

## Atopic Dermatitis, Evaluation of Ocular Manifestations in Children

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### Abstract

To evaluate the frequency of atopic dermato keratoconjunctivitis, its symptoms and changes in patients of Children's Dermatology Clinic of Hospital da Santa Casa de Misericordia de São Paulo with a previous diagnosis of atopic dermatitis.

Fifty-two patients with atopic dermatitis under 16 years-old (mean age  $8.9 \pm 4.1$  between 2 and 16 years) were ophthalmologic evaluated. The analysis was descriptive and statistical, with a 5% significance level.

The frequency of atopic dermato keratoconjunctivitis was 76.9% among 52 patients with atopic dermatitis, including atopic conjunctivitis (26.7%) and atopic blepharitis (50.2%). Atopic dermatitis is more frequent in female patients and atopic conjunctivitis in male. Age was practically the same in both groups.

The prevalence of atopic dermato keratoconjunctivitis was 76.9% in patients with atopic dermatitis. Due to the increased prevalence of atopic dermatitis in children, it would be prudent to perform routine ophthalmologic evaluation of these patients, since none of them had been previously monitored with Ophthalmological exams.

**Keywords:** Allergic Conjunctivitis; Atopic Dermatitis; Blepharitis; Atopic Dermato keratoconjunctivitis; Corneal Diseases

### Introduction

Atopic Dermatitis (AD) is an eczematous disease that occurs more commonly during the infancy and adolescence, and which results from defects of the protective barrier of the skin, the immunological system, and from exaggerated responses to microbial antigens and allergens [1-5].

Within children, AD's estimated prevalence is of 10 to 20% in countries such as the United States, Europe, Japan, and Australia. In Brazil, its prevalence is of 13.2%. Amongst adults, however, its prevalence diminishes to 1 to 3%, and it is more frequent within women [4,5].

Atopic keratoconjunctivitis (AKC) was first described in 1952 by Hogan, and it is defined as a chronic, non infectious, inflammatory injury of the eye surface, conjunctiva and eyelids, that carriers of AD may express at any stage of the evolution of this dermatological disease, and that it is unrelated to its degree of severity, according to some authors [7-14].

Based upon medical literature, AKC affects between 15 to 67.5% of AD patients. It is more common amongst men, beginning usually within the second and fifth decade of life, with incidence peak beyond forty years of age. Although there have been described cases of AKC in children with AD, it is not appointed by the medical

literature as a common ocular manifestation within such age group [6,7,9,14-18].

The objective of this investigation was to evaluate the frequency of ocular manifestations within children with atopic dermatitis.

## Materials and Methods

Prospective, observational transversal study which took place at ISCMSP's Ocular Allergy Outpatient department, and approved by the Research Ethics Committee under protocol number 291/08.

Patients from the Children's Dermatology Outpatient department diagnosed with Atopic Dermatitis in accordance to Hanifin and Rajka's criteria were evaluated from March 2006 to July 2008 and obeyed the following inclusion and exclusion criteria.

- **Inclusion criteria:** Clinical diagnosis of atopic dermatitis, age below 16 years old, accompanied by legal representative, and free informed consent form signed by such legal representative.
- **Exclusion criteria:** Contact lenses' users and previous eye surgery.

According to the after mentioned criteria, there were selected 52 AD carriers, 23 (44.2%) males and 29 (55.8%) females.

Patients were between 2 and 16 years old, with average of 8.9 and standard deviation of 4.1 years.

Patients underwent complete anamnesis and ophthalmologic examination.

We used in our statistical analysis Pearson's chi-square test, Fisher's exact test, and Student's t-test, considering  $p < 0.005$  as statistically significant.

## Results

After clinical evaluation, these patients were classified into 2 groups: positive and negative for AKC (patients who do not fit into the other mentioned groups). The AKC positive group was then subdivided into 2 groups:

- **Atopic Conjunctivitis:** Patients who required treatment with anti-allergy drops.
- **Atopic Blepharitis:** Patients who only need eye lubricant and eyelid hygiene with neutral shampoo.

