



Dental patients with lip fillers



Student dental therapist **Rhianna Lockhart**¹ outlines the findings of her literature review on the oral manifestations resulting from the use of hyaluronic lip fillers.

Introduction

I recently carried out a literature review as part of my degree entitled: *Oral manifestations resulting from the use of hyaluronic lip fillers*. My rationale for the chosen topic was based on two key factors: the rise in popularity of non-surgical cosmetic procedures in the oral area, and my extensive training on how to carry out comprehensive oral health assessments. The correlation between the two factors allowed me to predict an incline in the number of patients that may present to dental care professionals (DCPs) with dermal lip filler related issues. Therefore, I was intrigued to research both the short and long-term implications of their use. Non-surgical procedures using dermal lip fillers can either be classed as permanent or temporary; non-permanent fillers include the use of hyaluronic acid in several different forms and can also be carried out using numerous

different techniques. Hyaluronic acid is currently known as the 'gold standard'¹ material of choice for lip augmentation and, more interestingly, 'in 2015 alone, hyaluronic acid injections had surpassed the two million mark for the number of procedures performed on first time patients'.²

Oral health assessments should be carried out routinely by dentists, dental hygienists and therapists and any abnormalities found should be noted and reviewed within two weeks and, if not resolved, an appropriate referral should be made.

Short-term adverse events

Stonjanovic and Majdic conducted a systematic review which concluded: 'the most common adverse events were local reactions at the injection sites including; swelling, contusion, bruising, pain and redness';³ Geronemus *et*

*al.*⁴ also found that the most common adverse event was swelling but also 'firmness, lumps and bumps which resolved within two weeks'. Similarly, Dayan *et al.* 2015 reported in their study that the most frequent reactions were in the region of '90% for swelling, bruising and firmness'.⁵ However, one of the subjects 'experienced a serious treatment-related

Author information

'Rhianna started her working life as a beauty therapist in Dumfries, then moved to Glasgow to pursue a career in the dental industry. She says: 'It was there I completed both an HNC and HND in dental nursing with the aspirations of gaining a place on the BSc Oral Health Science course. After securing a place at the University of the Highlands and Islands, I returned back to my hometown to study for my degree at the Dumfries Dental Centre while also bringing up my young son. After university, I plan to work locally as I have been offered a full-time job at a mixed practice, where my remit as a hygienist and therapist will be fulfilled.'

adverse event: angioedema at the injection site of the upper lip during initial treatment⁵ and in that incidence, treatment was stopped and relevant medical treatment was given. A non-controlled clinical trial primarily based on injection technique concluded that minimal pain and a small amount of redness in patients following lip augmentation but no bruising, bleeding, swelling, itching or any other serious complications occurred.⁶ And Beer *et al.* reported that adverse events were recorded in patient diaries for the 14 days, finding that 'lip swelling can be the most bothersome side effect occurring in 43% of patients'.⁷ Raspaldo *et al.* (2015) assessed the after effects of lip enhancement using two different hyaluronic acid products and concluded the severity of lumps, bumps and firmness were less frequent in one group than the other.⁸ However, they still occurred frequently in both groups.

Long-term adverse events

A study investigating the non-pathological images of fillers explained, a 'minimal fibrotic reaction is considered a part of the process of lip augmentation to achieve the desired cosmetic result. However, if the reaction is excessive, 'it may cause complications such as formation of scar tissue or giant cell foreign body granuloma that may either be visible or palpable'.⁹ Similarly, Martin *et al.* stated that 'the most common late complications are foreign body granulomas which clinically present as multiple or single nodules, oedema, generalised swellings and local indurations' and suggested 'complications of dermal fillers should be considered within a differential diagnosis for orofacial swellings'.¹⁰ Interestingly, they also found that only three out of ten cases of dermal fillers were recorded in the patient's history or provisional diagnosis and concluded, 'any perioral soft tissue mass should warrant a full clinical history, with documentation of any previous cosmetic procedures'.¹⁰

A case study discussed the late onset inflammatory reactions caused by different types of filler material and found, 'Delayed hypersensitivity reactions are characterized by induration, erythema, and oedema and are mediated by T lymphocytes rather than antibodies and they typically occur 48-72 hours after injection but may be seen as late as several weeks post injection and may persist for many months'. The case also explained, although 'the cause of the delayed sensitivity is not completely understood, contributing factors include previous infections, trauma and injection technique'.² A case series conducted by Eversole *et al.* recognised a link between lip filler and the body's host response which were categorised into three microscopic reactions

including: 'a nodular retention of filler without an inflammatory cell infiltrate, a nodule with non-specific chronic inflammation or an epithelioid giant cell granuloma' and also that histopathological features 'could be confused with a salivary neoplasm'.¹¹ A different case study, explained as 'a relatively severe case of delayed onset complications from hyaluronic product misplacement in the lower lip, manifesting in the formation of nodules and lumps and causing contour irregularities'.¹² Similarly, another case by Farahani *et al.* found a specific hyaluronic acid product called Restylane, 'may persist at an injection site resulting in a tumour like nodule' and also explained that 'the basophilic nature of HA may be mistaken for the myxoid fibrosis often seen around basal cell carcinomas', concluding, 'such nodules may clinically resemble other conditions'.¹³

