

Localized Erythema Multiforme-Like Contact Dermatitis From a Knee Brace

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Abstract: A 47-year-old woman developed allergic contact dermatitis (ACD) to a knee brace after anterior cruciate ligament repair, manifesting as numerous erythema multiforme-like lesions. No previous cases of ACD to this Townsend Rebel knee brace, which is commonly worn postoperatively, have been reported. The patient was treated with triamcinolone ointment, cetirizine, and diphenhydramine. On follow-up, the lesions had resolved. We share this case to increase knowledge of this reaction pattern and encourage further similar reports to clarify the nature of the reaction.

Key Words: allergic contact dermatitis, erythema multiforme-like, knee brace, Townsend Rebel

(*Clin J Sport Med* 2015;25:e62–e63)

INTRODUCTION

A few allergens have been reported to cause a rare allergic contact dermatitis (ACD) characterized by lesions resembling erythema multiforme (EM). In our case, an EM-like eruption occurred secondary to a component of a knee brace, which is a currently unreported inciting agent.

CASE REPORT

A 47-year-old Fitzpatrick skin type II woman presented to our dermatology clinic with a 1-week history of mildly pruritic lesions that had developed under a knee brace.¹ The patient had an anterior cruciate ligament repair 4 weeks prior and had been wearing an orthopedic brace since her surgery. Two weeks before presentation to our clinic, she introduced a second brace, the Townsend Rebel, which was worn just during physical therapy for three 1-hour sessions a week. She noted the development of lesions directly underlying the upper strap of this second brace 1 week before presentation. The patient denied systemic symptoms.

The patient was otherwise healthy and denied any personal history of atopic or contact dermatitis. She endorsed a history of kiwi allergy with development of urticaria; however, she denied any history of latex allergy.

The patient was well appearing, and on examination, there were annular and erythematous barely palpable plaques with dusky violaceous centers isolated in a band underlying the superior strap of the knee brace (Figure). Some of the lesions had a targetoid appearance.

Submitted for publication December 18, 2013; accepted July 8, 2014.

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The authors report no conflicts of interest.

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On contacting the manufacturer, she was told that there had been a few recent patient reports of a rash developing under the strap of the same brace. They offered a replacement strap. When we contacted the company, they were not able to provide any information about development of dermatitis under the brace. The patient was managed with triamcinolone ointment twice daily, cetirizine, and diphenhydramine as needed for symptomatic relief. In addition, the patient replaced the upper strap of the brace, which did not have the same silicone beading. The patient's lesions faded within 3 weeks and her symptoms resolved.

DISCUSSION

This is the first case of ACD with EM-like lesions caused by a knee brace to be reported in the literature. Previously reported inciting allergens include topical medications, chemicals, and plants.² Occupational exposure has been documented in response to tropical hardwoods, as well as after exposure to 1,2-ethanedithiol in a laboratory setting.^{3–5} Additionally, single reports have described an EM-like ACD due to hair dyes, capsicum, epoxy sealant, cutting oil, and unknown components of an antiscabies treatment and laundry bar soap.^{6,7} The inciting vehicle in our case, the Townsend Rebel brace, is commonly used postoperatively after anterior cruciate ligament repair.⁸ A Townsend representative endorsed that there have been other reports of cutaneous reactions, but these had been ascribed to chronic use in a humid environment. According to the company, the brace is composed of silicone, polyethylene, open-cell foam, synthetic polyester (faux) suede, polyurethane, and unbreakable durability loop nylon. A literature search of these components yields few individual reports of ACD due to polyethylene, polyurethane, or silicone. Polyethylene has been reported to cause ACD in a terephthalate mesh used in cochlear hearing implants.⁹ Allergic contact dermatitis from polyurethane has been reported in a slightly broader range of settings, to include toilet seats.¹⁰ Silicone as a cause of ACD is the least reported; a few cases report the offending device as silicone in cochlear implants.¹¹ However, none of these ACD reports have included an EM-like reaction; moreover, no other ACD reports are found in the literature for the remaining components of the Townsend Rebel knee brace. This case is reported to raise awareness of this reaction pattern among physical therapists, sports medicine physicians, orthopedic surgeons, and dermatologists. We hope further reports can clarify the etiology of this reaction. Moreover, this report highlights that development of ACD subsequent to faux suede, open-cell foam, or unbreakable durability loop nylon exposure should be considered.

