

First case of anaphylaxis after botulinum toxin type A injection

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doi:10.1111/ced.13108

Summary

Botulinum toxin type A (BTA) (also known as onabotulinum toxin A) injection is widely used in the field of cosmetic dermatology. Although a few adverse events related to intramuscular BTA injection have been reported, no life-threatening adverse reaction has been documented to date. We report a case of anaphylaxis induced by intramuscular BTA injection into the masseter muscles of a 35-year-old woman. She had previously received injections of the identical BTA product into the same muscles without incident. However, during the reported procedure, symptoms suggestive of angio-oedema and anaphylaxis developed about 5 min after BTA injection. Intramuscular epinephrine was used to manage the reaction. Following this, the patient was found to have an elevated total serum IgE level. We could not perform testing with BTA because of the risk of triggering another episode of anaphylaxis; however, intradermal tests using the identical sterile saline and patch test using the topical anaesthetic cream both showed negative results, thus we strongly suspect BTA as being the cause of anaphylaxis in this case.

Botulinum toxin type A (BTA) (also known as onabotulinum toxin A) is used as a safe and effective therapeutic option for a wide range of cosmetic procedures. Numerous reports suggest that the incidence of BTA-associated adverse events (AEs) is low, and that these AEs, if any, should be sufficiently mild and reversible not to discourage doctors from its use.¹ Although novel AEs associated with BTA injection are constantly being reported, no life-threatening AE while using BTA for cosmetic purposes has been reported to date.^{2,3} We report a case of anaphylaxis induced by intramuscular BTA injection.

Report

A 35-year-old woman presented for treatment of relapsed masseter hypertrophy. She reported having a history of allergic rhinitis but had no history of allergic

diathesis or allergic reaction to latex. There was no family history of angio-oedema. She had not received any vaccinations for at least a year. One year previously, she had received BTA injection into her masseter muscles in a dermatological clinic elsewhere, and wanted to have this treatment repeated.

Prior to treatment, topical anaesthesia (lidocaine 2.5% and prilocaine 2.5%; EMLA[®] cream; AstraZeneca Mölndal, Gothenburg, Sweden) was applied for 30 min, then once the area was anaesthetised, BTA 25 U (Vistabel[®]; Allergan, Dublin, Ireland) was injected into each masseter muscle. Around 5 min after the injection, the patient developed severe rhinorrhoea accompanying nasal obstruction and swollen eyes, suggestive of angio-oedema (Fig. 1). Concomitant weals on her extremities were also observed. She also had mild dyspnoea and chest tightness during the attack. Intramuscular injection of epinephrine 1 mg along with chlorpheniramine 4 mg, diphenylpyraline 3 mg and dexamethasone disodium phosphate 5 mg was immediately administered. The nasal obstruction and rhinorrhoea subsided approximately 1 h after treatment, but the swelling on the periocular areas lasted for 4 h.

Further specialized consultation was undertaken to evaluate the mechanism and cause of this

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Conflict of interest: the authors declare that they have no conflicts of interest.