Forty patients (76.9%) in our study had AKC, out of which 15 (26.7%) were diagnosed with Atopic Conjunctivitis and 25 (50.2%) with Atopic Blepharitis (Figure 1).

**Figure 1:** Atopic Keratoconjunctivitis in patients with atopic dermatitis from the Atopic Dermatitis ambulatory of Santa Casa São Paulo.

Atopic Keratoconjunctivitis (AKC) → Patients with Atopic blepharitis and atopic conjunctivitis. Ophthalmology Department Santa Casa SP 2008.

The group positive for AKC was composed of 55% women and 45% men. The group with Atopic Conjunctivitis was made up of 33.3% women and 66.7% men. Finally, we found that the Atopic Blepharitis group contained 68% women, and 32% men. These differences are statistically significant in accordance to Pearson's chi-square test ( $p = 0.033$ ) (Table 1).

Gender	AKC	Atopic Conjunctivitis	Atopic Blepharitis
Male	55%	33,3%	68%
Female	45%	66,7%	32%

**Table 1:** Distribution of sex in AKC patients.

Most of the patients presented mild signs of AKC, for there were only 6 patients with severe signs such as keratitis, eyelids loss, conjunctival atrophy, amongst others. All of these serious patients belonged to the Atopic Conjunctivitis subgroup. Few findings were characterized as intense within the Atopic Blepharitis subgroup.

None of the evaluated patients presented with cornea ulceration, and with cornea or lenticular opacity.

## Discussion and Conclusion

Based upon gender, we found a greater number of female patients (55.8%) with AD. Nonetheless, Atopic Conjunctivitis was more common within males, being such difference statistically significant and in agreement with the pattern found in the medical literature [4,12-14,21-25].

There was no statistically significant difference related to age within patients with AKC.

One of few researches that have analyzed the frequency of AKC in children with DA was done by Carmi., *et al.* [20], in France, which observed the presence of this ophthalmologic disease in 25.4% of children carriers of atopic dermatitis, out of a sample of 59 patients with age average of 36.2 months old. In our study, only 3 patients off the AKC group were younger than 3 years old, which makes it difficult to compare to this data. Another work performed by Ortega [21] determined that the frequency of AKC in children was of 21%.

Uchio., *et al.* [22], performed an investigation in Japan with 216 patients with age average of 24.8 + 7.8 years old and found a frequency of ophthalmic disease of the anterior segment of 32.4%. Dogru., *et al.* [11], in another Japanese investigation with 362 patients with age average of 22.7 years old, obtained a frequency of 67.5%. Therefore, we may notice that it has been established in medical literature that AKC is more common within adults [4,6,12,13,18]. In this study, however, we have verified a high AKC index, mainly mild cases (Atopic Blepharitis), even before 16 years of age.

As previously mentioned, the prevalence of DA and AKC has been steadily growing. Within the last decade, the financial costs linked to these diseases have been high, making it extremely important that such patients undergo regular ophthalmologic evaluation, even at younger ages, in an attempt to improve their quality of life and to obtain smaller indexes of eye complications.

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These results validate the inference that all patients with atopic dermatitis must undergo ophthalmologic evaluation, even in their infancy.

