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Transient localized cutaneous reaction after onabotulinumtoxinA aesthetic injection

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ABSTRACT

OnabotulinumtoxinA (ONA) is an injectable neurotoxin frequently used to temporarily halt the skin changes associated with aging. Side effects are rare and usually minor, such as bruising, injection site discomfort, and headaches. However, a true hypersensitivity reaction is a serious adverse effect, and clinicians should not attempt another trial if allergy is suspected. We present a case of a benign localized cutaneous reaction following ONA injections in the forehead without signs of an allergic reaction. The rash resolved with topical hydrocortisone, and the patient was able to undergo another trial of injections without recurrence.

KEYWORDS Adverse reaction; Botox; drug eruption; onabotulinumtoxinA; preventative botulinum; rash

Injectable neurotoxins such as onabotulinumtoxinA (ONA) are widely used for cosmetic indications with satisfactory results. The most common adverse reactions after receiving ONA injections include injection site discomfort, erythema, bruising, and temporary headaches.[1] Severe reactions like dysphagia, muscle weakness, and facial paralysis may occur due to diffusion of the toxin.[2] Other rare but serious reactions include allergic reactions and anaphylaxis, typically presenting with urticaria, pruritus, and redness. We present a case of a benign acneiform eruption developing 24 h after injection of ONA in the forehead without the classic signs of an allergic reaction.

CASE REPORT

A 26-year-old woman presented with complaints of forehead wrinkling. She had no history of comorbidities or allergic reactions to medications. The patient's daily medications included cetirizine for allergic rhinitis. Examination revealed dynamic forehead wrinkles. OnabotulinumtoxinA (ONA) (Botox, Allergan, Inc., Irvine, CA) was indicated to diminish and prevent formation of frontalis wrinkles. Six units of ONA were injected uniformly across the forehead. Immediately after administration, there was no itching or redness. Each injection site developed a small raised area, an expected reaction, which resolved within minutes. An ice pack was applied for 10 min to reduce bruising, and she was scheduled for a 2.5-week follow-up *(Table 1)*.

Table 1. Cutaneous reaction timeline

Day	Event
0	6 units injected*
1	Eruption appears *(Figure 1a)*
2	Eruption worsens
3	Topical steroid applied twice a day
4	Mild improvement of eruption; continued topical steroid as needed *(Figure 1b)*
6	Eruption resolved
18	3 units injected on right side*
19	No eruption or rash *(Figure 1c)*
20	Normal skin findings

*Skin was cleaned with alcohol pad, and onabotulinumtoxinA in a solution of normal saline was injected with sterile technique.

Approximately 24 h after the procedure, a diffuse acneiform eruption appeared on the patient's forehead *(Figure 1a)*. The skin had a diffuse, coalescing, papular erythematous rash over the forehead without pustules or comedones without extension into the scalp or below the frontalis muscle. The patient reported no itching, warmth, or urticaria. She did not report any exercise, excess sun exposure, new moisturizer use, or other environmental triggers. She

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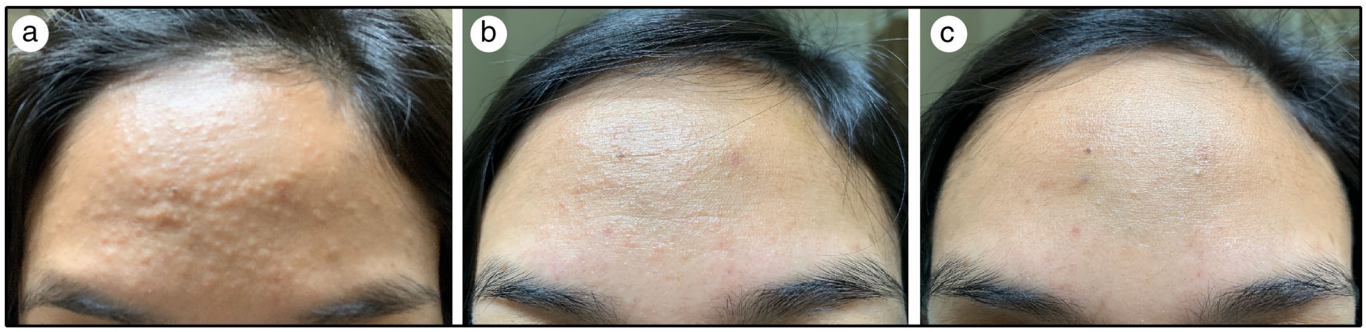

