

Periorbital rejuvenation and tear trough filler

Abstract

In this article, the author will explore the fundamental principles in delivering safe and effective tear trough treatment with a soft-tissue, hyaluronic acid filler. The article will explain what the tear trough is and why this area of the face becomes more apparent with ageing, as well as the reasons behind patients seeking tear trough filler and how they can present in aesthetic clinics. Furthermore, information will be detailed on ensuring correct patient selection for tear trough treatments, contraindications for tear trough filler and possible side effects and which filler types and treatment tools are recommended.

Key words

- ▶ Tear trough ▶ Dermal filler ▶ Complications ▶ Patient selection
- ▶ Anatomy

The tear trough is the undereye area between the lower eyelid and the upper cheek, which can also be referred to as the lid cheek junction. Shadows can cast here, which causes the undereye area to darken and present a tired appearance. People can suffer from undereye skin hyperpigmentation, skin laxity, hollowing or all of the above.

The key anatomical areas of the orbital undereye area are: the orbital rim, tear trough, palpebromalar groove and the mediojugal fold. Furthermore, the critical deficits of tear trough deformity are: volume redistribution/loss, orbital fat pad herniation and/or excess lower eyelid skin (Nassimizadeh et al, 2019). These deficits occur through the bony reabsorption process. This causes orbital rim widening with age, making the eyes appear deeper and hollower, and gravity pulls the skin, fat, muscle and ligaments downwards. Fat pads either atrophy or become hypertrophic; general atrophy occurs to the whole face indirectly, which affects the undereye area,

making it appear increasingly hollow and dark (Cetto, 2018).

For some, undereye concerns may develop from environmental factors and lifestyle choices, the ageing process or a combination of both.

Dermal filler and the tear trough

Dermal filler fills an area and changes light reflection; however, it will not help hyperpigmented skin or hollowness due to puffy eyes and poor lymphatic drainage (Sharad, 2012). Many patients with undereye concerns exhibit puffiness around the eye and reduced lymphatic drainage, as this occurs as the body ages, but it cannot be slowed down or reversed.

The skin is the thinnest in the undereye area compared with anywhere else on the body, as the layers of fat, muscle and vessels here are small and thin. For example, the orbicularis oculi muscle, which is often targeted with toxin (to reduce crow's feet, fine lines and wrinkles), contracts to assist with the lymphatic drainage, and overtreatment here with toxin can cause undereye malar oedema. This muscle is circular and flat in line with the thin layers and delicate undereye area.

However, it is imperative that, with effective communication, each individual's possible anatomy, physiology and cause(s) are established. Aesthetic practitioners must aim to treat the cause, rather than the problem.

Patients seeking tear trough filler

Usually, in the author's experience, patients seek tear trough filler treatment because they feel that it will address all their undereye concerns, carries minimal risk and can be a cheap and quick fix.

The best way to ensure suitability for treatment is to discuss the factors that affect or contribute to the tear trough concerns with the patient. It may be that some patients require combination treatments to achieve the desired results. This can be established by completing a full, holistic medical consultation and assessment. The practitioner should establish whether this concern has always been there (perhaps since childhood or adolescence) and is hereditary or whether it has become more noticeable with ageing. Desired outcomes and expectations must also



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be managed with a thorough assessment and educating the patient regarding the ageing process, so that they can make an informed choice and consent accordingly.

Many patients book a consultation and assessment for tear trough filler because of one or several of the following common complaints: feeling that they look aged, tired or ill; others commenting on their appearance; or feeling that their undereyes are deep, hollow, dark and/or have saggy lax skin or malar oedema.

Patient selection is key. During the consultation and assessment, the practitioner must ensure that the following is discussed, and that tear trough filler treatment is suitable for the patient:

- ▶ Medication
- ▶ Mental health/illness, specifically anxiety, depression, obsessive-compulsive disorder (OCD) and body dysmorphic disorder (BDD)
- ▶ Drug allergies or intolerances
- ▶ Pregnancy, breastfeeding, undergoing in vitro fertilisation (IVF) or considering this
- ▶ Possible special events or holidays coming up
- ▶ Occupation: is it a front-facing role?
- ▶ Any previous malar oedema, aesthetic treatments, facial fractures, trauma or surgery

- ▶ Any visual concerns and immediate family medical history
- ▶ Diet, lifestyle and skincare regime.

Once all this has been discussed and medical suitability can be ensured, the practitioner then needs to assess physical suitability.

Taking into account gender, ethnicity, age and the degree of the tear trough deformity, the injector must assess all facial volume redistribution and loss in thirds from all angles (the upper, middle and lower thirds), specifically considering any temporal hollowing and volume loss and redistribution in the mid-face. The degree of laxity of the periorbital skin and possible muscle herniation must also be assessed. All areas of the entire face and the way that the face moves have an indirect effect on the undereye area (Doran, 2014).

The mid-face often needs augmentation prior to addressing tear troughs, especially in cases where atrophy and ageing are the cause, and, in many cases, this treatment alone can be sufficient.

