

Factors Influencing the Localization of Atopic Dermatitis

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Atopic dermatitis is clinically characterized by the involvement of preferential sites. Some of these localizations, such as the face in the first year of life and later on the flexural aspect of the limbs, are constant and thus characteristic of atopic dermatitis. They are probably determined by factors that are identical for all subjects, whereas the less constant localizations are probably influenced by individual factors. The author discusses from a clinical point of view the factors that can influence localization and the lack of involvement of certain sites in atopic dermatitis. An unusual localization of atopic dermatitis, such as around congenital nevi, is also discussed. Key word: Atopic dermatitis.

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INTRODUCTION

Atopic dermatitis (AD) is the most frequent skin manifestation of atopic diathesis. This diathesis is characterized by a complex biochemical and immunological imbalance involving particularly the skin and the respiratory, gastrointestinal and conjunctival mucous membranes. Keeping in mind these premises, one can realize that AD involves the entire skin surface, even in those localized varieties, in which the most evident clinical manifestations seem to affect only circumscribed skin sites.

In the first months of life we encounter circumscribed forms apparently localized on the face, yet without evident manifestations on other sites. However, a careful examination of these children may reveal patches of dry skin. In many cases such a dry skin is not an additional finding of AD; it is only a mild manifestation of AD. This hypothesis is favoured by the histological findings, revealing mild dermatitis even in the patches of dry skin (1, 2).

However, even though microscopically the pathological process affects the entire skin surface, AD is clinically characterized by the involvement of preferential sites. The involvement of these sites is so constant that it is included among the diagnostic criteria of Rajka and Hanifin. On the other hand, such criteria do not include the morphology of the lesions. Due to their constant presence, some of these localizations, such as the face in the first year of life and later the flexural aspect of the elbows and knees, can be considered as characteristic of AD. Other localizations such as the scalp in the first months of life or the hands in adults are less constant, even though they are more frequently involved than other sites. It is likely that the constant and characteristic localizations of AD are determined by factors that are identical for all humans. On the other hand, the less constant localizations are probably influenced by individual factors.

The face

The face is usually the first site involved in most cases of AD starting in the first months of life (3, 4). However, the face is not the first site involved when onset starts after the first year of life, suggesting that age is a causative factor in such localization. How does age work in determining the localization of AD on the face? It is likely that frequent crying, peculiar to young infants via the induced vasodilation, acts as a localization factor of AD to the face. It is also likely that ubiquitous physical, external agents play a role in such a localization, as suggested by the often simultaneous involvement of the dorsal aspect of the hands at this age. External agents such as temperature and the degree of environmental humidity may act as exacerbating factors in predisposed subjects having an abnormal vascular reactivity of the skin. On the other hand, sunlight is unlikely to play a significant role as an exacerbating factor. The beneficial effect of sunlight and the lack of involvement of the nose do not favour a significant role of sunlight as a causative agent in the localization to the face. The tip of the nose is the last facial site to be involved in AD; it is usually spared even in the most severe generalized cases of the disease. Sunlight is certainly an exacerbating factor, but only in the rare cases of AD associated with photosensitivity. These cases become less rare after the second decade of life.

The scalp

Another site primarily involved in most cases of AD is the scalp. Scalp involvement accounts for about 10% of all cases of AD. However, in the first 6 months of life this localization is much higher, accounting for about half of cases at this age. Scalp involvement in AD is a controversial problem, especially due to the unresolved relationship between AD and the so-called infantile seborrheic dermatitis.

The latter is a poorly defined condition which probably embraces several very different varieties of dermatitis encountered in the first months of life. First of all we would like to clearly separate from infantile seborrheic dermatitis two clinical entities not related to AD: so-called Leiner's erythroderma, which is a chronic, often fatal disease connected with a primary immune deficiency; and so-called napkin psoriasis, an acute, eruptive rash originating in the nappy area, which is probably connected with a psoriatic diathesis.

