Fingertip Purpura in a Dental Student: An Unusual Manifestation of Methyl Methacrylate Dermatitis

Methyl methacrylate (MMA) is a well-known sensitizer commonly found in dental resins, bonding agents, prosthetics, artificial nail adhesive, and industrial glues. Allergic contact dermatitis due to MMA is often seen in individuals with occupational exposure, such as those in the dental profession.

Report of a Case | A healthy dental student in her 20s with allergies to silver, nickel, and wool presented with pruritus, pain, blistering, swelling, and numbness of the first 3 digits on her left hand. One month earlier, she had presented to her primary care physician for intense pruritus and vesicles on the left hand. Despite treatment with topical steroids for presumed eczema, her symptoms worsened, forcing her to reschedule her practical examination and present to an outside emergency department (ED) where she was treated for presumed herpetic whitlow with a 7-day course of acyclovir. Her symptoms ultimately resolved.

After resuming preparations for her practical examination, she experienced a rapid relapse of her symptoms, prompting presentation to our ED. She reported extensive handling of plastic models of teeth, and 2 months prior to her initial presentation at her primary care physician, she had begun using a new brand of powder and liquid crown resin while fashioning mold impressions of teeth. Wearing nitrile gloves, she would hold the mold with the first 3 digits of her left hand while applying the resin with her right hand.

On physical examination, we found mild edema and erythema and superficial desquamation along the palmar surfaces of the first, second, and third digits of the left hand, corresponding to areas of contact with the mold. A prominent purpuric patch with a larger area of desquamation was present distally on the first digit (Figure).

Review of the resin ingredients revealed that the liquid compound contained 60% to 100% MMA, whereas the powder contained only nonsensitizing agents. Given the delay in the patient’s symptoms with initial use of the resin followed by a rapid relapse with reexposure as well as her history of intense pruritus, she was diagnosed as having allergic purpuric contact dermatitis (PCD) in reaction to MMA. She was treated with betamethasone, 0.05%, ointment and prednisone, 20 mg, orally for 5 days. She was instructed to discontinue using the resin.

At 10-day follow-up, her skin was clear. Patch testing was deferred in consideration of symptom resolution, a high degree of confidence in having eliminated the triggering agent, and her imminent practical final examination. She was instructed to wear 2 layers of nitrile gloves with petrolatum between them if further contact with MMA was anticipated, with glove changes every 30 minutes to minimize exposure.

Discussion | An acrylic monomer, MMA can permeate latex gloves within 1 minute and nitrile gloves within 3 minutes. “Double gloving” does not effectively decrease MMA permeability, but the addition of a layer between pairs of glove, such as water, may decrease permeability 4-fold. A synthetic lami-
nated glove (4H) appears relatively impermeable to MMA, but widespread use is limited by cost and diminished dexterity.²,³

Allergic contact dermatitis induced by MMA may result in significant discomfort and is seen frequently after occupational exposure among dentists, dental technicians, orthopedic surgeons, and other health care workers. Second- and third-digit fingertips are commonly involved.³ Nail dystrophy and fingertip paresthesias have also been reported.⁴ Severe cases of MMA-induced dermatitis can even necessitate profession changes.³

Purpuric contact dermatitis has been reported in patients sensitized to agents such as textile dyes, formaldehyde, and epoxy resins.⁵ We report herein the second case, to our knowledge, of MMA-induced PCD.⁶ Although patch testing is considered the diagnostic gold standard for suspected allergic contact dermatitis, this patient’s strong contact history and rapid, sustained resolution of symptoms with allergen avoidance allowed for clinical diagnosis. Fingertip purpura may appear alarming to unsuspecting clinicians and may prompt an extensive workup. We encourage physicians to consider PCD in patients with potential contact exposures.

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Published Online: May 21, 2014.

Conflict of Interest Disclosures: None reported.


Elastosis Perforans Serpiginosa: A Case of a Penicillamine-Induced Degenerative Dermatosis

Report of a Case | A man in his 60s presented in reduced general condition and with asymptomatic brownish-red papules organized in multiple arcuate to annular formations on his upper trunk and arms (Figure 1). A prominent cutis laxa and cutis rhomboidalis nuchae were noted. At the time of presentation, he had been treated for Wilson disease with daily doses of D-penicillamine (1.0-1.5 g/d) for more than 40 years.

Histopathologic analysis revealed channels through the epidermis formed by follicular epithelium (Figure 2A). The infundibula were filled with granular cellular debris, neutrophils, and corneocytes (Figure 2A and C). The interfollicular tissue showed a mixed inflammatory infiltrate. Elastic van Gieson staining demonstrated an accumulation of altered elastic fibers (Figure 2B) within the upper part of the dermis.

From the clinical and histopathologic findings, the diagnosis of elastosis perforans serpiginosa (EPS), caused by long-term ingestion of D-penicillamine, was made.

Figure. Purpuric Contact Dermatitis in Reaction to Methyl Methacrylate

A, Mild edema and erythema with superficial desquamation is seen along the first, second, and third digits. B, A prominent purpuric patch located on the distal tip of the first finger was noted on the patient’s left hand.