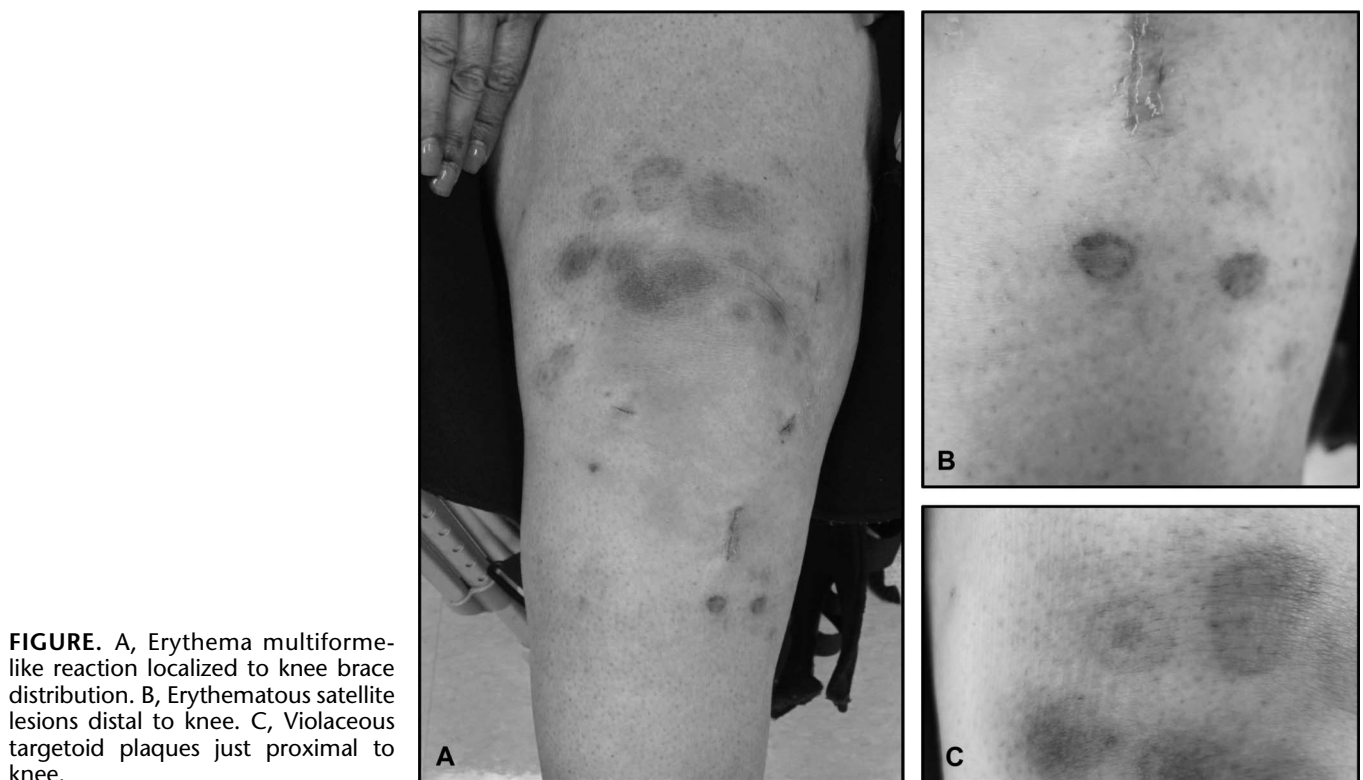


FIGURE. A, Erythema multiforme-like reaction localized to knee brace distribution. B, Erythematous satellite lesions distal to knee. C, Violaceous targetoid plaques just proximal to knee.

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