

## Brief communications

### Latex allergy as a cause of eosinophilia in cerebrospinal fluid in a child with a ventricular shunt

Bodo Niggemann, MD,<sup>a</sup> Anette Bauer, MD,<sup>a</sup> Klaus Jendroska, MD,<sup>b</sup> and Ulrich Wahn, MD<sup>a</sup> Berlin, Germany

#### CASE REPORT

A 6-year-old boy (G.B.) had been born prematurely after 36 weeks of gestation with a birth weight of 2010 gm. Because of intraventricular hemorrhage he had undergone surgery and received a ventricular-atrial shunt at the age of 4 weeks. During the following years, a total of 15 operations were necessary for treatment of infections or malfunctioning of the shunt systems. From infancy on, he had bronchial asthma and atopic dermatitis. On contact with plasters, urticarial wheals (extending beyond the area of contact) could be observed.

At the age of 6 years, a massive eosinophilia of 80% in cerebrospinal fluid (CSF) was detected (Fig. 1). Peripheral blood eosinophil count was 25%. Total IgE in serum (measured by Pharmacia CAP System) was elevated (961 kU/L). Specific IgE to inhalant allergens was detectable. In view of his atopic disposition and the underlying disease, we determined specific IgE to latex, which was found to be very high (95.1 kU/L). This suggested that a latex allergy might be responsible for the eosinophilia in CSF. Subsequent measurements of total and

#### Abbreviation used

CSF: Cerebrospinal fluid

specific IgEs in CSF did indeed show that specific IgE to latex was nearly as high as that in serum (73.0 kU/L). Shunt revision after identification of latex allergy was performed with latex-free products.

The few studies in the literature on the relationship between specific IgE in serum and CSF revealed little about the location of IgE synthesis and the clinical relevance of IgE in CSF.<sup>1,2,3</sup> We therefore investigated IgE in six other children with ventricular shunts (Table I).

#### DISCUSSION

In our view the following aspects point to latex allergy as a cause of the eosinophilia seen in our patient: (1) the patient showed clear signs of a symptomatic latex allergy with urticarial wheals after contact with plasters; (2) although total IgE was detectable in CSF (but less than 10% of serum value), the specific IgE in CSF was nearly as high as that in serum; (3) specific IgE to latex represents 84% of total IgE in CSF; and (4) none of the other patients showed specific IgE in CSF, despite relevant levels in serum (Table I). In addition, no other

From <sup>a</sup>Department of Pediatrics and <sup>b</sup>Department of Neurology, Virchow-Clinic of Humboldt University, Berlin.

Reprint requests: B. Niggemann, Division of Pediatric Pneumology and Immunology, University Children's Hospital, Virchow Clinic of Humboldt University, Augustenburger Platz 1, D-13353 Berlin, Germany.

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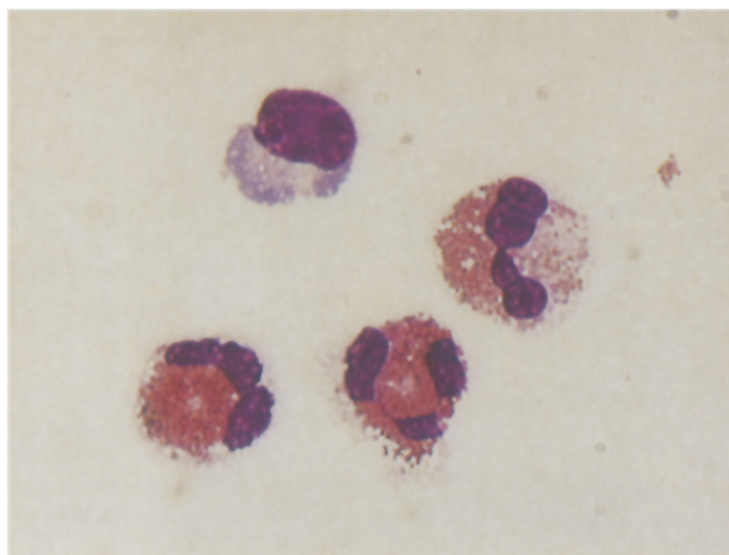


FIG. 1. CSF showing predominance of eosinophils.

