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Short Communication

Case: Development of Atopic Dermatitis in Two Pension-Aged Patients

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ABSTRACT

AIM

Two cases of development of allergies at later pension-age are described.

A 65-year-old-male developed allergy for his own dog appearing as erythrodermic atopic dermatitis, after living in the same household for 15 years and consequently, he developed allergies for egg white and milk.

An 83-year-old female developed allergies for house dust and storage mites.

Symptoms passed when the challenging factors were determined and omitted.

Keywords: Allergies; Mites; Dog; Egg white; Milk; Atopic dermatitis

Introduction

Atopy appearing in many forms in modern western society is common with a wide range of severity. Although atopic dermatitis (AD) is considered a childhood disease, it is evident that AD occurs also in adulthood and may be present as severe dermatitis in the skin and affect markedly daily life and sleep and may have a high impact on quality of life, frequently burdening an already complex comorbid situation[1].

AD in elderly adults of over 45 years of age has been poorly studied[2]. Epidemiological data on AD in older patients is limited. AD identified by physicians affects 11.6% of older adults in the UK, with annual prevalence of 7.0-9.3% among people at 75-99 years[3], with a higher prevalence in males at age of over 65 years[3-5].

Here we presented two cases of atopic dermatitis unusually developing at older age and after "natural self-hyposensibilization" exposure of age of a 65-year-old-male and an 83-year-old-woman.

Case Report

Case 1:

A male suffered from blood pressure, coronary disease had mild to moderate atopic dermatitis for years treated by topical emollients and mild to medium-strength corticosteroids and calcineurin inhibitors and oral prednisolone at an average of 10 mg/day. He was referred to Dermatology clinic because of erythrodermic infective atopic dermatitis being treatment-resistant to topical corticosteroids for a few months. Itch was severe and cetirizine up to 40 mg/day was not sufficient. The

patient had a dog in his household for 15 years. His repeated serum IgE-levels were at the level of 780 kU/L.

Cyclosporin was started at 150 mg/day (2,5 mg/kg) with increasing to 4 mg/kg. Topical medium to strong class corticosteroids were applied. Erythrodermic dermatitis was not relieved at all after 4 months with extensive topical steroids and antimicrobial treatments and thus, specific IgE antibody laboratory analyses were carried out because of lack of skin areas for Prick-tests and use of antihistamines, cyclosporin and prednisolone. The specific IgE for dog in Jan 2000 was over the highest standard, i.e., over 100 kU/L, Total IgE was 1,981 kU/L.

After discussion, the patient organized a temporary transfer for his dog, but it took some months and IgE increased to 4,408 kU/ml **(Table 1).** Thereafter IgE-levels gradually decreased slightly to level 3,200-3,600 kU/ml. The apartment was cleaned for dog dander for at least 6 months.

Table 1: Laboratory values of patient 1.

Date (year-month)	S - I g E (kU/L)	Specific IgE for dog (kU/L)	Specific IgE for milk (kU/L)	Specific IgE for egg white* (kU/L)
2014-05	760			
2013-08	988		0.35	<0.35
2013-04	1012		0.39	<0.35
2012-05	994			
2008-07	966	68.90	0.67	<0.35
2008-01	662		0.39	<0.35
2007-07	1359			
2007-04	1247			
2006-10	1463			
2006-04	2434			
2005-10	2287			
2002-11	3689		33.50	10.80
2002-06	4088			
2002-03	2618		38.00	15.70
2001-09	2823		18.10	23.10
2001-06	3205			
2001-04	3639	>100		
2000-11	3652			
2000-08	3397			
2000-05	4408			
2000-01		>100	0.63	0.66
1999-12	1981			
1996-11	787			

*Egg yolk was analyzed every time with egg white: all were <0.35 kU/L

Reference values for specific IgE-antibodies is <0.35 kU/L

In June 2001, the skin condition did not get markedly better, thought total IgE was decreasing slightly to 3,205 kU/L.

At control 3 months later, also new specific IgE values were taken. Now Milk-IgE was positive 18,10 kU/L and Egg white-IgE 23,10 kU/L. Patient was advised to omit intake of milk and eggs which was not a complete avoidance. At control 9 months later, serum IgE increased to 4,088 kU/L. Parallel analysis of antistaphylosin was elevated 6.4 IU/mL (ref <2 IU/mL), Nose mucosa bacterial culture revealed plenty of Staphylococcus aureus, fecal Helicobacter pylori was negative.

The patient was re-referred to dietarian and at a control 6 months later the skin conditions was getting better and serum IgE and Milk-IgE and Egg-white IgE values were decreasing (**Table 1**).

Thereafter on later controls skin situation gradually returned to previous mild to moderate level, cyclosporin was reduced and finally stopped and replaced by methotrexate 7,5 -10 mg/wk with 5 mg folic acid for about 3 years. At later controls during the next 9 years, his skin partially lichenified atopic dermatitis was at moderate severity with occasional oral prednisolone treatments, topical mild steroids, emollients and calcineurin inhibitors. Far East visits for 4-5 months practically cleared the skin. Milk-IgE and Egg-white IgE values turned negative and also specific IgE for dog decreased to level to obtain a measurable value.

Case 2:

An 83-year-old female had coeliac disease with gluten-free diet for years, blood hypertension, hypercholesterolemia and cataract. She confirmed no known allergies and dermatitis at childhood nor adulthood.

