

Novel Use of Patch Testing in the First Report of Allergic Contact Dermatitis to Cyclobenzaprine

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PRECÍS

Although increasingly used to obviate systemic adverse effects, topical versions of pain medications may generate allergic contact dermatitis as exemplified herein by the first such case reported for cyclobenzaprine.

DISCUSSION

A 39-year-old white man with degenerative disc disease complicated by cervical radiculopathy was treated topically with a compounded pain medication containing ketamine 10%, diclofenac 5%, baclofen 2%, bupivacaine 1%, cyclobenzaprine 2%, gabapentin 6%, ibuprofen 3%, and pentoxifylline 3% in Lipoderm ActiveMax cream base. The patient benefitted from substantial pain relief, but after several weeks of use, he developed an itchy rash at the site of application. Suspecting contact dermatitis to diclofenac, the patient's pain doctor excluded diclofenac from a newly compounded topical mixture, but the patient continued to develop a rash with the new diclofenac-free cream. Stopping the use of the medication led to clearing of the rash, but the patient's cervical dysesthesia recurred, prompting a referral to our dermatology clinic to determine the cause of his rash.

Patch testing was performed using separate ingredients of the original mixture, namely, ibuprofen 3%, bupivacaine 1%, ketamine 10%, Lipoderm ActiveMax cream base (NEG), baclofen 2%, gabapentin 6%, pentoxifylline 3%, and cyclobenzaprine 2%; the original compounded mixture (MIX1); and the same mixture without diclofenac (MIX2). All reagents were supplied by Bellevue Pharmacy (St Louis, MO). At the 96-hour reading, the patient developed 2+ reactions to cyclobenzaprine and to the original mixture containing diclofenac and 1+ reaction to the second mixture without diclofenac (Fig. 1).

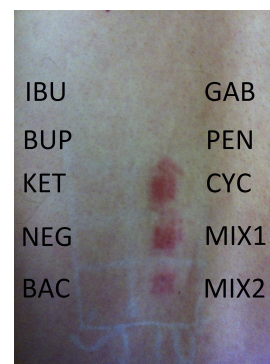


FIGURE 1. Patch test results at 96-hour: for ibuprofen 3% (IBU), bupivacaine 1% (BUP), ketamine 10% (KET), Lipoderm ActiveMax cream base as negative control (NEG), baclofen 2% (BAC), gabapentin 6% (GAB), pentoxifylline 3% (PEN), and cyclobenzaprine 2% (CYC); for the first compounded mixture (MIX1) containing the aforementioned ingredients; and for the second mixture (MIX2) containing the same ingredients but without diclofenac.

These results strongly suggested hypersensitivity to cyclobenzaprine present in the 2 mixtures. However, because the pharmacy only provided components of the second mixture, we realized that patch testing to diclofenac alone was not done. To more fully confirm that cyclobenzaprine (and not diclofenac) was the culprit allergen, we requested samples of diclofenac and of cyclobenzaprine in various concentrations.

Patch testing to the new samples showed a crescendo response to cyclobenzaprine (48-hour vs 96-hour readings) for doses ranging between 0.02% and 2% (Fig. 2). By contrast, responses were negative to all doses of diclofenac (0.05% through 10%) and to the base alone (NEG).

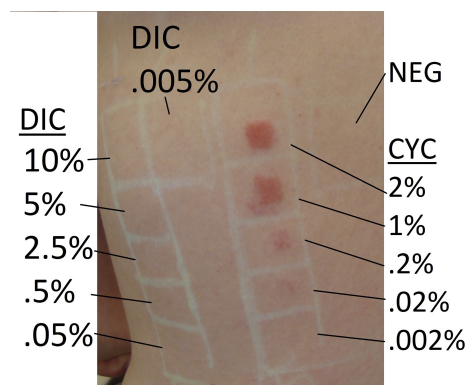


FIGURE 2. Patch test results at 96-hour: for diclofenac (DIC) at decreasing doses of 10%, 5%, 2.5%, 0.5%, 0.05%, and 0.005%; for Lipoderm ActiveMax cream base as negative control (NEG); and for cyclobenzaprine (CYC) at decreasing doses of 2%, 1%, 0.2%, 0.02%, and 0.002%.

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Relevance was established by clearance of the eruption after the use of a third mixture containing all of the original ingredients except for cyclobenzaprine.

Topical counterparts of systemic medications have been used to circumvent adverse effects from the latter.^{1,2} On the other hand, more widespread use of such topical medications is likely to be associated with increasing cases of allergic contact dermatitis. Cyclobenzaprine, in particular, is often added to topical pain medications because of its muscle relaxing action.³ Finally, our report illustrates the usefulness of customized patch testing for identifying the offending allergen, especially involving compounded medications containing multiple active ingredients not found in standard patch test series.

PEARL

We report the first case of allergic contact dermatitis to cyclobenzaprine confirmed by customized patch testing to ingredients of a compounded topical mixture used to combat pain.

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