When the ageing process is studied, it is key to note that, often, indirect treatments can address the patient's concerns, which results in the desired outcome. The upper face and temporal area should also be considered by asking these questions:

» *The tear trough is a high-risk treatment area, with the risk of filler blindness. However, it is rare, and, as mentioned, risks can be minimised with advanced, accredited and approved training, aseptic non-touch technique (ANTT) and correct patient selection, product choice, tool choice and aftercare* «

- ▶ Does the patient have a full temple?
- ▶ Do they have a positive, neutral or negative cheek area?
- ▶ Does the patient require a temporal and/or cheek/mid-face augmentation prior to the tear trough assessment?
- ▶ Do they have smooth transitions and an ogee curve?

It is imperative that the cause of the ageing process is treated. Patients should always be assessed and treated from the upper to lower face in a systematic approach and sequence (Cetto, 2018).

If there is temporal hollowing and mid-face volume redistribution/loss, this must be discussed, first with the patient, as this will have a major indirect effect on the appearance of the tear trough concern. The treatment plans and highest budget must be discussed in full and meticulously. Between each filler treatment, ideally, 4 weeks should be allowed to pass to address any concerns and to allow the facial layers—skin, fat, superficial musculoaponeurotic system (SMAS) and muscle—to adjust.

Consent must be obtained, fully informed, with mental capacity, verbally and in written form for medical records. Before and after photos of all angles are a must for medicolegal purposes.

Possible contraindications to tear trough treatment

There are several possible contraindications to tear trough treatment, including malar oedema presence, as there is the risk of the oedema increasing and not being able to achieve a desired outcome that is aesthetically pleasing. Furthermore, for patients with a dark, rather than hollow, periorbital area, as if there is no hollow to fill, there is risk of an overfilled and unnatural appearance if treatment is carried out. If a concern and clinical indication to treat cannot be found, practitioners should consider screening for body dysmorphic disorder (BDD), because if a patient with BDD is treated, this could increase their concerns, certain behaviours and the risk of an unnatural appearance. Although the practitioner can never be completely sure of vasculature, they should remember that facial trauma or previous surgery can greatly alter how the

vascular nerves, lymphatics and tissues lie beneath the skin. This increases the risk for the patient with regard to complications, undesired results and side effects. The practitioner must never assume that each patient's anatomy is textbook.

If the patient presents with excessive skin laxity and no hollow or darkness around the eye, dermal filler treatment is unlikely to be useful in this instance. It may be ideal to refer the patient to an eye surgeon for a lower lid blepharoplasty or skin-tightening treatment, as well as discussing a medical grade skincare regime with actives, such as vitamin A (retinol), education on ultraviolet (UV) protection of the eye area and daily broad-spectrum sun protection factor (SPF) with UVA and UVB factors of 30 and above. Hyaluronic acid filler does not fill lax skin but replaces lost or redistributed volume. Those with excess skin laxity or fat herniation generally benefit more from surgery than injectables, providing that they are a suitable surgical candidate, they wish to pursue this and are able to fund it. Dermal filler will not address these concerns.

Addressing patient concerns

Patient concerns regarding the eye area can be adequately met by the injector by accessing advanced accredited training that is specifically for the tear trough area. This is not a skill that should be learnt prior to basic aesthetic training and practice of basic treatments (no matter what the medical background and skillsets are), and it should only be accessed after the basic treatments are mastered first.

Practitioners should also ensure that they have a multidisciplinary team (MDT) to access, for example, Aesthetic Complications Expert (ACE) Group and the Complications in Medical Aesthetics Collaborative (CMAC), as well as the local eye hospital, eye surgeon and a specialist in this field.

Additionally, practitioners should ensure that they have the correct insurance, and dermal filler should only be purchased from a reputable, Care Quality Commission (CQC)-registered pharmacy.

It may also be necessary to recommend combination treatments and educate patients around daily SPF, hydroquinone and arbutin products to address hyperpigmentation. These



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A cannula is recommended for tear trough treatments, as there is less risk of bleeding, ecchymosis and other complications

should be prescription-only medical grade products, and monitoring is required. Alternatively, surgery may be the only option.

Recommended filler type for tear trough treatments

Once it has been agreed with the patient that they are a suitable candidate for the treatment, it needs to be established how the practitioner is going to treat, and with what product choice and which tools.

The product needs to be administered at the right time and with the correct tools by a competent medical aesthetics professional. While this does not completely eliminate risk, side effects and complications, it does reduce the chances of these occurring. No treatment is completely safe or without risk. Some treatments carry a higher risk than others, and, generally, medial facial injections carry a higher risk due to the vasculature and predicted anatomy of the facial vessels.

The product used for tear trough treatments should be a hyaluronic acid filler, as it is temporary and dissolvable if required. A high hydrophilic filler is not necessary for this treatment, as this could attract water to the area, causing oedema and an unnatural aesthetic appearance.

A product with good longevity that is certified, indicated or licensed for use in the undereye area specifically, with extensive research and trials, is recommended. It should also be a high molecular

weight filler, with light consistency, cohesivity and low viscosity.

As the undereye is a delicate area, the product should contain amino acids, antioxidants, vitamins and minerals to assist in skin laxity reduction and increased hydration of the undereye area.