The patient was referred by GP in Dec 2022 to Dermatology clinic due to itch and papular dermatitis lasting for 3 months being treatment-resistant by oral prednisolone 20 mg/day with dose reductions in one week, topically 0.1% betamethasone-2% fucidic acid cream (Fucicort) was applied and for itch, antihistamines (cetirizine, terfenadine, hydroxyzine) were used at maximal doses. Laboratory results by referring doctor revealed negative pemphigoid antibodies and transglutaminase antibodies. Total serum IgE was high 1,712 kU/L (ref. 0-100 kU/L).

The patient had papular dermatitis scattered on the trunk and extremities, partially in fingers as infective atopic dermatitis. Bacterial cultures from nose and throat were negative. Serum IgE had increased slightly to 1,889 kU/L **(Table 2).**

Table 2: Laboratory values of patient 2.

Date (year-month)	S - I g E (kU/L)		
2022-11	1,712		
2023-01	1,889		
2023-05	3,021		
		Specific IgE kU/L	Prick-test (mm)
Reference range / Controls		<0.35	posit. 7x10 negat. 0
Dermatophagoides pteronyssimus		26.9	5x7
Dermatophagoides farinae		16.4	4x7
Tyrophagus putrescentiae		5.08	0
Lepidoglyphus destructor		4.10	6x5
Acarus siro		7,67	6x5

IgE-antibodies for cow milk, egg white, egg yolk, wheat and dog; all were negative (<0.35 kU/L)

Prick-tests: birch, timothy, mugwort, dog, cat, Alternaria alternata, Cladosporium herbarum, Aspergillus fumigatus, latex, egg, fish, cow milk, soy, wheat, rye, barley, oats: all were negative 0 mm.

As treatment, Prednisolone 30 mg/day was prescribed with reducing doses for one month and topically 0.05% betamethasone dipropionate-0.005% calcipotriol hydrate foam (Enstilar). A partial effect was obtained but a relapse occurred. The serum IgE increased markedly to 3,021 kU/L (**Table 2**).

When making in May 2023 a more detailed background search, it appeared that according to passage of time, the symptoms started after a new mattress was purchased and her spouse had similar symptoms, too. Thus, appropriate laboratory and Prick-tests were programmed (**Table 2**).

Positive results were obtained for home dust mites and storage mites. Interestingly, Prick-test result for storage mite Tyrophagus putrescentiae was negative but specific IgE was clearly positive.

After positive allergies for house dust and storage mites were found, bed linings and matrasses were immediately destroyed before taking investigation for possible mites. At control in October 2024, the patient informed that she had been symptom-free for 3 months when another itchy case as scabies occurred in Aug 2023 that was treated successfully by a single-time oral ivermectin 12 mg and topical 5% permethrin crem (Nix) and thereafter, she had been symptom-free for over a year.

Discussion

These both cases show that allergies can develop at older age and in circumstances where natural exposure to household allergens are present at home as self-challenge and not leading to "self-hyposensibilization" situation.

In older patients of over 65 years of age, atopic dermatitis is more common in males[3,4]. In older patients, classical food allergy has a low importance, but aerogenic allergens, especially dust mite, are demonstrated in most of the patients. In addition, colonization of Staphylococcus aureus and Malazzesia yeast (i.e., Pityrosporum) is common[4].

In the case of male patient, development of allergy for own dog after living for about 15 years in the same household was followed by development by milk and egg white allergies in a rather short time frame appearing as erythrodermic atopic dermatitis was a challenge for diagnostics.

The reason for slow decrease of specific IgE for dog taking 7 years to become a measurable value is unclear. It might be possible that it was very high, even up hundreds or even more and the patient possibly still got some dog dander challenge. This assumption is supported by a finding that in a case of phenoxymethylpenicillin, the specific IgE was 307 kU/L with total serum IgE of 973 kU/L and after 11.5 years without challenge, the value decreased to 2.93 kU/L (by 99%) and 156 kU/L, respectively[6].

In both cases, the common colonizations of Staphylococcus aureus and Malazzesia[4] did not play a marked role.

The female patient had no atopic background and thus, the basic serum IgE level was never analyzed in the past, but the patient turned clearly atopic at age of 83. Her serum IgE level increased markedly with relapses of dermatitis treatments and finally a more detailed anamnestic background search was made and analyses were targeted accordingly. After patient got her skin situation corrected, confirming control Prick tests or specific IgE analysis for home dust mites or storage mites were not considered relevant, when those results would not make any differences to her daily life. Assumingly, those results might have returned markedly down.

These specific IgE results for mites are in good concordance with skin Prick results, except for Tyrophagus putrescentiae, the reason remains unclear. Also, the specific IgE results cannot be strictly compared to each other. Interestingly, only mite allergies were found with relatively high total serum IgE level. These results show that if only one Prick test would have been selected based on a sophisticated guess for Tyrophagus putrescentiae only, then the complete picture of patient's allergy problem would not have been achieved.

The developed only few allergies in our patients developed in a rather narrow time frame without wider allergies for common aerogenic or food allergens. The appropriate diagnosis helped the patients to avoid the allergens and to continue their normal life. It is important to carefully evaluate open-minded each patient's personal case with interfering new factors as in our male case.

Ethical Approval

Patient consent is obtained and the Ethics Committee of the Hospital University Kuopio has given permit to publish these cases.

Conflict of Interests

Authors declares no conflicts of interests.

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