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Extreme eosinophilia due to common streptococcal infection in an adult

The occurrence of severe leucocytosis with eosinophilia in blood and bone marrow together with lymphadenopathy during the course of a common infection such as sore throat is an unusual phenomenon and not known to occur in adults. We describe such a case, in which extreme eosinophilia developed in an adult.

Case report

A 27-year-old man was admitted to this department in June 1979 with fever (38.8°C), malaise, anorexia, and cervical lymphadenopathy. He had a sore throat, and examination showed acute tonsillitis. Slightly to moderately enlarged lymph nodes were palpable in cervical, supraclavicular, and submandibular areas as well as a solitary enlarged lymph node in the right axilla. There was no enlargement of the liver or spleen. Laboratory examination showed (figure) hyperleucocytosis with extreme eosinophilia (white cell count $28 \times 10^9/l$ (28 000/mm³), eosinophils $23 \times 10^9/l$ (23 000/mm³—85%, neutrophils 4%, lymphocytes 10%, monocytes 1%); packed cell volume 45%; haemoglobin 15.7 g/dl; erythrocyte sedimentation rate 13 mm in first hour; and antistreptolysin O titre 625 Todd units; cultures from the throat yielded β -haemolytic streptococcus.

During the course of the illness the leucocytosis increased further to $64 \times 10^9/l$ (64 000/mm³) with an absolute number of eosinophils of $56.3 \times 10^9/l$ (56 300/mm³). Bone-marrow aspiration showed hyperplasia of white cell series with a predominance of eosinophils, both mature and immature. A Paul-Bunnell reaction, Casoni skin test, and Weinberg serological tests were negative. A chest x-ray film was normal, and no parasites were found in stools.

He had no history of allergic or other serious illness. Penicillin 4×10^6 units daily and streptomycin 1 g daily were started; after three days of treatment the temperature returned to normal, and the sore throat and enlarged lymph nodes subsided gradually and vanished in a few days. Serial examinations of peripheral blood showed that the number of leucocytes fell abruptly to normal (figure) and eosinophils fell to an absolute number of $0.91 \times 10^9/l$ (910/mm³) on the twenty-first day of admission. Three months later the patient had no abnormal clinical signs and his blood picture was normal (white cell count $7.4 \times 10^9/l$ (7400/mm³) with an absolute number of eosinophils of $0.222 \times 10^9/l$ (222/mm³).

Comment

Several patients with severe eosinophilic leucocytosis, hepatosplenomegaly, bronchial asthmatic attacks, fever, and cervical lymphadenopathy have been described.^{1,2} Most have been children, and the symptoms were often attributed to parasitic infestation with, for example, *Toxocara canis*, *Paragonimus westermani*, and *Ascaris*.

Clinical and laboratory data obtained during course of illness.

Certainly many other parasites, especially those invading the tissues, may produce severe eosinophilia in children and in adults.¹ Persistent and pronounced eosinophilia in blood and bone marrow with extreme leucocytosis and visceral lesions also occurred in a syndrome of obscure aetiology described by Zuelzer and Apt.³ Such cases have also been reported by other authors but always in children. Scarlet fever is occasionally accompanied by slight eosinophilia during the convalescence period.⁴

Our case was unrelated to any of the above syndromes. We excluded Löfller's syndrome^{1,2} because of the absence of pulmonary symptoms and pulmonary infiltrations on x-ray films. From the clinical and laboratory data we also excluded other causes of eosinophilic leucocytosis with fever and lymphadenopathy such as chronic myelocytic leukaemia, Hodgkin's disease, and tropical eosinophilia. The absence of any evidence of previous allergic disorders and the return of the eosinophils to normal counts, plus the absence of splenomegaly, make the possibility of a concurrent allergic condition or inherited eosinophilia improbable.

Our case represents an unusual example of eosinophilic leucocytosis with an extremely high eosinophil count and concomitant hyperactivity of bone marrow after a common streptococcal infection. Lymphadenopathy was also an interesting feature.

There is evidence⁵ that in some persons with no previous allergic conditions appreciable eosinophilia associated with infections of the upper respiratory tract is likely to indicate a hyperimmune sensitivity reaction in response either to micro-organisms or to their products (not necessarily any specific infection).

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