

# Treatment of steroid atrophy with hyaluronic acid filler



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## INTRODUCTION

Intralesional steroids are frequently used after surgical reconstruction to treat abnormal wound healing, including hypertrophic scarring, keloid formation, flap trapdoor deformity, and excess scar tissue. Steroid-induced atrophy is a well-known complication of intralesional steroid use and, although typically self-limited, can be distressing to patients. This case report describes the successful treatment of cutaneous atrophy on the face secondary to an intralesional steroid injection using hyaluronic acid filler.

## CASE REPORT

A 62-year-old woman presented for Mohs micrographic surgery of a biopsy-proven basal cell carcinoma of the lateral aspect of the left orbital rim. The final surgical defect measured 1.1 × 1.4 cm and was reconstructed with a rotation flap. At follow-up 2 months postoperatively, she was noted to have firmness of the superior aspect of the flap along the orbital rim. The patient thought that this scar tissue created a subjective sense of pulling on her eyelid, although she had no ectropion of the lid. As a result, 0.3 mL of triamcinolone acetonide at 20 mg/mL was injected into the firm scar tissue just above the orbital rim at the superior aspect of the flap. The steroid was injected under low pressure with a 25-gauge needle retrogradely. Six weeks later, she returned to the clinic and noted that the flap firmness had resolved with the intralesional injection. However, she complained of a new onset of a divot that measured approximately 1 cm and was several centimeters inferior to the injection site, with fat atrophy, skin thinning, and telangiectasias consistent with steroid-induced cutaneous atrophy (Fig 1). Clinical observation was recommended, but at her 6-month

postoperative visit, the atrophic area was unchanged and troubling to the patient. Treatment options discussed included laser therapy, excision, and hyaluronic acid filler injection. Fat transfer is not performed at our institution, so it was not offered as a treatment option. She found the contour change most noticeable, so she opted for hyaluronic acid filler injection to restore normal convexity to the cheek. A total of 0.3 mL of Restylane Silk (Galderma, Fort Worth, TX) was placed intradermally and at the dermal-subcutaneous junction within the area of atrophy. Immediate improvement was noted in the appearance and contour of the atrophic area. At follow-up 2 months later, the patient noted stable improvement in the appearance of the atrophic area (Fig 2), with some persistent skin telangiectasias but return of normal contour.

## DISCUSSION

Intralesional steroids are widely used after dermatologic surgery to treat formation of excess scar tissue. In this context, corticosteroids act by inhibiting collagen I and III synthesis, as well as decreasing fibroblast growth and synthesis of acid mucopolysaccharides; however, this same process can result in cutaneous atrophy.<sup>1</sup> Steroid-induced atrophy is typically self-limited but can take 1 to 2 years to fully resolve, and there are reports of it lasting greater than 5 years. The degree of steroid atrophy depends on the potency and dose of injected corticosteroid, body site (with the face being more prone to steroid atrophy than other sites), and patient age.<sup>2</sup>

There are multiple reported treatments for steroid-induced cutaneous atrophy, including fat grafting, surgical excision, and pulsed-dye laser.<sup>3</sup> Other treatments for steroid atrophy include serial

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**Fig 1.** Steroid atrophy 6 weeks after local injection of triamcinolone acetonide for treatment of hypertrophic surgical scar. Asterisk indicates the area of filler injection.

injections of saline, with the goal of pulling steroid crystals back into solution and allowing the body to clear the medication from the affected site.<sup>4</sup> Steroid atrophy will often resolve with time, but patients may be understandably reluctant to wait for spontaneous resolution. There is a single published report of using hyaluronic acid filler to correct defects secondary to steroid atrophy induced in the treatment of a keloid scar.<sup>5</sup> Hyaluronic acid fillers offer a good option for treatment of steroid-induced atrophy because they replace lost volume and pull in significant amounts of water, which can theoretically help clear away steroid crystals more rapidly. Disadvantages to their use include the risk of the Tyndall effect if placed too superficially, which may have a higher likelihood of occurring when atrophic areas are treated. There are also the usual risks associated with hyaluronic acid fillers, which include pain, bruising, and the rare risk of necrosis caused by vascular occlusion. Cost can also limit the use of this treatment.

In summary, steroid atrophy is a common adverse effect of injected corticosteroids. However, dermatologic surgeons frequently inject high concentrations of intralesional steroids to improve postsurgical scarring without adverse effects. There is the risk of intralesional steroid separating from the surgical scar



**Fig 2.** Improvement in appearance of steroid atrophy at 2 months after placement of hyaluronic acid filler.

and entering normal tissue, where steroid effects will be unwanted and significant compared with the response in the area of the scar, as occurred in this case. Ways to minimize steroid migration when injecting scars include injecting small amounts of steroid and injecting retrogradely, deep, and under low pressure. To our knowledge, this represents the first report of use of a hyaluronic acid filler to correct steroid atrophy on the face. In this case, the patient noted marked improvement in the appearance of her steroid atrophy after a single treatment with dermal hyaluronic acid filler.

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