

Contact dermatitis to silicone toe separators, an underdiagnosed entity?

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Contact dermatitis to silicone is a rare finding, despite being widely used for medical and non-medical purposes. Only a few reports involving pacemakers, cochlear and breast implants, and diving goggles have been described in the literature. We present for the first time, to our knowledge, a case of contact dermatitis to a silicone orthosis, with positive patch and repeat open application tests (ROAT).

CASE REPORT

A 14 years-old male was presented with scaly, erythematous, pruriginous plaques in the first interdigital space of both feet, 10 days after starting using silicone toe separators prescribed by his podiatrist (Figures 1a, 1b). Because of the location and extension of the lesions, almost perfectly limited to the contact area with the orthosis, a hypersensitivity reaction was suspected and epicutaneous tests were performed.

Patch tests performed with the Spanish Contact Dermatitis and Skin Allergy Group (GEIDAC) standard series were negative on day (D) 2 and D4. Patch test with the silicone “as is” and ROAT were positive at the D2 and D4, but both tests resulted negative with the catalyst used to harden the silicone (Figures 2a, 2b). Moreover, a cutaneous reaction was evident in an area next to the ROAT due to accidental contact with the silicone. The patient was diagnosed with contact dermatitis to the silicone present in the toe separators. Complete remission was observed within 10 days after removing the orthosis and treatment with topical corticosteroids.

DISCUSSION

Silicones are polysiloxane polymers with very low allergenicity and high biocompatibility due to their physicochemical characteristics. They are widely used in medicine in devices such as pacemakers, cochlear and breast implants, and also in different industries, cosmetology and house products.¹⁻³

Although silicone coating is used to avoid hypersensitivity reactions to the metal parts of pacemakers and cochlear implants, there are a few reports of hypersensitivity to the silicone coating, mimicking recurrent infections at the site of implantation.^{1,2,4-6} Few cases with a similar clinical presentation have been described with silicone breast implant capsules and their fillings.^{3,7,8}

Silicone is also found in a broad range of daily use products, however, we could only reach one article of contact dermatitis to this material in diving goggles, which was presented as leukoderma on the eyelids.⁹

The reduced number of reports on hypersensitivity to silicone contrasts with its presence in a large number of products that are in contact with skin. We find it curious that ours is the first report of contact dermatitis to a silicone orthosis as usual as toe separators. Along the same lines, only a few cases with breast implants have been described, and just one case related to daily use products. We might be overlooking contact allergy reactions to silicone due to the unawareness of its presence in certain products. A recent article about the use of silicone oil as lubricant in syringes serves as an example of a “hidden” silicone use, which in that case lead to a granuloma reaction following platelet-rich plasma injections.¹⁰ The clinical presentation of hypersensitivity to silicone may be limited to the contact area with an object

made out of this material, giving us a clue about its involvement in the reaction, but it can also resemble pathologies such as infections, malignancies, or appear as leukoderma, among others. Therefore, we consider that contact dermatitis to silicone could be an underdiagnosed entity that needs to be ruled out when evaluating complications involving products that contain silicone, especially when these are recurrent or do not respond to treatment.

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Figure legends:

Figure 1a. Clinical image. Erythematous, scaly and pruriginous plaques in the first interdigital space of both feet, 10 days after the use of silicone toe separators.

Figure 1b. Detail of the orthosis during their use.

Figure 2a. Patch test performed with Curatest (Lohmann and Rauscher, Germany) with silicone positive (++) at D2 reading, and negative with the catalyst.

Figure 2b. ROAT showed positive results with silicone (+) and negative results with the catalyst, at D2 reading.