## Bibliography

1. Abelson MB and Granet D. "Ocular allergy in pediatric practice". *Current Allergy and Asthma Reports* 6 (2006): 306-311.
2. Sehgal VN and Jain S. "Atopic dermatitis: ocular changes". *International Journal of Dermatology* 11.1 (1994): 11-15.
3. Eiseman AS. "The ocular manifestations of atopic dermatitis and rosacea". *Current Allergy and Asthma Reports* 6 (2006): 292-298.
4. Fitzpatrick TB., *et al.* "Fitzpatrick's Dermatology in General Medicine". 7a. edição. New York: McGraw-Hill (2008): 147-158.
5. Harper J., *et al.* "Textbook of Pediatric Dermatology". 2a. edição. Massachusetts: Blackwell Publishing 179-296.
6. Uchio E., *et al.* "Demographic aspects of allergic ocular diseases and evaluation of new criteria for clinical assessment of ocular allergy". *Graefe's Archive for Clinical and Experimental Ophthalmology* 245 (2008): 291-296.
7. Barney NP. "Vernal and atopic keratoconjunctivitis". In Krachmer JH, Mannis MJ, Holland EJ eds. *Cornea: fundamentals, diagnosis and management* 2a. edição. Philadelphia: Elsevier Mosby 1 (2005): 670-673.
8. Bonini S. "Atopic keratoconjunctivitis". *Allergy* 59.78 (2004): 71-73.
9. Calonge M and Herreras JM. "Clinical grading of atopic keratoconjunctivitis". *Current Opinion in Allergy and Clinical Immunology* 7 (2007): 442-445.
10. Calonge M. "Ocular allergies: association with immune dermatitis". *Acta Ophthalmologica Scandinavica* 78 (2000): 69-75.
11. Dogru M., *et al.* "Ocular surface disease in atopic dermatitis". *Japanese Journal of Ophthalmology* 43 (1999): 53-57.
12. Foster SC., *et al.* "Atopic keratoconjunctivitis". *Ophthalmology* 97.8 (1990): 992-1000.
13. Hogan MJ. "Atopic keratoconjunctivitis". *Transactions of the American Ophthalmological Society* 50 (1952): 265-281.
14. Tuft SJ., *et al.* "Clinical features of atopic keratoconjunctivitis". *Ophthalmology* 98.2 (1991): 150-158.

15. Belfort R., *et al.* "Epidemiological study of 134 subjects with allergic conjunctivitis". *Acta Ophthalmologica Scandinavica* 78 (2000): 38-40.
16. Goulart D., *et al.* "Perfil clínico-epidemiológico de pacientes do Ambulatório de Alergia Ocular da Santa Casa de São Paulo". *Arquivos Brasileiros de Oftalmologia* 66 (2003): 609-615.
17. Nishiwaki-Dantas MC. "Manual Alergia Ocular". São Paulo, Phoenix (2006): 58.
18. Nishiwaki-Dantas MC and Felberg DMS. "Conjuntivite atópica". In Höfling-Lima AL, Nishiwaki-Dantas MC, Alves MR and cols eds. *Série Oftalmologia Brasileira - Doenças Externas e Córnea*. Rio de Janeiro: Guanabara Koogan e Cultura Médica (2008): 173-182.
19. Bielory L., *et al.* "Treating the ocular component of allergic rhinoconjunctivitis and related eye disorders". *Medscape General Medicine* 9.3 (2007): 35-48.
20. Carmi E., *et al.* "Ocular complications of atopic dermatitis in children". *Acta Dermato-Venereologica* 86 (2006): 515-517.
21. Ortega ZO., *et al.* "Conjuntivitis alérgica la infancia". *Revista Alergia México* 54.2 (2007): 41-53.
22. Uchio E., *et al.* "Systemic and local immunological features of atopic dermatitis patients with ocular complications". *British Journal of Ophthalmology* 82 (1998): 82-87.
23. Marback PMF, *et al.* "Aspectos clínicos e epidemiológicos da conjuntivite alérgica em serviço de referência". *Arquivos Brasileiros de Oftalmologia* 70.2 (2007): 312-316.
24. Power JW, *et al.* "Long-term follow-up of patients with atopic keratoconjunctivitis". *Ophthalmology* 105.4 (1998): 637-642.
25. Asano-Kato N., *et al.* "Quantitative evaluation of atopic blepharitis by scoring of eyelid conditions and measuring the water content of the skin and evaporation from the eyelid surface". *Cornea* 20.3 (2001): 255-259.

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