Finally, an anaesthetic agent should be used to reduce discomfort, and a product that has both non-crosslinked and crosslinked hyaluronic acid should be used (Anido et al, 2020).

Tools to administer tear trough filler

For tear trough treatments, many injectors may use a cannula to reduce the trauma that is associated with needles and direct injections. In this delicate area, there is an increased risk of bleeding, ecchymosis and irreparable damage to the lymphatic system in some cases where a needle is used instead of a cannula. However, every aesthetic clinician has different skillsets, training, scientific evidence and experiences.

The author uses a 25 g cannula for this treatment, as there is less reported risk with this size. One point entry is used for each tear trough, just above the apex of the cheek lateral to the infraorbital nerve, artery and foramen. Microdroplets of up to 0.05 ml are deposited, not retrograde linear threads, to give a natural tissue appearance. A needle can be used directly, and some clinicians have valid risk versus benefit reasons for this.

CPD reflective questions

- Do you practise tear trough treatments? If so, with what, and how? Please reflect on your practice
- Do you know the orbital anatomy and which fat pads, vessels, arteries, nerves, lymphatics and ligaments need to be acknowledged and understood?
- Which layer do you inject in, and why and how does this affect the anatomy?

The lymphatics are a very delicate area, and the least disruption that the injectors causes them, the better. Once damaged, they will continue to deteriorate and cause periorbital swelling. This can only be rectified with surgery, but, again, this carries its own risks.

The author opts to underfill patients' tear troughs to reduce side effects and complications, followed by a review 4 weeks after the treatment to check how the tissues have adapted. It is rare that additional product needs to be added when following up with patients, and overfilling can appear unnatural and increase the risk of needing to use hyaluronidase (Hyalase) to correct the area.

The tear trough is a high-risk treatment area, with the risk of filler blindness. However, this complication is rare, and, as mentioned, risks can be minimised with advanced, accredited and approved training, aseptic non-touch technique (ANTT) and correct patient selection, product choice, tool choice and aftercare (Bagci, 2018).

Complications

Complications of tear trough treatment includes incorrect layer/depth with product placement, which can cause an uneven result, lumps, nodules, biofilms and granulomas.

The placement should be in layer 5 and supraperiosteal micro-boluses, using a cannula along the lower orbital rim. Unrealistic expectations can occur if they are not managed in consultation, and undesired results could be achieved.

Oedema can occur and be more severe if the incorrect filler type is chosen. Infection, bleeding, ecchymosis, blindness, anaphylaxis, tissue necrosis, lymph drainage damage, nerve damage, discomfort, slight pressure, erythema and the Tyndall effect can also occur; however, the majority of these are either rare or temporary.

Concerningly, many patients suggest dissolving the dermal filler if there are treatment complications. Hyaluronidase is a potent prescription-only drug, and medical aesthetic practitioners should only be recommending the administration of this in

vascular occlusive emergencies. They must also educate patients about hyaluronidase and how it temporarily depletes patients' own natural collagen and penetrates arterial walls.

This delicate area should never be completely filled or overfilled, and no more than 0.5 ml should be used per undereye.

Conclusion

Correct patient selection is fundamental to tear trough treatment. Not everyone is suitable for tear trough dermal fillers, and no treatment is an option.

Practitioners who are unsure should refer patients on to a specialist with more experience for assessment and possible surgery.

They should ensure that, to the best of their research, training and knowledge, the correct product, technique and tools are used for this treatment, and they should keep up to date with the industry and changes in guidelines.

Practitioners should also know their local MDT and join and network in regulated aesthetic groups, such as ACE Group and CMAC, for support and complications management. ◀ JAN

References

- Anido J, Fernández JM, Genol I, Ribé N, Pérez Sevilla G. Recommendations for the treatment of tear trough deformity with cross-linked hyaluronic acid filler. *J Cosmet Dermatol*. 2020; 20(10):6-17. <https://doi.org/10.1111/jocd.13475>
- Bagci B. A new technique for the correction of tear trough deformity via filler injections. *Plast Reconstruct Surg Glob Open*. 2018; 6(8):e1901. <https://dx.doi.org/10.1097%2FGOX.0000000000001901>
- Cetto R. Advanced tear trough practical training. Harley Academy, London. 2018
- Doran M. Treating tear trough deformities with dermal filler. 2014. www.aao.org/eyenet/article/treating-tear-trough-deformities-with-dermal-filler (accessed 7 February 2021)
- Nassimzadeh A, Nassimzadeh M, Ahmed SK. One-point tear trough correction. *PMFA J*. 2019; 7(1):19-21
- Sharad J. Dermal fillers for the treatment of tear trough deformity: a review of anatomy, treatment techniques, and their outcomes. *J Cutan Aesthet Surg*. 2012; 5(4):229-238. <https://dx.doi.org/10.4103%2F0974-2077.104910>

Key points

- Tear trough dermal fillers cannot help hyperpigmented skin or hollowness due to puffy eyes and poor lymphatic drainage
- Patient selection is key, and a thorough assessment and consultation must be carried out
- A cannula is recommended to reduce the trauma that is associated with needles and direct injections
- Anatomical knowledge is vital to reduce risks.