partially lacerated by the needle. Other possible methods of nerve injury are direct injection into a nerve, tissue compression secondary to dermal filler placement and excessive moulding and massage of dermal filler into a nerve foramina. Neuropraxia would almost certainly occur and will result in sensory and/or motor deficits.<sup>2</sup>

### Forehead

The forehead is a highly sensitive area and knowledge of the nervous distribution in this area is recommended not only for safety but also the comfort of the procedure. The supraorbital nerve and supratrochlear nerve traversing the forehead, in my practice, are anaesthetised. The supraorbital nerve is one of the terminal cutaneous branches of the frontal nerve, which is a branch of the ophthalmic division of the trigeminal nerve. It provides sensation to the forehead skin and anterior scalp. The supraorbital nerve originates from the supraorbital notch, which can be identified upon palpation of the supraorbital rim.<sup>3</sup> The deep branch of the supraorbital nerve appears to have a reproducible location.

In a study examining 75 patients undergoing endoscopic browlifts, the location of the deep branch was observed at an average of 0.56mm from a vertical line drawn tangentially to the medial limbus of the iris.<sup>4</sup> This reproducible location allows us to perform a supraorbital block with consistency. I insert the syringe immediately inferior to the eyebrow and inject anaesthetic proximal to the supraorbital notch. The supratrochlear nerve is also one of the terminal branches of the frontal branch of the ophthalmic division of the trigeminal nerve. In 30% of cases, the supratrochlear nerve arises together with the supraorbital nerve. It provides sensation to the midline forehead.<sup>5</sup>

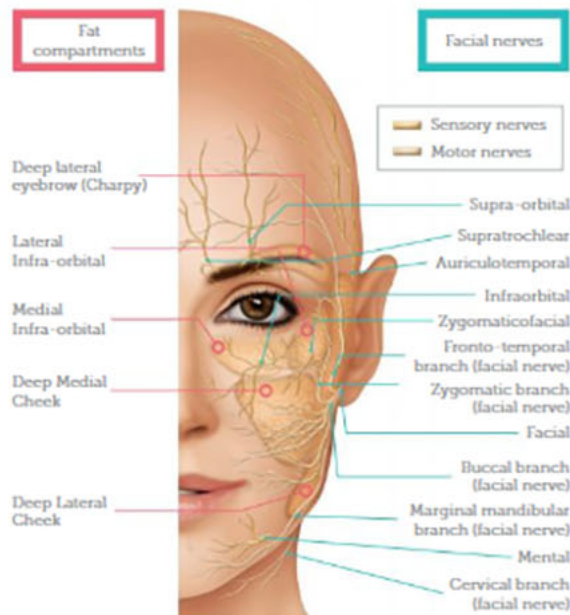


Figure 1: Facial nerves and deep fat compartments. Copyright© 2020 Philippe Plateaux/Laboratoires VIVACY. All rights reserved.

However, in most cases, I find that a supratrochlear block requires a separate injection lateral from the facial midline at the level of the superior orbital rim. When treating the lateral limits of the forehead, a regional local anaesthetic injection may be required. I find this especially useful if one is using a cannula entry point at this location.

## Temple

There are a number of different planes of injection when treating the temple. The most commonly used technique is the plane between the temporalis muscle and the bone of the temporal fossa. A superomedial temple injection in this plane would negate vascular risk, along with avoiding the zygomaticotemporal nerve.<sup>6</sup> The second plane is the area between the superficial and deep layer of the deep temporal fascia. The third plane is the area between the deep temporal fascia and temporalis muscle.<sup>6,7</sup> Another plane I use in patients with significant hollowing is the area between the superficial temporal fascia and the deep temporal fascia. In this area, I only use a cannula. This is because I wish to minimise the possibility of damaging the superficial temporal artery and vein, as well as the frontal branch of the facial nerve. In order to prevent damage to neurovascular structures in this plane, I use a 22 gauge cannula as opposed to smaller gauges.

## Cheek

In the malar region, location of the infraorbital foramen is vital to prevent neuropraxia in this region. Nerve injury can result from performing an infraorbital nerve block.<sup>8</sup> Fortunately, most dermal fillers are premixed with lidocaine, reducing the need for infraorbital nerve blocks in the area. Augmentation of the upper lip, however, can require such a block and, if performed either intraorally or extraorally, caution should be exercised to avoid injecting the anaesthetic inside of the orbit, which can result in diplopia as well as dysaesthesia and paraesthesia.<sup>9</sup> As mentioned previously, it is possible for dermal filler to be moulded towards a foramina. Aldbath and Cox noted in a single case study how overzealous massage of dermal filler post injection could cause this exact phenomenon. The patient experienced paraesthesia over the distribution of the infraorbital nerve. It was concluded that excessive massage post dermal filler injection was not advised.<sup>10</sup> The incidence of Bell's palsy has been seen post dermal filler injections.<sup>8</sup> Most patients have been shown to recover spontaneously (77%), however there is a significant proportion of patients with lifelong residual hemifacial weakness. The acute management of Bell's palsy remains a short course of oral steroids. Surgical decompression, and other treatments have been proposed such as electrotherapy, physical therapy and acupuncture; none of which have any supporting evidence. Given the debilitating consequences, this further highlights the importance of comprehensive injectable facial anatomy when injecting the face.<sup>11</sup>

## Lower face

The marginal mandibular nerve can be injured during cheek injections, as well as around the jawline and neck. Care should be taken when injecting the mid-mandibular border even with a cannula, as blunt force trauma can cause injury to the nerve resulting in motor deficit.<sup>12</sup> In most cases, the nerve travels anteriorly above the mandibular border, but in 19% of cases the nerve is located below the border of the mandible.<sup>13</sup> Injury in the neck can occur in the subplatysmal plane. Neck dermal fillers should be exercised with caution, with particular attention being paid to whether the injections are not directed to the subplatysmal plane. The cervical branch of the facial nerve is also at

risk within and this plane and should be avoided.<sup>14</sup> The mental nerve is of significance within this region. During chin augmentation, a mental nerve block is required. This can be performed either intraorally or extraorally. Care should be exercised whilst performing the block to prevent trauma to the nerve, which may result in lack of sensation to the front of the chin and lower lip.<sup>8</sup> Supraperiosteal dermal filler injections in the area should also be treated with caution.

## Prevent nerve injury

Nerve injury secondary to dermal filler injection may be transient, reversible or permanent. Care should be taken when performing nerve blocks prior to dermal filler injections. The appropriate choice of cannula or needle should be assessed dependent upon the plane of injection, as well as the presence of neurovascular structures. Aftercare given to the patient must also state to avoid aggressive or firm massage of filler to avoid post-injection atrogenic nerve injury. Certainly, with the use of hyaluronic acid, many of these complications are theoretically reversible given the widespread use of hyaluronidase. Extra caution should be advised when using permanent fillers near danger areas.

## Aesthetics

Conference & Exhibition

**Dr Munir Somji will be speaking at ACE 2020 in an Expert Clinic titled Laboratories Vivacy: Art of Face Volumisation and Contouring Using STYLAGE Dermal Fillers on March 14. Register free using code 15100**  
[aestheticsconference.com](http://aestheticsconference.com)



**Dr Munir Somji** is the chief medical officer of DrMedispa clinics in Marylebone and Essex, specialising in facial aesthetics and hair restoration surgery. He is the founder of DrMedispa Academy, which focuses on a safe anatomical based approach to facial aesthetics.

**Qual:** HSc (I Ions), MBBS, MRCS, PCCert (Clinical Education)

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