

Eosinophilic panniculitis triggered by intramuscular penicillin and occupational setting

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The eosinophilic panniculitis (EP) is considered as a nonspecific reactive inflammatory pattern characterized by a prominent subcutaneous fat tissue infiltrate of eosinophils. It can be secondary to a wide range of local or systemic conditions. In rare instances, EP has been observed as a local phenomenon induced by subcutaneous or intramuscular drug injections. Isolated cases of EP secondary to apomorphine (1), specific immunotherapy (2) or calcium heparin (3) have been reported. There are no previous reports of EP showing a possible occupational relevance. Penicillin has not been involved as trigger factor before.

A 39-year-old woman developed a solitary inflammatory plaque on the left buttock several days after an intramuscular 1.2 MU of penicillin benzathine injection prescribed for an infectious

tonsillitis. She was a nurse in a Center for Sexually Transmitted Diseases, and for more than 10 years, she had been in close and continuous contact with penicillin benzathine vials (preparing and administering).

Twenty-four hours after the injection, she referred localized pruritus and the progressive development of a slowly growing painful infiltrated inflammatory plaque at the point of injection. Treatment with oral moxifloxacin was prescribed, but no improvement was noted.

Physical examination disclosed an erythematous infiltrated plaque, 15 centimeter in diameter in the left buttock. The rest of the physical examination was unremarkable. A complete hematological and biochemical survey disclosed no abnormalities except for increased serum levels of IgE 1454 UI/l (NV < 100 UI/l).

A skin biopsy specimen revealed a marked inflammation of the subcutaneous tissue. This inflammatory response

adopted a mixed septal and lobular pattern, almost exclusively composed by eosinophils with occasional histiocytes (Fig. 1A). Immunohistochemical staining for CD68 antigen highlighted the histiocytic component within the infiltrate (Fig. 1B). Repeated bacteriological, mycological and mycobacteriological cultures yielded negative results.

Because penicillin was suspected as the causative trigger factor, specific patch tests, prick tests and intradermal tests to penicillin benzathine and penicillin G at diluted concentrations were carried out. The intradermal test to penicillin benzathine and penicillin G at 0.1% was positive at 48 h. An erythematous infiltrated itchy plaque was still present at the intradermal test site 15 days after. A skin biopsy from the penicillin-positive intradermal test showed a clear perivascular dermal eosinophilic infiltrate. Prednisone 0.5 mg/kg for 15 days was prescribed,

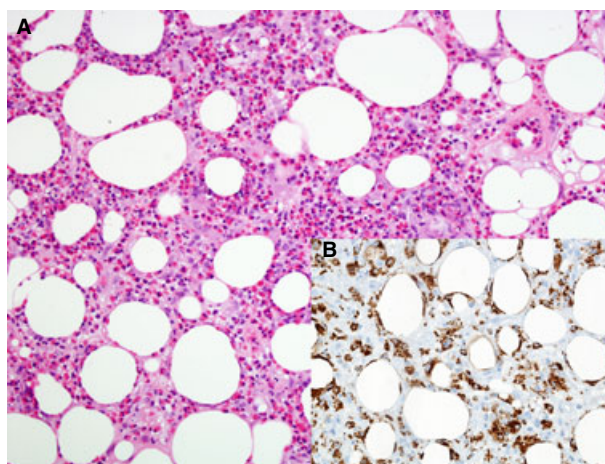


Figure 1 (A) The histologic pattern of the skin biopsy exhibits massive diffuse eosinophil infiltration mixed with histiocytes in the hypodermis. (Hematoxylin-eosin stain; original magnifications: $\times 200$). (B) Immunohistochemical staining for CD68 antigen highlighted the histiocytic component within the infiltrate (original magnifications: $\times 200$).

and a slow and progressive improvement was noted.

The term EP was coined by Burket and Burket to illustrate a patient with a distinctive and peculiar 'panniculitis' presenting clinically as inflammatory nodular lesions and 'histologic changes of Wells syndrome'. The authors attributed the development of this subcutaneous inflammatory infiltrate to a possible *Streptococcus* antigenic stimulus (4). Additional reports have described also inflammatory plaques or vesicles. The pathology shows a lobular and septal dense subcutaneous inflammatory infiltrate mostly composed by polymorphonuclear eosinophils. Neutrophils, lymphocytes or monocytes can also be present. Eosinophilic panniculitis has been reported as a consequence of a wide range of local or systemic disorders such as parasitic disorders (gnathostomiasis), arthropod bite reaction, Wells syndrome, atopic dermatitis, erythema nodosum, acquired immunodeficiency syndrome and intramuscularly administered drugs. The exact pathogenetic mechanism

leading to a massive eosinophilic infiltrate in the subcutaneous tissue is poorly understood. However, in our patient, the previous benzathine penicillin injection along with positive specific skin test results lead us to suspect a delayed hypersensitivity reaction (type IVb) (5). A perivascular eosinophilic infiltrate in both the positive prick and the intradermal tests support the causative role of the drug. As far as we are aware, this is the first description of EP secondary to intramuscular penicillin injection. We can speculate that the routine professional contact with penicillin was responsible for sensitization.

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