On the other hand, the problem of the relationship between AD and infantile seborrheic dermatitis arises when considering that variety of infantile seborrheic dermatitis known as "cradle cap" eventually associated with erythematous lesions involving the retro-auricular and cervical folds. We do believe that this variety of infantile seborrheic dermatitis really exists, even though it does not come to the attention of dermatol-

ogists. It is characterized by whitish furfuraceous scales partially involving the scalp and the medial supraciliary region, with practically no or little erythema and no pruritus.

In atopic infants, this variety of seborrheic dermatitis may be much more severe and may be responsible for an extensive involvement of the scalp, with erythematous, crusted and sometimes frankly exudating lesions. It represents a localization factor of atopic dermatitis in atopic children. The arrival of pruritus or the involvement of other sites such as the face will confirm the diagnosis of AD. Our opinion is based on the following reasons:

- 1) Involvement of the scalp in infants with AD is less frequent than involvement of the face.
- 2) When the scalp and the face are simultaneously involved, the scalp involvement usually subsides prior to involvement of the face.

The recent findings of some authors such as Ruiz-Maldonado et al. (5) and Broberg (6) showing the presence of *Pityrosporum ovale* in varying proportions of infants with infantile seborrheic dermatitis seems to favour the hypothesis of a real existence as a distinct entity of infantile seborrheic dermatitis and of its possible relationship with the adult form of the disease.

It is possible that adult seborrheic dermatitis and *Pityrosporum ovale* may play an exacerbating role in that variety of adult AD involving the upper part of the trunk. This variety, more frequent in adult females, is characterized by often excoriated prurigo-like lesions.

Flexural aspect of the limbs

The most constant and characteristic site involved in AD is the flexural aspect of the elbows and the knees. There are no other skin diseases chronically involving these areas. We have only occasionally observed cases of acrodermatitis enteropathica or dystrophic epidermolysis bullosa inversa involving these areas.

Higher temperature, humidity and friction could be considered as causative factors. However, they are also present on other sites such as the axillary and inguinal folds, usually not involved in AD. Moreover high temperature, humidity and friction are particularly present in the diaper area during the first 2 years of life. Atopic dermatitis is rarely located in the diaper area at this age. Using the same anamnestic and clinical criteria, we have shown that the prevalence of diaper rash is similar in children with AD and children with cherry hemangioma. In fact, the diaper area is often spared in infants with severe AD, even in cases with generalized lesions, which calls for a new therapeutic approach in these cases.

These examples show how difficult and interesting it is to understand the factors governing the localization of AD.

Perinevic atopic dermatitis

Among the unusual localizations of AD it is interesting to remember that AD may focus on congenital or acquired nevi, making differential diagnosis from other neoformations as mastocytoma sometimes difficult. The diagnosis is particularly perplexing when the perinevic localization of AD is the only manifestation of the disease. It is likely that in these cases, the scratching of a non-itchy but prominent lesion may induce the localization of AD around the nevus.

REFERENCES

1. Finlay AY, et al. The "dry" non-eczematous skin associated with atopic eczema. *Br J Dermatol* 1982; 103: 249-56.
2. Uehara M, Miyauchi H. The morphologic characteristic of dry skin in atopic dermatitis. *Arch Dermatol* 1984; 120: 1186-90.
3. Meneghini CL, Bonifazi E. La Dermatite Atopica. Bari Ed. *Bollettino di Dermatologia Pediatrica (Pediatric Dermatology News)*, 1989.
4. Rajka G. Atopic dermatitis. London: W. B. Saunders, 1975.
5. Ruiz-Maldonado R, et al. *Pityrosporum ovale* in infantile seborrheic dermatitis. *Pediatr Dermatol* 1989; 6: 16-20.
6. Broberg A. *Pityrosporum ovale* and infantile seborrheic dermatitis. Report presented at III Congress ESPD, Bordeaux, September 1990.