Accepted for publication 31 May 2016

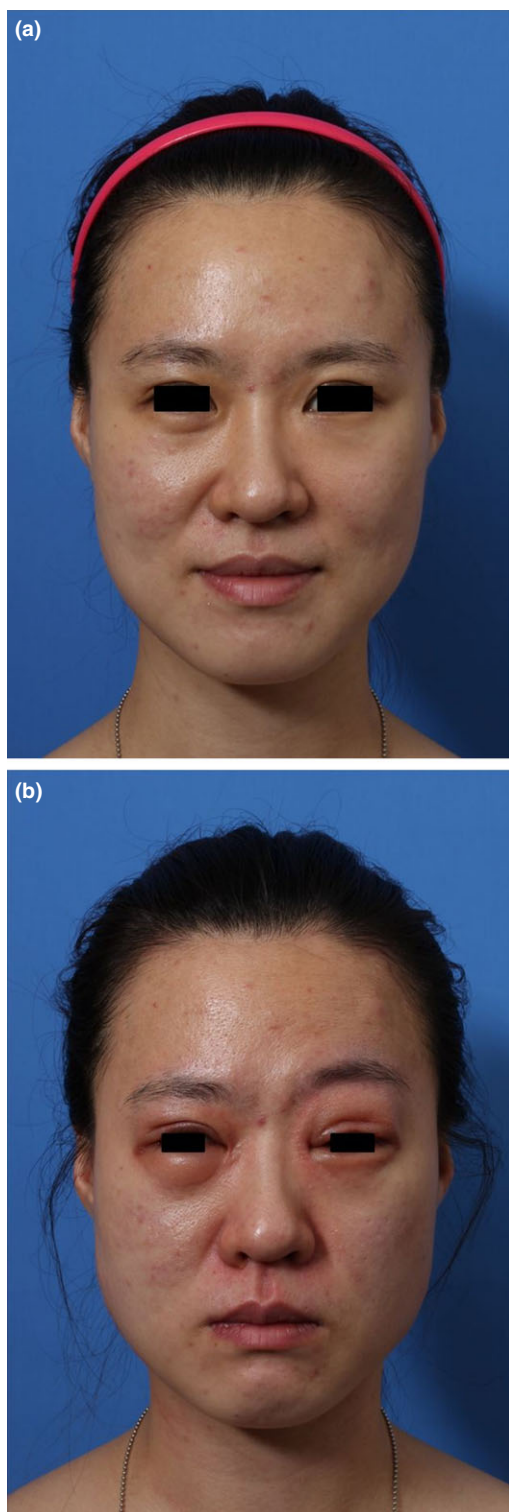


Figure 1 (a) Pretreatment and (b) post-treatment photographs of the patient (F/35). Note the periorbital weals that followed 5 min after botulinum toxin type A injections into the masseter muscles.

phenomenon. Total serum IgE level was found to be increased to 220 kU/mL (OPTIGEN® Allergen-Specific IgE Assay, Hitachi Chemical Diagnostics, Mountain View, CA, USA). Levels of serum C1 esterase inhibitor and specific IgE to egg protein and gelatine (ImmunoCAP, Phadia AB, Uppsala, Sweden) were within normal limits. Intradermal test using the identical sterile saline used for diluting the BTX and a patch test using the topical anaesthetic cream (EMLA®) were also performed, and both yielded negative results.

Anaphylaxis is classified into two categories: anaphylaxis or anaphylactoid reactions, depending on the presence of mast cell mediator release by either IgE or non-IgE-mediated factors.⁴ Our patient's elevated serum IgE level along with the rapid clinical onset meant we could classify her condition as IgE-mediated anaphylaxis, with level 1 diagnostic certainty according to the Brighton Collaboration Case Definition of Anaphylaxis.⁵

Known IgE-mediated triggers of anaphylaxis are drugs, food, insect stings and latex.^{6,7} Non-IgE-mediated causes include factors that cause marked complement activation such as plasma proteins, or compounds such as vancomycin or radiographic contrast media.

Cases of anaphylaxis following vaccinations have been reported previously, with compounds in the vaccine, such as egg proteins, gelatine and sorbitol, proposed as the triggering agents.^{8,9} Hence, BTA is formulated with human serum albumin and sodium chloride rather than gelatine, in order to reduce the risk of allergic reaction. Unfortunately, our case suggests the presence of a certain component of BTA formulation that can cause anaphylaxis. Tests using BTA might have aided identification of the causative agent; however, this was not an option because of the risk of reproducing the anaphylaxis.

Conclusion

BTA is considered a safe and effective treatment for cosmetic procedures, with no serious AEs reported. We report a patient who developed unusual, life-threatening reactions minutes after BTA injection, which is the first such case, to our knowledge. As the use of injectables for cosmetic procedures is steadily growing, the risk of anaphylaxis and anaphylactic reactions has become a major concern among clinicians, and physicians should be aware of the possibility of a serious AE such as anaphylaxis occurring.

Learning points

- BTA injection is considered a safe and effective therapeutic option in cosmetic dermatology.
- No life-threatening AE related to BTA injection has been reported to date
- Anaphylaxis developed minutes after intramuscular BTA injection into the masseter muscles of a young woman with a previous history of BTA injection using the identical product.
- A strong causal relationship between the event of anaphylaxis and BTA is suspected, calling for clinician awareness in the use of BTA.

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