

# Post-Filler Vascular Occlusion: A Cautionary Tale and Emphasis for Early Intervention

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## ABSTRACT

We report a case of a 36-year-old female who experienced significant vascular occlusion after injection with hyaluronic acid into the nasolabial folds. The patient experienced immediate pain after the injection, however, the vascular compromise was not diagnosed and treated until 48 hours later. The patient suffered tissue damage despite treatment with hyaluronidase, hyperbaric oxygen, nitropaste, and aspirin. The case highlights the importance of proper injection technique by a qualified physician, as well as the need for immediate recognition and treatment of vascular occlusion should it occur.

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## INTRODUCTION

Injections with filler agents are becoming increasingly popular as a treatment for wrinkles and for soft tissue augmentation. While there are many options for use with fillers, hyaluronic acid is generally regarded as one of the safer options with the least risk for complications such as infection, nodules, hypersensitivity reactions, or arterial compromise.<sup>1</sup> Hyaluronic acid is a resorbable filler and within six to twelve months the gel is usually resorbed by the body. Because hyaluronic acid is synthetically derived, there is minimal risk of an allergic reaction and very few reports of hypersensitivity reactions.<sup>1</sup> Additionally, hyaluronic acid is unique in that there is an antidote if an undesirable outcome occurs; hyaluronidase can be used to degrade the product. We present a case of arterial compromise after injection with Juvederm®, a form of hyaluronic acid, into the nasolabial folds, resulting in significant tissue damage. An important factor may have been that the patient did not receive standard treatment until 48 hours after the injection.

## CASE REPORT

A healthy 36-year-old female presented to our office two weeks after having one syringe of Juvederm injected into her bilateral nasolabial folds by an outside Urologist at a spa. She previously had Botox® and Juvederm® injected a year ago with no complications. The patient reported that at the time of this injection she felt intense pain on the left side of her face. She continued to feel pain later that day and overnight, and the left side of her face became red and swollen. The next day she went to the emergency room for these symptoms. Upon presentation to the ER, 24 hours after the injections, the left side of her face including the nose, cheek, upper cutaneous lip, and chin was tender and violaceous. The patient was diagnosed with a presumed infection and given pain medications and antibiotics. The next day, 48 hours after injection, the patient presented to

a dermatologist and was diagnosed with arterial compromise due to the hyaluronic acid injected 48 hours prior. At this time the left side of her face was edematous and violaceous, and there was concern for impending necrosis (figure 1).

The patient was referred by dermatology to the ER for immediate treatment for the impending necrosis. The patient was admitted to the hospital for 6 days and treated with hyaluronidase twice, nine sessions of hyperbaric oxygen, nitropaste daily, Bactroban ointment TID, warm compresses, Aspirin 325mg daily, a medrol dose pack, and cefazolin. After admission to the hospital the patient developed pustules over the left side of her face (figure 2). A viral and bacterial culture were taken, both of which were negative. Upon discharge from the hospital 6 days later most of the pustules had resolved and the patient was left with edematous, violaceous plaques and papules with some areas of crusting over the left side of her face [See figure 3]. She presented to our office a week later with ill defined, boggy red plaques and papules on the left side of her face (figure 4). A second culture was taken to rule out a biofilm, and it was negative. The plan is to treat the residual redness and textural changes with long-pulsed dye laser (595nm) and non-ablative fractional resurfacing laser (1550nm).

## DISCUSSION

Our patient had arterial compromise of the angular artery and part of the facial artery that occurred during injection with hyaluronic acid into the nasolabial folds, resulting in significant tissue damage. There are only a few case reports of arterial compromise following hyaluronic acid injection, and it is more commonly seen with injection into the glabella.<sup>2,3,4,5,6</sup> Patients with prior surgery to the area may be at increased risk for vascular compromise due to altered blood supply and scarring in the area. More common reactions to injections include redness,

**FIGURE 1.** Upon presentation to dermatologists office, 48 hours after injection, with impending necrosis.



**FIGURE 2.** 72 hours after hyaluronic acid injection.



**FIGURE 3.** Upon discharge from hospital, one week after hyaluronic acid injection.



**FIGURE 4.** Upon presentation to our office, two weeks after hyaluronic acid injection.



swelling, pain, and pruritus, which must be distinguished from true arterial compromise.

Arterial compromise can occur either by direct injury to the vessel, compression of the vessel from nearby product, or arterial embolization from product injected into a vessel. In order to minimize risk of arterial compromise, injections should be made superficially and slowly, after aspirating to ensure the needle is not in a vessel. Using a low volume of product over several treatment sessions can also minimize the risk.

The physician should be well educated in the signs of arterial compromise, including immediate blanching of surrounding skin, bluish or reticulated discoloration, and severe pain or swelling in the area. Early treatment of these symptoms may help prevent severe necrosis from developing.<sup>5</sup>

The immediate treatment mandated in these situations is to stop the injection, apply warm gauze to facilitate vasodilation, tap or massage the area to break up any product, intralesional hyaluronidase injections, and nitroglycerin paste 2% applied

to the area.<sup>7</sup> Anticoagulant medications such as Aspirin or Vitamin E may help treat tissue ischemia for up to two weeks afterwards. Hyperbaric oxygen has also been used in cases of tissue ischemia following cosmetic filler injections.

In the case of our patient all of these things were done, however, not until 48 hours after the filler injection. Her cosmetic outcome may have been improved if the symptoms of arterial

"In order to minimize risk of arterial compromise, injections should be made superficially and slowly, after aspirating to ensure the needle is not in a vessel."

compromise were immediately recognized and treated, rather than initiating treatment 48 hours later. This case should emphasize that injection of subcutaneous fillers should be performed by qualified physicians who have experience with the injections and a comprehensive understanding of the relevant anatomy. If an injector notices blanching due to vasospasm or intense pain, then steps should be initiated immediately to potentially avoid a deleterious outcome.

## DISCLOSURES

The authors have no relevant conflicts of interest to disclose.

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