

Immediate local reaction to tetanus toxoid booster

TETANUS toxoid (TT) is known to induce protective immunity and, in sensitized patients, local and systemic responses. The most common adverse event after tetanus booster (50–85% of recipients) is a local reaction characterized by pain and tenderness at the injection site, followed by edema and erythema less frequently (20–30%), and rarely (2%) by marked swelling (1). In a retrospective study of 740 patient charts with a history of adverse reaction to TT, Jacobs et al. (2) found 13% anaphylactoid reactions, but positive immediate skin tests were exceedingly rare (<1%). Here, we report an immediate local reaction to a TT booster in a woman with a positive immediate skin test and serum anti-TT IgE.

■ A 47-year-old woman presented an erythematous pruritic and edematous plaque on the back of the left thigh of about 15 cm in diameter with an intensely red center. This lesion had been present for approximately 26 h and had appeared 15 min after intramuscular administration of 0.5 ml purified TT (Anatoxal Te[®] Berna, Berna Labs, Bern, Switzerland) because of wounds on the hands and face after a car accident. The patient did not complain of dyspnea, fever, nausea, syncope, or arthralgia. She reported that she had received an immunizing course of TT as a child, with boosters at the ages of 7, 21, and 34 years. She reported no family or personal history of atopic disease or contact dermatitis and was taking no medication.

■ Two months after clearance of the lesions, patch tests with the European standard series and a preservative series were performed. Positive reactions were observed at 96 h with colophony (+ +), fragrance mix (+), nickel (+ +), and thimerosal (+). No immediate reaction was observed. Skin prick testing was then performed with TT (Multi-test Pasteur-Merieux, Rhône-Poulenc, Thalwil, Switzerland). The applicators were loaded with glycerinated TT antigen (555 000 U/ml), glycerin, histamine, and thimerosal. A positive wheal (15 mm in diameter) and flare reaction was observed within minutes with TT, but not with the other allergen. Ten healthy subjects were used as controls and had no immediate reaction. Specific anti-TT IgE anti-

bodies (Ab) (CAP System, Pharmacia) were found to be elevated at 1.6 (class 2) (normal <0.35). Anti-TT IgG Ab measured in serum by ELISA were in the normal range (290 U/l) 2 months after the last vaccination.

■ Adverse reactions after TT vaccination have been shown to be influenced by various factors: number of previous boosters, dose, route of administration, and the presence of adjuvants and/or other antigens in the preparation chosen. Several studies have found a direct correlation between the circulating TT IgG level and the degree of local reaction (3). Generally, these reactions begin within 2–8 h after injection. Circulating antibodies apparently form complexes with the deposited toxoid to induce an inflammatory response. This type of reaction is considered to represent an

Arthus reaction. In our patient, this mechanism is unlikely since the reaction occurred rapidly, and no increased levels of antitoxin antibodies were found.

A second possible cause of the local reaction observed is delayed hypersensitivity or irritation. The tetanus vaccine used did indeed contain thimerosal and was adsorbed to aluminum hydroxide. However, the patient showed only a positive thimerosal patch test reaction at 96 h. Furthermore, most thimerosal-positive patients do not show side-effects after vaccination with a thimerosal-containing vaccine (4). Thus, it is unlikely that thimerosal caused the patient's reaction.

Although rare, anaphylactic and anaphylactoid reactions must also be considered. In 1940, Wittengham described anaphylactic reactions to tetanus associated with a protein in the beef extract then used in the production of TT. This protein was subsequently removed from the preparation, and since then the vaccine has only exceptionally (1/1 000 000 cases) been associated with such reactions (5).

In our case, the positive immediate skin test in response to TT was associated with anti-TT IgE. Although Cogné et al. reported IgE in 10/32 sera after booster immunization, no general reactions or

Patients with a tendency to IgE antibody production to tetanus toxoid should be closely monitored for at least 30 min after a booster injection.

wheel was observed (6). Recently, Aalberse et al. showed that approximately 25% of subjects receiving tetanus booster injections had substantial IgE antibodies (7). Immediate skin test reactions to TT appear to be rather uncommon despite the high frequency of anti-TT IgE. Thus, the presence of TT-specific IgE does not prohibit TT boosting. Although local or general immediate reactions to TT are rare, the possibility must be considered when administering this agent. The patient should be closely monitored for at least 30 min after injection and instructed to return if symptoms develop. Finally, if it seems to be necessary to administer TT to a patient with a history of a previous adverse reaction, a safe approach is to obtain an anti-TT IgG titer to verify the need for a booster (8).

Key words: allergic reaction; tetanus; toxoid; vaccination.

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Immediate reaction to methylprednisolone with tolerance of other corticosteroids

BECAUSE of their anti-inflammatory and immunoregulatory effects, corticosteroid drugs are a very useful tool, sometimes indispensable, in the treatment of many diseases. Nevertheless, their side-effects limit their use in clinical practice (1). We

report a case of immediate reaction induced by methylprednisolone with tolerance of systemic exposure to other corticosteroids.

■ A 22-year-old woman was referred to us for allergologic evaluation. Our patient had been diagnosed as having rhinoconjunctivitis and asthma due to pollen and dog-dander sensitization; furthermore, her family history included cases of allergic diseases. Because of the persistence for 3 days of a local reaction to wasp sting, she was treated with a 40-mg intramuscular dose of methylprednisolone (Urbason[®], Hoechst). A few minutes after this treatment, she developed an episode of dyspnea and wheezing. Since adverse reaction to corticosteroids was not suspected in the emergency ward, approximately 60 min after the first episode, she received another 40-mg intramuscular dose of methylprednisolone (Solu-Moderin[®], Upjohn). This time, bronchial symptoms were off, but generalized urticaria appeared and resolved after roughly 30 min. The patient did not remember whether she had been previously treated with corticosteroid drugs.

To determine whether the adverse reaction was due to an allergic reaction to methylprednisolone, we performed skin tests on our patient. Both commercial preparations of methylprednisolone (20 mg/ml) were diluted in saline solution of 1:10–1:10 000. Skin prick tests were negative with all the dilutions of methylprednisolone. Intradermal tests elicited a positive reaction of 10-mm wheal diameter at a 1:10 000 dilution (2 µg/ml). We have used the same procedure in other subjects without eliciting irritative responses. Saline solution and histamine dihydrochloride (0.1 mg/ml) were used as negative and positive controls, respectively. In the same way, skin prick tests and intradermal tests with dexamethasone sodium phosphate (2 mg/ml; Decadran[®], Merck-Sharp & Dohme), and with betamethasone sodium phosphate (5.3 mg/ml; Celestone[®], Schering-Plough) were done (in dilutions of 1:10–1:10 000), without eliciting any reaction. Parenteral challenge tests with increasing doses of dexamethasone and betamethasone (single-blind and placebo-controlled), up to the therapeutically recommended dose, were also negative for both

Although general conclusions cannot be drawn from a single case, this patient expressed a remarkable specificity of her sensitivity, reacting to methylprednisolone, but not to beta- or dexamethasone.

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