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Carta científico-clínica

## Eritema fijo por alimentos en un paciente pediátrico: reto diagnóstico y terapéutico

[[Translated article]]Fixed Food Eruption in a Pediatric Patient: Both a Diagnostic and Therapeutic Challenge

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*To the Editor,*

Food allergy (FA) is an adverse reaction caused by immune mechanisms mediated by cellular immunity and immunoglobulin E, with cutaneous, respiratory, or GI signs. Atopic dermatitis and acute urticaria are often the most common skin signs. Fixed food erythema is an uncommon manifestation of FA, with immune mechanisms that are not yet well established.

An 11-month-old infant was evaluated due to a 4-month history of erythematous plaques on both cheeks and chin, and well-demarcated borders, serous vesicles, and yellow crusts (fig. 1<sup>1</sup>). The patient had a history of a generalized rash associated with GI symptoms at 4 months old, attributed to milk consumption, and was on extensively hydrolyzed milk. Specific IgE tests for cow's milk and egg tested negative.

With a diagnosis of impetiginized eczema, the patient received topical treatment with antibiotics, hydrocortisone, and tacrolimus without improvement, leading to hospitalization and systemic treatment with cephalosporin and clindamycin, which were discontinued due to an adverse reaction. Treatment was switched to trimethoprim-sulfamethoxazole and the patient was

discharged for outpatient follow-up. Initially, the patient showed clinical improvement. However, days after completing outpatient treatment, the plaques recurred with the same morphology on the face, predominantly on the cheeks. Lab test results, including a blood count, serum zinc levels, and direct fungal examination, showed no pathological findings. Bacterial culture tested positive for *Streptococcus oralis* (interpreted as a contaminant), and a biopsy of the affected skin reported eczema.

Due to the persistence of symptoms, patch tests were performed with the Latin American standard battery and the patient's own products, without testing a healthy control group, as this is not routinely done in this population; results tested negative at 48 and 96 hours but positive a week later for fragrances and tixocortol pivalate. However, the clinical relevance of this result was doubtful as, by this time, the patient was only using fragrance-free dermatological products and tacrolimus as anti-inflammatory therapy due to the chronicity of the condition. A patch test with foods was performed, starting with cow's milk and egg, as they are the most common food allergens, as well as Nutribén® H, the extensively hydrolyzed formula the patient was receiving at the time. The test was positive at 48 and 96 hours for whole milk, egg white, egg yolk, and Nutribén® H (extensively hydrolyzed milk) (fig. 2<sup>2</sup>). Based on these results, the diagnosis of fixed food erythema was established, and the patient was advised to continue an elemental diet and topical tacrolimus, which resulted in significant clinical improvement 1 week after starting the avoidance measures (fig. 3). Once the patient's lesions stabilized, a new patch test was conducted to assess FA to cereals, which tested positive for soy, corn, and wheat, explaining the positive patch test for the Nutribén® H formula, as these cereals are part of its main components.

FA is considered an adverse reaction originating from an abnormal immune response due to sensitization to protein antigens<sup>1-4</sup>. Its prevalence is increasing, and it has been observed in 4% up to 8% of children in Western countries<sup>1</sup>. It is more common in boys younger than 2 years and children with atopic parents. Cow's milk protein and egg allergies are the most common and tend to be transient, with improvement in 50% up to 60% of cases during school age<sup>1,4</sup>.

Sensitization to allergens typically occurs when they cross the intestinal mucosa and are processed by antigen-presenting cells, triggering a Th2-type response where regulatory mechanisms fail<sup>1-4</sup>. FA can be categorized into IgE-mediated, which shows as acute urticaria, angioedema, asthma, or anaphylaxis; non-IgE-mediated or cellular, which is associated with celiac disease or enterocolitis; and mixed mechanisms, which are linked to atopic dermatitis and eosinophilic esophagitis, among others<sup>1,2</sup>. Atopic dermatitis and acute urticaria are often the most common skin signs<sup>2</sup>.

Fixed food erythema is a rare form of FA, characterized by the appearance of eczematous plaques days after food ingestion that resolve when the food is avoided and reappear in the same location upon re-exposure. Therefore, in our patient, lesions were always located on the face, although fixed food erythema can affect other locations. The immune mechanism is yet to be elucidated.

Cases in children have been reported in the literature in relation to the consumption of crab, corn, nuts, and fruits<sup>5–7</sup>.

Diagnosis is based on a detailed medical history, correlating the timing of food ingestion with symptom onset. In cases of doubt or severity, patch tests, biopsies, or oral food challenges can be performed<sup>1,2</sup>. The cornerstone of treatment is the avoidance of the implicated allergen. Symptomatic treatment includes topical steroids and/or topical calcineurin inhibitors, and, if necessary, non-sedating H1 antihistamines to control itching. Systemic steroids are recommended for generalized cases<sup>1</sup>.

## **Conflicts of interest**

None declared.

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**Figure 1.** Compromised cheeks and chin, an irregular, well-demarcated, infiltrated, lichenified plaque with scaling and serohematic crusts.



**Figure 2.** Patch test positive at 48 and 72 hours:

++ positive to Nutribén® H.



**Figure 3.** Post-treatment follow-up photos, resolved lesions, patient completely healthy.

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