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CASE REPORT

Calcium hydroxylapatite associated soft tissue necrosis: A case report and treatment guideline

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Summary We present an uncommon case of nasal alar and facial necrosis following calcium hydroxylapatite filler injection performed elsewhere without direct physician supervision. The patient developed severe full-thickness necrosis of cheek and nasal alar skin 24 h after injections into the melolabial folds. Management prior to referral included oral antibiotics, prednisone taper, and referral to a dermatologist (day 3) who prescribed valacyclovir for a presumptive herpes zoster reactivation induced by the injection. Referral to our institution was made on day 11, and after herpetic outbreak was ruled out by a negative Tzanck smear, debridement with aggressive local wound care was initiated. After re-epithelialization and the fashioning of a custom intranasal stent to prevent vestibular stenosis, pulsed dye laser therapy was performed for wound modification. The patient healed with an acceptable cosmetic outcome. This report underscores the importance of facial vasculature anatomy, injection techniques, and identification of adverse events when using fillers. A current treatment paradigm for such events is also presented.

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Introduction

Injectable fillers are a common, minimally invasive approach in the early treatment of facial aging due to volume depletion. Use of calcium hydroxylapatite (CHA) has grown in popularity following FDA approval in 2006 to improve moderate to severe wrinkles. Radiesse (Merz Aesthetics, San Mateo, CA) is the CHA approved for aesthetic applications in the United States, and is composed of 25–45 μm spheres suspended in a carboxymethylcellulose carrier. Therapeutic results can be expected to last a year or more, depending on injection location. CHA must be injected at the dermal-subcutaneous border. If injected superficially CHA can lead to nodule formation and induration. Use of CHA filler in areas with a thinner dermis, such as the nasal dorsum and tear troughs, increases the risk of inadvertent product show through the skin. Many practitioners have noted that CHA seems to expand during the first 5 min following an injection, resulting in a transient discomfort noted by some patients. Other common adverse events related to filler injection include tenderness, local erythema, and bruising. In a recent 5-year review assessing soft tissue fillers, CHA was associated with the greatest risk of complications (2.6%), which include cellulitis, tissue necrosis, and nodule formation.[1] More severe, but less common complications include herpes zoster reactivation, arterial embolization leading to infarction, temporary blindness and oculomotor palsy.[2,3] The most feared complication is vascular compromise and tissue necrosis. Although adequate data is not available to quantify the risk of necrosis with CHA fillers, smaller studies estimate this incidence to correlate with the known 0.001% incidence of collagen or hyaluronic acid fillers.[4–6] The glabellar region is most notoriously at risk for tissue necrosis following filler injection due to its reliance on the supratrochlear blood supply. Similarly, there have been recently reported cases of nasal alar necrosis following both CHA and hyaluronic acid injection.[7] We present a recent case of soft tissue necrosis of the melolabial and nasal ala region that was not accurately identified, leading to delay in therapeutic intervention and increase in patient morbidity.

Figure 1 Necrosis, diffuse inflammation, and fibrinous exudate were apparent upon presentation to our institute on day 11 following the filler injection.

Figure 2 Appearance of the infarcted area after complete healing and treatment with pulsed dye laser. Photograph was taken 4 months after the offending injection.

Case report

The patient was a 41-year-old woman with a past medical history of rhinoplasty surgery, septal perforation, and multiple prior dermal filler injections to the melolabial folds, who received CHA injections to both melolabial folds with extension to the alar-facial creases. A nurse at a local "med spa" performed the injection without direct physician supervision. Approximately 24 h following the injection, the patient noted swelling and skin changes to her left alar crease. She initially sought treatment at the spa and was treated for presumptive infection with ciprofloxacin and prednisone taper. On post-injection day 3, the patient

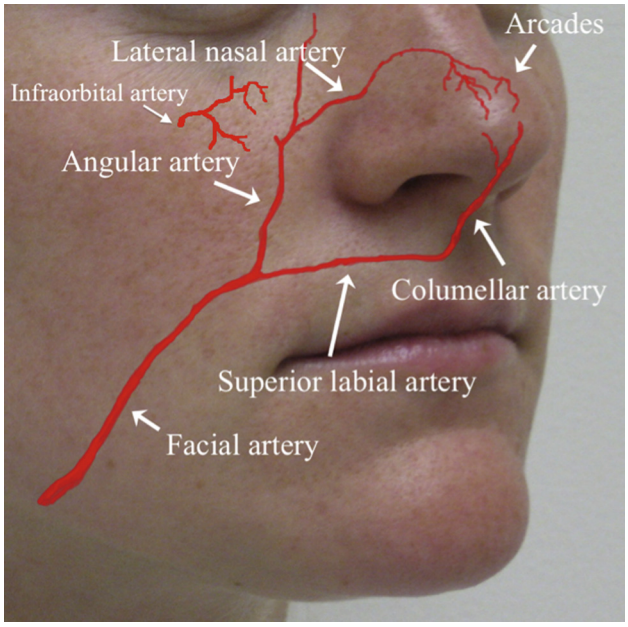

Figure 3 Native vascular anatomy to the nasal ala. Although the infraorbital and dorsal nasal arteries provide some redundancy, the nasal alar region receives most of its blood supply from the angular artery.