Biomedical Research 2017; 28 (8): 3487-3489

ISSN 0970-938X
www.biomedres.info

Persistent fever caused by allergic reaction?

Jinshu Yin[1], Xiaorong Li[1,2], Xueyan Wang[1*]

[1]Allergy Department, Beijing Shijitan Hospital, Capital Medical University, PR China

[2]Pharmacy Department, Beijing Shijitan Hospital, Capital Medical University, PR China

Abstract

Background: Persistent fever worried many patients all over the world, however, none clear etiology was found.
Methods: Four outpatients with persistent fever were selected and tested by vitro test of skin prick tests and vivo test of serum specific IgE (sIgE) tests was treated with omitted from their allergic food and received specific immunotherapy for a period of time.
Results: Two cases were well relieved from the fever and nasal obstruction just by omitting from the allergy food like beef and egg respectively. Two cases were also remitted greatly from PF by pollen specific immunotherapy for almost six months.
Conclusions: Persistent fever could be caused by food or pollen allergy disease. However, not treat it anymore with a cold medicine like paracetamol. Thus, allergic factors we suggested should be considered when dealing with persistent fever clinically.

Keywords: Food allergy, Pollen allergy, Skin prick test, Serum specific IgE, Serum specific IgG, Immunotherapy.

Accepted on December 28, 2016

Introduction

Food allergy means adverse reactions induced by antigen - specific immunological reactions after exposure to the given food which impact the quality of life for affected individuals and their families. As we know that food allergy is a systematic disease including skin, mucous membrane, respiratory organs, digestive organs and circulatory organs [1]. And the allergic food like egg, milk, peanuts or the others could lead to different clinical manifestations, for example, acute urticarial, gastrointestinal anaphylaxis, dermatitis herpetiformis, eosinophilic esophagitis etc [2].

The common allergens of airborne pollen in China possess the seasonal characteristic, including sagebrush, ragweed, Humulus japonicas, birch and etc [3]. And two main symptoms from pollen allergy are allergic rhinitis and allergic asthma, and the major manifestations are nasal itching, nasal obstruction, sneeze, runny nose, shorten breathe and so on. It is noted that pollen allergy could lead the patients to be allergic like many fruits allergy reaction manifestation due to cross-antigen protein exists in both fruits and a sort of pollen [4].

Fever of unknown origin is defined as a fever lasted for more than three weeks and its pathogenesis was unknown [5]. There are four categories of fever of unknown origin, namely classic, nosocomial, immune-deficient, and HIV-related. However, there were no reports of persistent fever induced by food or pollen. Here, we described four rare cases in this field.

PF Caused by Food Allergy

Commonly, a diagnosis of a patient with fever, rhinorrhoea, headache and pharyngolaryngitis or cough is influenza, and however, after drunk much water and taken cold pills, the fever in this mentioned cases still couldn't be reduced. Up to now, few reports showed that fever could be caused by food allergy. In this paper, we presented four rare cases about.

Case 1

A 36-year-old man visited the allergy clinic with rhinobyon, sneeze, pharyngeal itching and dry cough for four years. He suffered from fever at 38°C for more than three weeks. He had saw many different doctors in different provinces in China, and accepted systematic therapy on rhinitis, however, none effect. After physical examination, we could confirm that his vital signs, heart, lung, ear, nose and throat, abdomen and etc. were normal at that period. Chest X ray, electrocardiogram, routine blood tests and liver function tests were also normal. However, skin prick tests (SPT) showed that this patient was allergic to the beef, serum specific IgG (sIgG) tests was also applied to screen which allergen troubles him, at last, the result was in accordance with the SPT. Thus, he was suggested to avoid all those beef contained food for two weeks. Four days later after the onset of the avoidance, the fever was reduced greatly.

Case 2

A 16-year-old boy came to our outpatient clinic with rhinobyon and feeble, at the same time, he suffered from a persistent fever (37.5°C~38°C) for almost eight months. A blood routine examination and chest X-ray were conducted, but the results were both normal. However, an egg allergy confirmed according to the sIgG test and SPT test. From the results of SPTs for common food allergens (beef, pork, chicken, duck, meat, egg white/egg yolk, onion, garlic, pepper, leek, potatoes, spinach, celery, tomatoes, pineapple, mango, litchi, apple, peach, pear, strawberry), a 5-millimeter wheal with 12 mm flare to egg yolk was detected, all the rest of allergens were negative. On the sIgG test of beef, chicken, cod, corn, crab egg white or egg yolk, mushrooms, pork, rice, shrimp, soybean, tomatoes, wheat, the results showed that he was allergic to egg. Thus egg white/ egg yolk allergy confirmed on him, induced PF and anaphylaxis. At last, the suggestion gave to him was to keep all food containing egg white or egg yolk omitted from his diet. Seven days later, all uncomfortable symptoms were remitted.

