**Enterococcus faecalis Complicating Dermal Filler Injection: A Case of Virulent Facial Abscesses**

JOSEPH J. ROUSSO, MD, AND MICHAEL J. PITMAN, MD*

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Hyaluronic acid (HA) is a popular product frequently used for soft tissue augmentation. A new high-concentration HA–lidocaine product (Elevess, Anika Therapeutics, Inc., Bedford, MA) has gained recent popularity for its marketed safety and patient comfort on administration. We report a clinical case of a 21-year-old woman who suffered a severe adverse reaction after administration of this product to the nasolabial folds and lips. She developed facial cellulitis accompanied by a multitude of abscesses. After urgent incision and drainage, the abscess cultures grew *Enterococcus faecalis*. After a 7-day hospital course and home antibiotic regimen, the patient’s symptoms improved dramatically. It took 1 month for complete resolution of the patient’s signs and symptoms. Patients and practitioners should be aware of all of the possible effects and complications that may result from use of this and all other dermal fillers. They should be cognizant of proper injection technique and respond with appropriate urgency to signs of infection.

**Case Report**

A healthy 21-year-old woman presented to our emergent care facility with severe right-sided maxillary and infra-orbital facial pain and edema. Her symptoms had been present for 2 months before presentation, worsening 5 days before arrival. Her initial complaints began 2 days after receiving dermal filler injections to the lips and nasolabial folds with a high-concentration HA–lidocaine product (Elevess) at the office of an oculoplastic surgeon. During the first week after the procedure, she complained of erythema and local injection site induration. One month after her initial filler treatment, she developed a subcutaneous infectious reaction for which she was hospitalized at another institution for 48 hours and placed on intravenous ampicillin and sulbactam antibiotic. At that time, no culture was performed, and the antibiotic choice was a typical one for broad coverage of Gram-positive aerobes. The patient was discharged with a 10-day course of oral cephalexin. Her symptoms initially improved, only to recur and worsen over the course of the following month. Two days before her presentation, she saw an oral surgeon who aspirated 3 mL of purulent fluid from the maxillary abscesses and restarted oral cephalexin. Her symptoms progressed further, and she presented to our institution’s emergent care center. On examination, she had noticeable facial asymmetry with a 5-cm area of soft tissue edema and erythema involving the right maxillary region extending to the preseptal region of the right orbit. A lesser amount of inflammation was also noted to involve the left maxillary area (Figure 1). Several areas of induration were palpated bilaterally in the upper lip. A computed tomography scan of the face and orbits revealed extensive soft tissue stranding overlying the maxilla bilaterally and extending inferiorly to the level of the body of the mandible and superiorly to the right lower eyelid. Multiple abscesses were noted...
bilaterally along the length of the nasolabial folds (Figures 2 and 3).

The patient was urgently taken to the operating room. Gingivolabial incisions were performed bilaterally. The patient was found to have multiple abscesses of the right and left nasolabial folds. The lesions were opened using blunt dissection with a mosquito. Large amounts of purulent discharge were drained from the abscesses and sent for culture and sensitivities. Copious bacitracin irrigation was used to irrigate the surgical field, and quarter-inch gauze was used to pack the drainage sites. The lip abscesses were drained using stab incisions on the gingival surface followed by blunt dissection.

The patient was hospitalized and placed on an empiric intravenous antibiotic regimen consisting of vancomycin and ampicillin–sulbactam. This antibiotic choice was based on the need for broad Gram-positive coverage and particularly coverage of

**Figure 1.** Twenty-one-year-old woman 2 months after receiving dermal filler injection to bilateral nasolabial folds and lips.

**Figure 2.** Axial computed tomography image showing extensive soft tissue stranding and fluid collection with rim enhancement in each nasolabial fold.

**Figure 3.** Coronal computed tomography image showing extensive soft tissue stranding and multiple fluid collections with rim enhancement extending along the injection path of each nasolabial fold.
methicillin-resistant *Staphylococcus aureus*. The packing was slowly removed over the hospital course to prevent reformation of the abscesses. Cultures returned with growth of *E. faecalis* sensitive to trimethoprim–sulfamethoxazole, and the antibiotics were changed accordingly.

The patient was discharged home on postoperative day 7 on oral antibiotics. At follow-up, 1 month later, there was complete resolution of the signs and symptoms of her infection (Figure 4).

**Discussion**

Dermal filler injections are a popular and powerful method of soft tissue augmentation. With increasing popularity, a wide range of products are currently on the market. HA products are among the most ideal because of their low immunogenicity and isovolemic degradation.\(^1\) A lower incidence of complications, particularly late occurring, has been reported with HA fillers than with other types of fillers. Partly because of these characteristics, HA fillers are currently the most popular.

HA injectables have had few reports of infectious complications. In a retrospective worldwide review of 406,000 patients treated with HA, Friedman and colleagues reported that the major adverse event is hypersensitivity, probably secondary to impurities of bacterial fermentation. They also noted that bacterial infection was exceedingly rare.\(^2\)

Infection after soft tissue augmentation injection is generally categorized as an adverse event related to improper technique. Early infections are difficult to distinguish from the relatively typical inflammatory response, but late onset of inflammation is distinctly infectious and should alert the practitioner to the presence of a complication.\(^3\) The growing population of poorly trained personnel performing cosmetic procedures increases the risk of infection.\(^4\) The typical organisms recovered in infectious complications of cosmetic procedures include common skin and soft tissue pathogens such as *S. aureus*. New or worsening inflammation 2 weeks after injection is highly indicative of atypical infection and should be pursued accordingly.\(^5\) Previous case reports have identified “mycobacterium abscesses” as the culprit of an infectious outbreak in New York City after cosmetic injection with HA was performed using poor sterilization technique.\(^4\)

Our patient was a 21-year-old woman who was offered cosmetic injection, free of charge, by a practitioner who was inexperienced with the product used. Although she had no prior complaints of cosmetic dissatisfaction, she was advised to attempt soft tissue augmentation for her “congenitally deep nasolabial folds.” Although the safety of HA filler injection has been well established in the literature, the rare occurrence of severe complications is
enough to avoid cosmetic injections in patient populations that will not derive significant benefit.

In our literature review, we found no prior reports of E. infection after dermal filler injection. Although it is virtually impossible to specify the exact cause of contamination, it is likely that poor cleansing of the skin played at least some role in this development. The patient particularly felt that cosmetics remained on her skin before the injection, which was the likely source of the E. faecalis. Cosmetics, which the Food and Drug Administration (FDA) do not regulate, have on rare occasion been the documented cause of serious infections. Although many potential pathogens have been found in cosmetics, they rarely cause infection because of the skin being a physical barrier. In this situation, the patient’s skin barrier was violated with a needle during soft tissue augmentation, allowing pathogen entry.

HA filler injections are relatively safe for the treatment of wrinkles and deep nasolabial folds. This relative safety may invite the use of these substances in patients who may derive only minimal benefit. The chance that severe complications can occur should prompt physicians to weigh the true risks and benefits of what less experienced practitioners may see as a “simple procedure.” Extreme care in cleansing the skin before the procedure and maintenance of clean technique throughout injection are of utmost importance. Vigilance in recognizing complications and treating them early should aid in preventing their exacerbation and the need for aggressive management.

References


Address correspondence and reprint requests to: Michael J. Pitman, MD, Assistant Professor, Department of Otolaryngology-Head & Neck Surgery, New York Eye & Ear Infirmary, 310 E 14th St, New York, NY 10003, or e-mail: mpitman@nyee.edu