

damage to the endocardium and myocardium is caused by infiltration of eosinophils and lymphocytes. The second is a late thrombotic stage found in those with a mean 10-month duration of eosinophilia. In this stage, formation of thrombi along the damaged endocardium is typical. The third is the late fibrotic stage encountered in those with illness for about 2 years. Progressive scarring develops, and it may lead to entrapment of chordae tendineae, with development of mitral or tricuspid valve regurgitation and endomyocardial fibrosis producing restrictive cardiomyopathy. The cardiac involvement in HES is often presented at the later thrombotic or fibrotic stages (3).

It may be hypothesized that the progress of HES in this patient was the result of discontinued oral steroid treatment for asthma, which had been administered for a long time. The patient was a new immigrant in Israel; therefore, her previous blood count results could not be retrieved.

\*Department of Internal Medicine B  
Meir General Hospital  
Kfar-Saba 44281  
Israel  
Tel. +972-9-7472173  
Fax: +972-9-7423218  
E-mail: mors\_nm@netvision.net.il

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### Functional polymorphism in the gelatinase B gene and asthma

L. I. Hollá\*, A. Vašků, A. Stejskalová, V. Znojil

**Key words:** asthma; metalloproteinase; MMP; polymorphism.

● ATOPIC diseases can be perceived as dynamic ailments where chronic inflammation and remodeling of tissues play a role assisted by a family of Zn<sup>2+</sup>- and Ca<sup>2+</sup>-dependent endopeptidases called matrix metalloproteinases (MMPs). Gelatinase B (also known as MMP-9) is one of the MMPs, and its increased levels were found in sputum or bronchoalveolar fluid in asthmatic patients (1). MMP-9 levels were correlated with the number of macrophages and neutrophils (2). The coding gene is situated on chromosome 20q11.2–13.1, a genetic position which has been shown to be linked to bronchial hyperresponsiveness and specific sensitization (3, 4). The results of a previous study (5) suggest that a 9-bp sequence containing the C–1562-T polymorphic site is an important regulatory element. This C–to-T substitution results in a higher promoter activity of the T-allelic promoter. This idea was supported by the higher level of serum MMP-9 found in individuals with the T/T genotype (5). Our study aimed to determine whether this functional polymorphism is important in relation to the etiopathogenesis of atopic asthma.

Caucasian subjects of Czech nationality (*n*=138) were included in this study. We studied 59 patients (35 men and 24 women), aged 24.0 ± 11.6 years, with atopic asthma (eventually in combination with other atopic diseases – allergic rhinitis and atopic

dermatitis). The control group included 79 subjects (43 men and 36 women), aged 28.3 ± 8.1 years without clinical symptoms of any atopic diseases.

Atopy was defined as the presence of at least one of the following signs:

- 1) positive skin prick test (greater than or equal to 3 mm above negative control) to one or more common antigens
- 2) positive specific IgE levels (>0.35 kU/l, by ELISA, DPC, Germany)
- 3) raised total IgE level (greater than 150 IU/ml in nonsmoking adults, Boehringer), as described previously (6).

Asthma was defined according to the American Thoracic Society criteria (7).

All the subjects gave written informed consent to participation in the study. The study was approved by the Ethics Committee, Medical Faculty, Masaryk University, Brno, Czech Republic.

After DNA extraction, the polymorphism (C–1562-T) in the gene for MMP-9 was detected by our modification of the PCR method based on the published SSCP technique (5). The genotype of the individual was evaluated as homozygote [CC], 329 bp; heterozygote [CT], 144, 185, and 329 bp; or homozygote [TT], 144 and 185 bp.

Among the healthy population, the frequencies of the C and T alleles were 0.861 and 0.139; the distributions of the CC, CT, and TT genotypes were 75.9%, 20.3%, and 3.8%, respectively. Among the asthmatics, the frequencies of alleles C and T were 0.856 and 0.144; the distributions of the CC, CT, and TT genotypes were 74.6%, 22.0%, and 3.4%, respectively. No statistically significant differences in the frequencies of the alleles or genotypes were found between asthmatics with low or high values of the pulmonary function tests or between patients with high or low levels of the total serum IgE (data not presented).

MMPs comprise a family of enzymes that play a role in the tissue remodeling and repair associated with inflammation.

**No association was found between MMP-9 and atopic asthma.**

Although this polymorphism had been described previously (5) as a functional polymorphism with a higher promoter activity of the T-allele, our study failed to confirm differences in the frequencies of the alleles or genotypes between healthy controls and asthmatic patients. We may only hypothesize that other polymorphisms can be involved in the regulation of the MMP-9 gene expression observed in asthmatics (1, 2).

We emphasize that this is a small study and that these observations need to be confirmed in a larger sample of patients, but our results provide the first evidence for the absence of a relationship between this polymorphism and atopic asthma.

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\*Institute of Pathological Physiology  
Medical Faculty, Masaryk University  
Kom. nám 2, CZ 662 43 Brno  
Czech Republic  
Tel. + 420 5 47121314  
Fax: + 420 5 47121300  
E-mail: holla@med.muni.cz

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## Fish food allergy

H. Morrow Brown\*, J. Merrett, T. G. Merrett

**Key words:** *Chironomus plumosus*; conjunctivitis; fish food; mosquito larvae; orbital oedema.

● A 34-YEAR-OLD woman was referred in 1993 for investigation of six attacks of severe periorbital oedema and conjunctivitis, mainly on the right, which persisted for up to a week, always starting at home, and never during her work as a barmaid or on holiday. Cosmetics were excluded, and there was no personal or family history of allergy. Skin prick tests were negative for a wide range of allergens, including cat, rabbit, and hamster, which were her children's pets. The patient was told that although the cause had not been identified, she could get in touch for advice at any time.

### Chironomid larvae used to feed tropical frogs and fish can cause periorbital oedema and conjunctivitis.

A year later, she telephoned to ask whether feeding tropical frogs and fish, which she had not declared as pets at the first consultation because they were looked after by her small son, could be the trigger because she had fed the frogs a few hours before the last attack. When asked for samples of fish food, she brought freeze-dried, gamma-radiated, and deep-frozen "bloodworms", only the latter being accurately labelled as "Larva Roja Mosquito *Chironomus plumosus*".

Prick-prick tests with all three produced huge wheals averaging 30–40 mm in size, with delayed reactions lasting for 2 days. Further enquiry revealed that she fed the frogs only on the rare occasions when her son was unable to do so, and admitted that she did not wash her hands after handling the larvae with her right hand; this explained why the right eye was most affected. The total IgE was 82 kU/l, and CAP RAST was class IV for *C. plumosus*, and negative for green *Nimitti* midge; therefore, she was advised never to touch fish food again. No further attacks occurred, but this investigative patient was not convinced until she carried out a deliberate challenge by touching her eye after touching fish food, provoking an attack lasting for 3 days! The thicker skin of the fingers probably prevented a local reaction but permitted transfer of allergen to the thinner skin around the eye.

Enquiries at the shop revealed that the young man who sold fish foods had had itching of his hands for about 30 min after handling them, and also had a very large immediate and delayed skin test reaction.

Three years later, a man aged 33 presented with a history of conjunctivitis so severe as to prevent driving for weeks, occasional swelling of lips, allergic rhinitis, and occasional severe asthma. All the usual prick skin tests were negative, but he had kept tropical fish for many years and had a large immediate and delayed reaction to