Data Article

Aquagenic Urticaria, a case report

ABSTRACT

Aquagenic urticaria is an exceptional form of physical urticaria caused by exposure to water, at present its pathophysiology remains incompletely understood.
The diagnosis is supported by the clinical history and confirmed by skin tests.Since it is virtually impossible to avoid the triggers, treatment is based on symptom control.
We report the case of a 15-year-old child, followed for asthma well controlled under background treatment (fluticasone), he presents since the age of 7 years, a urticaria to sea water and fresh water, diagnosed urticaria aquagenic thanks to the interrogation and skin tests, put under symptomatic treatment by antihistamines, the application before swimming of barrier creams with limitation of the time of the bath.

Key words: aquagenic urticaria, physical urticaria, fresh water, sea water, antihistamine.

1. INTRODUCTION:

Aquagenic urticaria is a rare form of physical urticaria, characterized by the appearance of erythematous and pruritic plaques a few minutes after the onset of contact with water regardless of its temperature or salinity.
It is sometimes classified as an allergy, although it is not an allergic reaction due to the release of histamine as in other forms of urticaria, and should not be confused with aquagenic pruritus [1], in which no apparent skin lesion is observed.

2. PRESENTATION OF CASE:

A 15-year-old child, followed for well-controlled asthma on fluticasone spray 125 µg 1 puff x 2 per day, has presented since the age of 7 years with pruritic patches on the neck, trunk, back and upper limbs a few minutes after the start of his shower or after swimming in the sea or in a pool. These patches were sometimes accompanied by a pruritic edema, the lesions regressed spontaneously 30 to 45 min after the end of the contact with water. This picture was intermittent and then became permanent at puberty.

In order to support the diagnosis, we performed skin tests in our patient, the areas chosen for the application of the compresses corresponded to the location of the lesions described by the patient, we applied simultaneously on each cheek a compress soaked in fresh water (on the left cheek) and seawater (on the right cheek) at 37 ◦C for 30 min [fig. 1], The temperature of 37 ◦C allows us to avoid a reaction that would be rather related to cold urticaria.

Fig.1. skin tests applied simultaneously on each cheek a compress soaked in fresh water (on the left cheek) and seawater (on the right cheek

We noted the appearance of edema and erythema at the areas of contact with the compresses and then papules a few minutes later. The erythema and papules were more marked on the left cheek on which we applied a compress soaked in fresh water.
The control test consisted of the application of a compress soaked in fresh water at 37 ◦C on the neck for 30 min, the reaction was similar to that present on the cheeks [fig. 2].

Fig.2. the appearance of edema and erythema at the areas of contact with the compresses and then papules a few minutes later.

An effort test and an ice cube test were performed and came back negative [fig. 3].

Fig.3. an ice cube test were performed and came back negative

We therefore retained the diagnosis of aquagenic urticaria, the treatment initially proposed, consisting of H1 antihistamines during the seaside vacations, the application before swimming of barrier creams with limitation of the time of bathing.

3. DISCUSSION:

Aquagenic urticaria (AU) was first described by Shelley and Rawnsley [2], who reported three cases in 1964, and less than 100 cases have been published in the literature since then.
Aquagenic urticaria is a rare physical urticaria caused by exposure to water, the salt-dependent form has been described in less than 10 cases [3.4] while temperature and pH have not shown any influence [5].
It is more frequent in women than in men and appears mainly during puberty. Most cases are sporadic, but familial cases of UA have been reported.
At present, the pathogenesis remains unknown, three hypotheses have been formulated to explain it:

The first proposes that the reaction of water with sebum forms a toxic substance that degranulates mast cells [5].

The second suggests the presence of undefined water-soluble epidermal antigens that diffuse into the dermis, causing histamine release [6].

Finally, histamine-independent mechanisms have been suggested after observing serum levels of unchanged histamine in the serum of a patient with aquagenic urticaria [7].

The clinical picture consists of pruritic follicular papules on the areas of skin that have been in contact with water that appear within 30 minutes after exposure, they are usually located on the neck, upper trunk and arms, the lesions usually fade within 30-60 minutes.

Diagnosis is based on questioning and water provocation tests, which involves applying a 37°C water compress to the upper body for 30 minutes, keeping the compress at room temperature avoids confusion with local cold or heat-induced urticaria.

Pretreatment with organic solvents promotes the formation of papules on contact with water, as a result of the enhanced ability of water to penetrate the stratum corneum.

Diagnosis requires exclusion of other types of physical urticaria, so a stress test and an ice cube test should be performed to exclude other types of physical urticaria.

Antihistamines are used to treat aquagenic urticaria, but their therapeutic effect and prognosis vary [8], in some cases complete control of symptoms by antihistamines has been reported, while in other cases there is no adequate control of symptoms [9].

Refractory cases have been treated with ultraviolet (UV) radiation alone or in combination with antihistamines which allows thickening of the epidermis, which may decrease water penetration, barrier methods involving the application of emulsion creams to the skin for protection against water are effective [10].

4. CONCLUSION:

A clinical history of urticaria in response to water exposure, as well as a positive water challenge test result, are key to the diagnosis of urticaria. It is essential to differentiate UA from other physical urticaria.

The standard of care for these patients is second-generation H1 antihistamines without sedation, combined with topical emollient cream and phototherapy.

5. REFERENCES:

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