TABLE I. IgE levels in serum and CSF

| Subject | Total IgE serum | Total IgE CSF | Latex IgE serum | Latex IgE CSF | SX 1 Serum | SX1 CSF | fx 5 Serum | fx 5 CSF |
|---------|-----------------|---------------|-----------------|---------------|------------|---------|------------|----------|
| E.T.    | 2.7             | <2.0          | <0.35           | <0.35         | <0.35      | <0.35   | <0.35      | <0.35    |
| F.S.    | 203.0           | 2.9           | <0.35           | <0.35         | Pos.       | <0.35   | <0.35      | <0.35    |
| S.A.    | 34.6            | <2.0          | <0.35           | <0.35         | <0.35      | <0.35   | <0.35      | <0.35    |
| M.P.    | 119.0           | <2.0          | <0.35           | <0.35         | Pos.       | <0.35   | <0.35      | <0.35    |
| W.J.    | 169.0           | <2.0          | 0.76            | <0.35         | Pos.       | <0.35   | <0.35      | <0.35    |
| H.M.    | 84.9            | <2.0          | 12.5            | <0.35         | Pos.       | <0.35   | Pos.       | <0.35    |
| G.B.    | 961.0           | 87.4          | 95.1            | 73.0          | Pos.       | <0.35   | Pos.       | <0.35    |

All data are given in kilounits per liter: <0.35 kU/L = below detection limit for specific IgE; <2.0 kU/L = below detection limit for total IgE. SX 1, IgE screening test for eight inhalant allergens; fx 5, IgE screening test for six nutritional allergens; Pos., positive.

patient showed a CSF eosinophilia—including the two patients sensitized to latex in serum.

Our results indicate that IgE detected in CSF is not the consequence of a leaky hemato-encephalic barrier but has been synthesized locally. IgE may be produced by plasma cells in CSF deriving from lymphocytes, which we were able to detect in the differential cytologic specimens.

The source of latex leading to sensitization was probably not the shunt system because since 1989 these have been latex-free. We therefore suspect that repeated contact with glove powder containing latex during multiple operations established a long-term allergen depot as the probable cause.

In conclusion, this is the first report pointing to a local specific IgE production in CSF leading to a local men-

ingeal allergic reaction in the form of an eosinophilia. It should be considered that eosinophilia in CSF may be linked to latex allergy.

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## Apnea as a manifestation of mast cell activation in an infant with mastocytosis

Rand K. Arnaout, MD, Lawrence B. Schwartz, MD, PhD, and Anne-Marie Irani, MD *Richmond, Va.*

Apnea in infancy is often associated with serious illnesses such as sepsis, neurologic disorders, or metabolic disturbances. Apnea may also occur in premature infants in the absence of identifiable disease. We describe a 5-month-old infant with recurrent episodes of

apnea preceding the onset of cutaneous lesions of mastocytosis. Elevation of the serum  $\beta$ -tryptase level after an episode of apnea suggests that mast cell activation may have been involved in the development of apnea in this patient.

## CASE REPORT

The patient is a black male infant born at 36 weeks of gestational age. He experienced recurrent episodes of apnea commencing at 3 days of age, for which he was repeatedly evaluated in the local emergency department without a clear diagnosis and without any treatment instituted. At 5 months of age he had a generalized skin rash and demonstrated increased irritability. Three weeks later, he was admitted to a local

From the Departments of Pediatrics and Medicine, Medical College of Virginia, Virginia Commonwealth University, Richmond.

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Reprint requests: Anne-Marie Irani, MD, MCV Station Box 980-225 Richmond, VA 23298.

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