PF Caused by Pollen Allergy

Case 3

A 38-year-old woman got fever between May and September for almost eleven years. In every period of outbreak, this patient was also accompanied with mild stuffy nose at 38°C. The results of historical examination including blood routine examination and chest X-ray were both normal. However, SPT result was positive to sagebrush pollen positive. Two years later after therapy of pollen desensitization treatment, the fever symptom and nasal obstruction were disappeared.

Case 4

A 42-year-old woman got fever (37~37.8°C) and serious diarrhoea with a little watery rhinorrhoea at both of April and May, lasted for almost five years. Two years before this visitshe was diagnosed as gastritis at a county hospital and the relevant therapy were approved to be in vain. The symptoms of disease were eased naturally little by little at early May. But when she visited our clinic, SPT with standard solutions to spring and autumn pollen were conducted and sIgE to mixed pollens allergen (including poplar, willow, elm). The SPT and sIgE were positive to the pollen of poplar, willow or elm.

Discussion

Usually, food allergy involved systems of skin, gastrointestinal and respiratory etc [6]. However, with the respect of nervous system like fever, there are rare reports on it. A case of nickel allergy, in which several titanium made screws implanted in a surgical treatment, induced a fever of unknown cause [7]. Vital information showed to us was that patch test may could find the uncommon reason when encounter a common disease. Because in the above titanium allergy case, the patch test revealed a local eczematous contact allergic reaction to the Ti alloy. In contrast, other allergen inspection tests may not help to find out the real reason of the same kinds of contact dermatitis induced common disease with unknown cause. Also, pollen allergy induced fever was rare.

All the cases mentioned in this paper have a common characteristic, which was that they all got fever for a long period. Food, pollen, metal and other potential allergen could lead the allergic patient to get fever at 37~38°C. In this research, considering the cross-reactivity existed between plant pollen and our favourite fruit, may be able to explain the two part of allergic patients. Clinically we found that they got fever frequently even if they took antipyretics (like acetaminophen) and acquired a transient normal body temperature for one or two times. Although we found that the persistent fever was acquired from food allergy, some report show that the fever was not induced by food allergy, it was the secondary infection, such as sinusitis [8]. In this paper we have excluding the infection possibility based on the medical history files. Which sensitization protein plays an important role in allergy-induced-fever cases? Both of sensitization mechanism and relevant therapy strategy need to be investigated in future.

Acknowledgements

The authors report no conflicts of interest in this work.

References

1. Urisu A, Ebisawa M, Mukoyama T, Morikawa A, Kondo N. Japanese Society of Allergology. Japanese Guideline for Food Allergy. Allergol Int 2014; 63: 399-419.
2. Bird JA, Lack G, Perry TT. Clinical Management of Food Allergy. J Allergy Clin Immunol Pract 2015; 3: 1-11.
3. Lead Team of National Survey of Airborne and Allergenic Pollen in China: A National Survey of Airborne and Allergenic Pollen in China 1991.
4. Sirvent S, Cantó B, Gómez F, Blanca N, Cuesta-Herranz J, Canto G, Blanca M, Rodríguez R, Villalba M, Palomares O. Detailed characterization of Act d 12 and Act d 13 from kiwi seeds: implication in IgE cross-reactivity with peanut and tree nuts. Allergy 2014; 69: 1481-1488.
5. Ishiyama T, Takada T. Fever of Unknown Origin: Do Well-known Diseases Remain Undiagnosed? Intern Med 2015; 54: 1959-1960.
6. Martorell-Aragonés A, Echeverría-Zudaire L, Alonso-Lebrero E, Boné-Calvo J, Martín-Muñoz MF, Nevot-Falcó S, Piquer-Gibert M, Valdesoiro-Navarrete L; Food allergy committee of SEICAP (Spanish Society of Pediatric Allergy, Asthma and Clinical Immunology). Position document: IgE-mediated cow's milk allergy. Allergologia et Immunopathologia 2015, 43: 507-526A.
7. Wang L, Wu J, Zheng C. Long-Term Fever After Hallux Valgus Surgery Secondary to Titanium Allergy: A Case Report and Review of the Literature. J Foot Ankle Surg 2015.
8. Marks D. Food Allergies That Cause Fatigue, Sore Muscles and Fever. 2013.

***Correspondence to**

Xueyan Wang

Allergy Department

Beijing Shijitan Hospital

Capital Medical University

PR China