Mercury contact allergy in children

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Background

Cutaneous allergy reactions to mercury or its derivatives can cause different cutaneous symptoms depending on the extent and type of the exposure. The Baboon syndrome is a rare cutaneous systemic allergic reaction to mercury, which is characterized by the development of an acute symmetric flexural exanthema. In children it usually appears after the inhalation of metallic mercury vapours of a broken thermometer, often in individuals previously sensitised to mercury compounds topically.

Material and methods

A retrospective analysis of all positive patch tests done to paediatric patients at the Department of Dermatology from 2004 to 2013 is presented.

Objective

To assess the data of sensitisation to mercury and thimerosal in patients patch tested because clinical suspicion of contact dermatitis.

Results

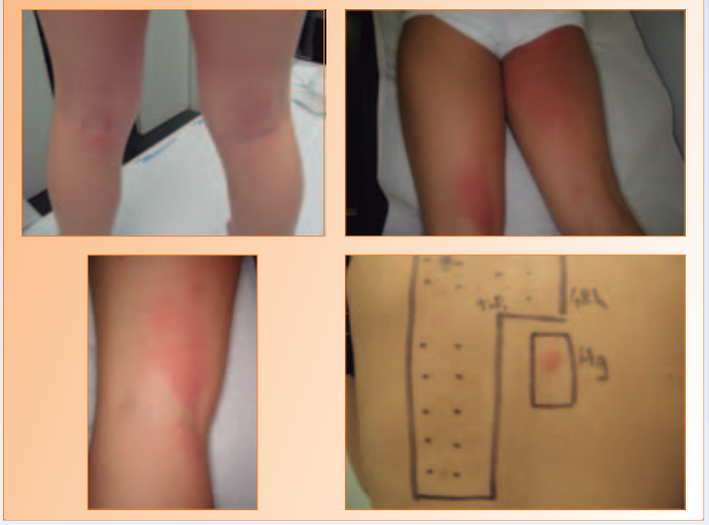
A total of 84 patients showed positive patch tests. Of these, 6 patients had positive patch test to mercury and 27 to thimerosal. Five of these patients had positive tests for both, mercury and thimerosal. In most of the cases with a positive result, the relevance was not established based in a different reason for consultation. However, 4 patients developed a typical Baboon syndrome being the positivity of mercury or its derivatives strongly relevant.

Case 1.
A 4 years old girl presented with an acute pruriginous erythematous rash on the neck, large folds, upper thighs, feet, gluteal and genital area. Two days before she had been exposed to a broken thermometer. There were no medications and no previous contact allergies. Despite treatment with hydroxyzine and topical hydrocortisone there was a clinical worsening with fever, general malaise and leucocytosis. Complete remission was observed after treatment with systemic prednisone and amoxicillin clavulanic acid. (**Pictures 1, 2, 3, 4**)

Case 2.
After being in contact the day before with a broken thermometer at home, a 15-year-old girl developed a maculopapular pruriginous erythematous rash on gluteal area, upper inner thighs and the popliteal fossa. There was no history of contact allergy or atopic dermatitis. She received therapy with oral antihistamines and topical corticosteroids, with complete resolution of the lesions. (**Pictures 5, 6, 7, 8**)

Case 1 (Pictures 1, 2, 3, 4): erythematous plaques in inguinal area, vulva, popliteal fossa, neck and armpits. The patient also had scaly erythematous interdigital lesions.

Case 2 (Pictures 5, 6, 7, 8): maculopapular plaques on the right buttock and thigh and on the left popliteal fossa. The patch testing was positive for metal mercury and negative for thimerosal.



Case 3.
An 18-year-old girl, without history of contact allergy, presented with a very itching exanthema on the gluteal area, upper inner thighs and trunk. Ten hours before, she had accidentally manipulated mercury of a broken thermometer. Complete spontaneous remission was observed within days.

Case 4.
A 5-year-old girl developed erythematous flexural and gluteal rash 2 days after the break of a thermometer. She had a history of atopic dermatitis. Complete spontaneous resolution was observed.
In all patients a delayed hypersensitivity to mercury compounds was confirmed by patch tests. (**Table 1**)

TABLE 1: Clinical Data and Patch Test Results of 4 patients with Baboon Syndrome

Patient	Sex	Age	Atopic dermatitis	Broken thermometer	Patch test				Clinical and laboratory features
					Metallic mercury (0.5% pet*/ castor oil**)	Mercury ammonium chloride (1.0% pet)	Thimerosal (0.1% pet)	Others	
1	F	4	No	Yes	+++/+++*	_	+/+++	No	General malaise, fever, leucocytosis
2	F	15	No	Yes	+++/+++**	_	-/-	No	_
3	F	18	No	Yes	_	+++/+++	++/+++	No	_
4	F	5	Yes	Yes	_	+++/+++	++/+++	No	_

F: female; Pet: petrolatum; Patch test lecture: 48 hours/ 96 hours

Discussion

Baboon syndrome is a systemically induced allergic contact dermatitis to mercury that was first described in 1984. It is characterized by an acute benign symmetric erythematous maculopapular rash on mayor flexures, buttocks and genital area in sensitised persons. In thighs the exanthema takes a characteristic V-shaped pattern. Itching, burning, heat and stiffness can precede the rash. Systemic symptoms such as fever and leucocytosis are infrequent and the exanthema tends to resolve spontaneously within weeks. The treatment is to avoid the trigger and to reduce symptoms using topical corticosteroids and antihistamines. A positive patch testing to mercury derivatives confirms the diagnosis. In children Baboon syndrome usually appears after the inhalation of mercury vapours of a broken thermometer in patients that have been previously sensitised topically to mercury compounds, often by exposure to topical disinfectants such as Mercurochrome. It is not clear if thimerosal can cause Baboon syndrome. Thimerosal is an organomercurial compound that has been use widely for ophthalmologic solutions, vaccines, cosmetics and toothpastes, as a preservative. Some patients with Baboon syndrome show positive patch testing for thimerosal. In addition, some antibiotics and infections have been described as causative agents of exanthematous eruptions showing the same clinical picture as mercury induced Baboon syndrome.

With regard to our patients, all the four cases of Baboon syndrome had positive patch test results for mercury. Three of them had also positive results for thimerosal.

Conclusion

Baboon syndrome as systemic contact dermatitis is still present in our media even in young children, being mercury thermometers the most common cause of the elicitation and source of exposure despite the European Union regulation about their commercialisation, which is forbidden since 2009. The reason for this observation might be that the regulation has not been yet fully implemented.

References

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