Figure 1. **(a)** Day 1. Acneiform eruption 24 h after injections. **(b)** Day 4. Resolving acneiform eruption. **(c)** Day 19. Normal skin findings 24 h after second round of injections.

was instructed to continue her daily cetirizine and apply topical hydrocortisone 1% twice a day as needed, showing improvement in 1 to 2 days *(Figure 1b)*. Biopsy was deferred due to the patient's esthetic concerns and because the results were unlikely to change management. The rash completely resolved 1 week after the procedure.

At the patient's follow-up visit, she reported intermittent headaches around the frontotemporal areas that resolved with ibuprofen. Three additional units of ONA were injected on the right side of the forehead to achieve symmetric esthetic goals. Again, there were no immediate signs of a sensitivity or allergy. No ice pack was utilized. The patient showed no signs of skin reactions after 24 h and no recurrence of the eruption during the following week *(Figure 1c)*.

DISCUSSION

The use of ONA for esthetic procedures continues to grow in popularity among both older and younger generations, with treatments every 3 to 4 months for several years.[3] Therefore, dermatologists need to differentiate benign adverse effects from absolute contraindications and consider smaller doses for preventative botulinum therapy.

The optimal dose of ONA for treatment of forehead lines in adults is approximately 15 to 20 units.[4] However, a toxin-naive patient can often have a more robust effect with fewer units than a veteran user. Additionally, the skin of younger adults differs in quality, strength, and frontalis activity, thus requiring a smaller dose. The optimal dose for preventative botulinum therapy in young adults is not yet defined, as studies are limited.

In 2009, Brin et al confirmed a higher incidence of acne, injection site pruritus, and rash when injecting ONA vs placebo for facial lines.[5] As seen in our patient, adverse effects may be dose related. There are two absolute contraindications to botulinum injections: (1) infection at the injection site and (2) known hypersensitivity to any component of the product. Additionally, abobotulinumtoxinA should not be given to patients with allergies to cow's milk protein.

There are rare reports of allergic reactions following botulinum injections, including anaphylaxis.[6–8] Features of an allergic reaction include hyperacute or acute onset of itching, erythema, or angioedema. Our patient lacked allergic symptoms but showed improvement with topical steroids, supporting an inflammatory etiology. Had her symptoms worsened, we could have considered empiric allergic reaction treatment with systemic corticosteroids, antihistamines, and biopsy. To reduce the risk of a nonallergic skin reaction in a young toxin-naïve patient, a smaller dose like 5 to 6 units should be considered at the initial treatment. After the exposure is determined to be safe, dermatologists may modify doses at their discretion.

Limitations of this study include the possible masking of an allergic reaction by the patient's daily antihistamine use. Additionally, the lack of reoccurrence following a smaller dose could be evidence of a dose-related or desensitization process.

In conclusion, it is important for dermatologists to recognize signs of serious vs benign adverse effects of cosmetic injectable neurotoxins. In this patient, the eruption was morphologically similar to an allergic reaction, but the patient lacked other allergic features, supporting the diagnosis of a benign cutaneous sensitivity. Given the lack of life-threatening symptoms, another round of injections was determined to be safe with close follow-up. A true hypersensitivity reaction, however, is an absolute contraindication to ONA, and clinicians should not attempt another trial if allergy is suspected.

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