

Patch Testing in a Busy Practice

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Patch testing is a procedure that should be in every dermatologist's armamentarium. It is among the most rewarding procedures in finding the cause of resistant and chronic eczematous eruption. Physician satisfaction and reimbursement are comparable to cosmetic procedures with products such as fillers and botulinum toxin type A.

Medical dermatology has seen a decline in patch testing in recent years. This procedure has taken a backseat to procedural and lifestyle treatments. However, patch testing encompasses both medical dermatology and procedural dermatology; thus, it can be very lucrative.

Louis Duhring, MD, who practiced dermatology in the late 19th century, stressed the need for accurate diagnosis as key to all successful treatments of skin disease. This need can never be more appropriate than when applied to contact dermatitis and patch testing. Common indications for patch testing are listed in Table 1.

To set up a patch-testing clinic, there are 3 requirements that are relatively easy to obtain: the patch test material, patient information handouts, and a medical assistant. Patch testing can be overwhelming in a private practice, where the practitioner has limited staff, space, and resources. These factors, however, should never limit a physician in offering patch testing. The procedure itself is scheduled with a medical assistant who is responsible for applying the patches. Training an assistant to organize the materials and patient information handouts, purchase supplies, and apply the patches is a simple process.¹ A discussion of 2 cases that emphasize the importance, relevance, and ease of using patch testing follows.

CASE REPORTS

Patient 1

Ten-year-old A.C. presented with classic atopic dermatitis affecting the neck, the thighs, and the antecubital

and popliteal fossae. He presented with Denny lines, dark undereye circles, and was allergic to penicillin. He was treated with topical steroids, emollients, and immunomodulators. His mother was advised to use a mild Cetaphil® cleanser and dye-free and fragrance-free detergents, softeners, and moisturizers. All affected areas cleared quickly and remained clear with hydration except for the right thigh, which continued to flare and eventually became lichenified and excoriated, leading to impetiginization. He was placed on several courses of oral antibiotics to clear the *Staphylococcus aureus*.

Patch testing was recommended; however, the patient's mother was concerned that insurance would not cover the test. We proceeded with patch testing using the Chemotechnique® Diagnostics standard screening tray, composed of 33 patches. Patch testing showed a 2+ (out of 3) reaction to mercaptobenzothiazole; this is common in children and adolescents (Table 2). After much questioning, it was found that A.C. wore rubber-soled tennis shoes and liked to curl his left foot under his right thigh whenever he sat down (Figure). Once he stopped this habit, the thigh completely cleared and has remained clear for years. Without patch testing, the cause of his lichenification would have been completely missed, and the diagnosis would have been incorrect. He had both

TABLE 1

Indications for Patch Testing

- Refractory or chronic, nonresponsive dermatoses
- Occupational dermatoses
- Sudden, eruptive dermatoses

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atopic and contact dermatitis. His insurance covered the full bill of \$15 per patch.

Delaying the diagnosis in this case increased the patient's out-of-pocket expenses and morbidity. The patient's lichenification became impetiginized on several occasions.

Veien et al² found that patch testing in children aged 14 years and younger was a relevant procedure. Out

of 168 children, 77 had 1 or more positive reactions; 134 (80%) had relevant test results. Veien and colleagues² prefer the same test allergens and concentrations used for adults rather than the lower concentration of allergens for children that was suggested by Fisher.³

Contact dermatitis may be irritant or allergic in nature; patch testing differentiates the 2 disease states. If the results of patch testing are negative and appropriate antigens have been used, then there would be a high probability that the contact dermatitis is irritant.

TABLE 2

The Most Common Sensitizers in Childhood¹

- Poison ivy, oak, sumac
- Nickel (in earrings)
- Neomycin
- Cosmetics
- Perfumes
- Balsam of Peru
- Mercaptobenzothiazole (in shoes)
- Potassium dichromate (in shoes)
- Ethyl aminobenzoate (benzocaine)
- Thimerosal (merthiolate)
- Merbromin (mercurochrome)
- Ethylenediamine hydrochloride
- Topical antihistamines

Patient 2

J.K., a 16-year-old male, was admitted to the hospital and diagnosed with cellulitis by the emergency room physician. He was started on intravenous antibiotics pending culture results. Because of his unresponsiveness to the antibiotics and symptom worsening, a dermatologic consult was made. He had a bullous, hemorrhagic, edematous eruption of both lower extremities with a rather irregular eczematous component overlying it. On questioning, he mentioned having been exposed to numerous mosquito bites to which he applied Neosporin[®] + Pain Relief cream. It was after this application that he began to have bullae and edema. On patch testing, he was 3+ to benzocaine, which is the pain reliever in Neosporin + Pain Relief.

DISCUSSION

To make patch testing efficient, the physician must select antigens that will provide the highest probability of posi-



Patient with lichenification on the thighs resulting from sitting on a rubber-soled tennis shoe.

TABLE 3

Laboratories That Provide Antigen to Use When Performing Patch Tests

- Chemotechnique® Diagnostics
- Allerderm™
- Trolab® Hermal

tive results (Table 3). The thin-layer rapid use epicutaneous (TRUE) test, which has 23 preloaded trays, misses relevant allergens in 25% of patients and fully evaluates only 28% of positive reactions.⁴ In 2007, an additional panel of 5 new allergens will be added to the TRUE test. I do not recommend these allergens because a high number of TRUE allergies are missed using the TRUE test (F. Storrs, MD, personal communication, May 2002).

The IQ-Ultra® patch test unit has chambers that may be prefilled for up to 2 weeks in advance of the procedure. The petrolatum bases are prefilled and stored. The solu-

tion bases are prepared on the day of the test. This is a cost-effective measure in a busy practice. No extra taping is necessary with these new chambers.

When a 72-hour reading is done, the dermatologist does the reading after the assistant takes off of the patches. The positive reactions are reviewed with the patient. Here is where a physician extender, such as a physician assistant, may be used to help interpret the reactions.

CONCLUSION

With the help of a trained medical assistant, patch testing may be used on a daily basis in a busy dermatologic practice. It is imperative that we, as skin care experts, recognize the need for patch testing for accurate diagnoses. It is a valuable tool that benefits both patients and physicians.

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