Despite being the gold standard material of choice for non-cosmetic surgery in the oral area, lip augmentation with the use of hyaluronic acid can cause both short and long-term adverse events, yet, most research still reports it to be safe and effective. This reiterates the point that 'clinicians should be able to recognise such lesions and be aware of the adverse effects of fillers in order to avoid a diagnostic pitfall'.¹⁰ Furthermore, it outlines the importance of completing comprehensive oral health assessments including any previous history of non-cosmetic surgery in the oro-facial area. As of yet, the guidelines currently followed show exemplar forms of medical history and social history, but none ask about the use of lip fillers or any other cosmetic procedure.¹⁴ Costa emphasised the importance of this by stating, '80% of diagnoses are based on the ability of the practitioner to establish a thorough patient history'.¹²

Review of the available literature poses the question of whether DCPs should be routinely educated on the adverse events caused by cosmetic procedures. In addition to this, it highlights the need of a thorough patient history to be obtained for all patients in order to identify the oral manifestations caused by hyaluronic acid lip fillers during routine oral health assessments - this will ultimately help form a differential diagnosis and allow the correct information to be referred to oral medicine if required.

References

1. Allemann I B, Baumann L. Hyaluronic acid gel (Juvéderm) preparations in the treatment of facial wrinkles and folds. *Clin Interv Aging* 2008; **3**: 629–663.
2. Bhojani-Lynch T. Late-onset inflammatory response to hyaluronic acid dermal fillers.

3. Stojanovic L, Majdic N. Effectiveness and safety of hyaluronic acid fillers used to enhance overall lip fullness: A systematic review of clinical studies. *J Cosmet Dermatol* 2018; **18**: 436–443.
4. Geronemus G R, Bank E D, Hardas B, Shamban A, Weichman M B, Murphy K D. Safety and effectiveness of VYC-15L, a hyaluronic acid filler for lip and perioral enhancement: one-year results from a randomized, controlled study. *Dermatol Surg* 2017; **43**: 396–404.
5. Dayan S, Bruce S, Kilmer S *et al.* Safety and effectiveness of the hyaluronic acid filler, HYC-24L, for lip and perioral augmentation. *Dermatol Surg* 2015; **41**: S293–S301.
6. Sahan A, Funda T. Four-point injection technique for lip augmentation. *Acta Dermatovenerol Alp Pannonica Adriat* 2018; **27**: 71–73.
7. Beer K, Glogau G R, Dover S J *et al.* A randomized, evaluator-blinded, controlled study of effectiveness and safety of small particle hyaluronic acid plus lidocaine for lip augmentation and perioral rhytides. *Dermatol Surg* 2015; **41**: S127–S136.
8. Raspaldo H, Chantrey J, Belhaouari L, Saleh R, Murphy D K. Juvéderm volbella with lidocaine for lip and perioral enhancement: a prospective, randomized, controlled trial. *Plast Reconstr Surg Glob Open* 2015; **3**: e321.
9. Grippaudo F R, Mattei M. High-frequency sonography of temporary and permanent dermal fillers. *Skin Res Technol* 2010; **16**: 265–269.
10. Martin C H L, Hankinson M P, Khurram A S. Beauty is only mucosa deep: a retrospective analysis of oral lumps and bumps caused by cosmetic fillers. *Br Dent J* 2019; **277**: 281–284.
11. Eversole R, Tran K, Hansen D, Campbell J. Lip augmentation dermal filler reactions, histopathologic features. *Head Neck Pathol* 2013; **7**: 241–249.
12. Costa S N. Correction and management of dermal filler misplacement post lip augmentation. *J Aesthetic Nursing* 2014; **3**: 286–291.
13. Farahani S S, Sexton J, Stone J D, Quinn K, Woo S-B. Lip nodules caused by hyaluronic acid filler injection: report of three cases. *Head Neck Pathol* 2012; **6**: 16–20.
14. Scottish Dental Clinical Effectiveness Programme. Oral Health Assessment and Review. Dental clinical guidance. Version 1.0. May 2012. Available at <http://www.sdcep.org.uk/wp-content/uploads/2015/04/SDCEP-OHAR-Version-1.0.pdf> (accessed May 2020).

<https://doi.org/10.1038/s41407-020-0345-6>