

knowledge, this is the first report of quinoa allergy within the United States. We came across 1 case report describing quinoa allergy in a 52-year-old man in France.<sup>3</sup> Quinoa has become a more popular food within the continental United States, found on restaurant menus and in local food stores. This case report emphasizes the consideration of quinoa allergy in patients who present with anaphylaxis when quinoa has been ingested.

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## Fixed drug eruption due to amoxicillin and quinolones

Fixed drug eruption (FDE) is a distinctive variant of drug-induced dermatosis that recurs at fixed sites after administration of the causative drug.<sup>1</sup> FDE polysensitivity is a rare finding that occurs with chemically unrelated drugs. In cases of polysensitivity, lesions may appear on identical or separate areas, and in this last case, they suggest a possible role of antigen-specific mechanisms in the site specificity of FDE.<sup>2</sup> We present a case of FDE caused by 2 unrelated antibiotics.

A 73-year-old man, with a history of chronic obstructive pulmonary disease and appendectomy, was referred for evaluation of a drug allergy. Ten years before consultation he had developed an itchy, oval-shaped, erythematous, well-circumscribed plaque on his right thigh on 3 occasions. In all cases he had received both amoxicillin and ibuprofen for respiratory tract infections. The patient was assessed by the Dermatology Department. A skin biopsy specimen obtained from the plaque revealed individual dyskeratotic cells in the epidermis, marked edema, vascular dilatation, and perivascular mild chronic inflammatory infiltrate with mast cells and eosinophils in the upper dermis. A diagnosis of FDE was made. One year later, the patient received levofloxacin 500 mg/day as a treatment for acute bronchitis. Several hours after the third tablet, he developed 3 itching erythematous plaques, 1 on the right thigh and 2 on the appendectomy scar. The biopsy result was again consistent with FDE. Plaques disappeared without treatment after 10 days. He had previously tolerated levofloxacin.

Patch tests were performed with benzylpenicilloyl polylysine ( $5 \cdot 10^{-5}$ ), minor determinant mixture (0.5 mg/mL), benzylpenicillin (10,000 DU/g, in petrolatum [pet]), amoxicillin (20% in pet), amoxicillin-clavulanic (10% in pet), cefuroxime (20% in pet), meropenem (5% in pet), and ibuprofen (5% in pet) (allergen occlusion for 2 days in Curatest on Hypofix tape; Lohmann and Rauscher International, Neuwied, Germany), on both healthy and previously injured skin. All were negative at D2 and D4.

A single-blind placebo-controlled oral challenge (SBPCOC) with amoxicillin was performed. Six hours after the administration of 187.5 mg amoxicillin, the patient presented an itchy erythematous plaque on the right thigh. Two months later, the administration of cefditoren, cefepime, cefuroxime, meropenem, and ibuprofen produced no reaction.

After finishing the study with  $\beta$ -lactams, patch tests with ciprofloxacin (10% in pet), levofloxacin (20% in pet), moxifloxacin (5% in pet), and norfloxacin (10% in pet) were performed, again on



Figure 1. Fixed drug eruption due to quinolones.

healthy skin, on the appendectomy scar and on the right thigh. All were negative at D2 and D4.

One month later, 7 hours after performing an SBPCOC with 187.5 mg ciprofloxacin, the patient developed itchy erythematous plaques on previously injured skin (Fig. 1). The following month, another SBPCOC with 400 mg moxifloxacin was performed, with the same clinical picture as before as a result.

Although cross-sensitivity between related drugs in a fixed eruption is well known and has been widely reported, FDE polysensitivity is unusual, and few cases have been reported.<sup>3–5</sup> In our patient, the drugs involved were amoxicillin and quinolones, two unrelated antibiotics that caused FDE on the same sites.

In the group of  $\beta$ -lactam antibiotics, amoxicillin, amoxicillin-clavulanic acid, and ceftriaxone have been described as a possible cause of FDE, whereas ampicillin, penicillin V, and procaine penicillin have been described as a cause of polysensitivity in FDE.<sup>4</sup>

With regard to quinolones, case reports of FDE have been studied, as well as cross-reactivity between ciprofloxacin and norfloxacin, levofloxacin, and ofloxacin.<sup>6,7</sup> In our case, the patient had FDEs with ciprofloxacin, moxifloxacin, and levofloxacin. In most published cases of quinolone-induced FDE, both patch tests and skin tests were negative. Only 1 case report involved a positive patch test on areas of previous lesions.<sup>7</sup>

Although patch tests are considered a simple and safe method to identify certain causative agents of FDE,<sup>1</sup> negative results are not infrequent. Several possible reasons may explain this: First, patch tests should be performed at the sites of previous lesions of FDE. Second, patch tests should be performed at least 2 weeks after resolution of the lesions to avoid a refractory period. Third, patients may not be sensitized to the original drug but to its metabolites. Fourth, false-negative results may be attributed to low concentrations of the drug used in patch testing. Fifth, false-negative results also may result from the limited penetration properties of the drug.<sup>8</sup> For these reasons, oral challenge remains the most reliable method for establishing the causative drug in FDE.

To our knowledge, no cases of FDE caused by polysensitivity to both amoxicillin and quinolones have been previously reported. We present a case of FDE attributable to amoxicillin and quinolones that was confirmed by oral challenge.

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