

Delayed hypersensitivity to isopropyl alcohol

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We present a case of allergic contact dermatitis to isopropyl alcohol as the result of blood draws. This case illustrates an uncommon but important potential allergy for patients because isopropyl alcohol wipes are commonly utilized during procedures.

Case Story

A 36-year-old, white, female nurse was referred to our contact dermatology clinic to rule out latex sensitivity. She had been experiencing a 2-year history of urticarial pruritic papules and plaques at phlebotomy blood draw sites shortly after each puncture. The elimination of adhesive bandages post-phlebotomy draws did not prevent future eruptions. Standard patch testing performed prior to referral was non-reactive.

After taking the patient's history, it was felt to be highly likely that she was experiencing delayed hypersensitivity to something utilized in the blood-drawing process. In addition to a modified patch test panel on her back, 4 squares of 1- × 1-cm were drawn on her right arm. Each square was treated in the following manner, with subsequent reactions determined at day 3: site 1 – swabbed with isopropyl alcohol, no reaction at day 3; site 2 – swabbed with hydrogen peroxide, no reaction at day 3; site 3 – swabbed with isopropyl alcohol then pricked with a 27-gauge needle, erythematous and edematous papule at day 3; site 4 – swabbed with hydrogen peroxide then pricked with a 27-gauge needle, no reaction at day 3. The above testing was repeated on the patient's left arm the following week, with identical results. There were no immediate reactions in the 1 hr following the needle pricks.

A modified patch testing tray including metals, disinfectants and adhesives were negative. In addition, a standard isopropyl alcohol wipe used prior to phlebotomy was cut and placed into a chamber, producing a 1+ reaction at day 3. Radioallergo-sorbent test for latex and bananas were negative.

Discussion

We postulated that the combination of isopropyl alcohol and a needle stick through the skin leads to the penetration of a sufficient amount of isopropyl alcohol through the stratum corneum to allow a reaction to develop, in effect, producing an intradermal test.

Isopropyl alcohol is a rare but reported allergen (1–6). We found six previously reported cases in the literature. This allergen should be considered when contact dermatitis is suspected after a procedure in which the skin integrity is compromised following isopropyl alcohol application, such as a surgical procedure, line placement or blood draw.

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