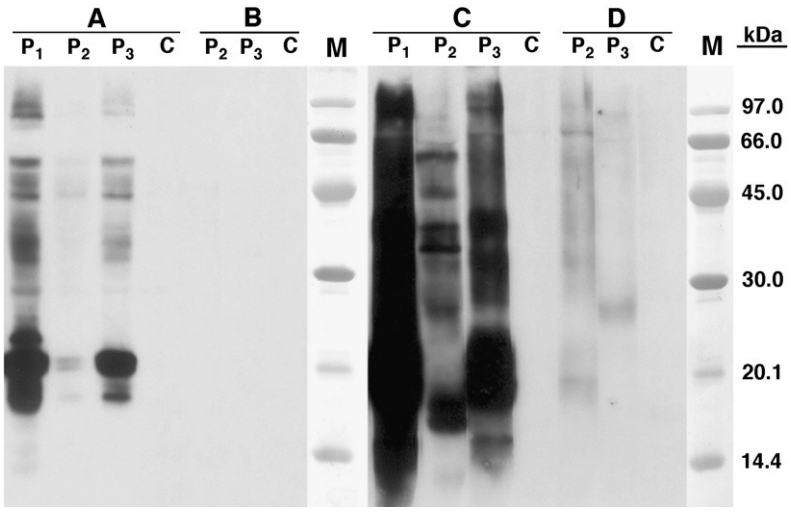

Figure 1 SDS -PAGE Immunoblotting results. A) Epithelium from Russian hamster **B)** Epithelium from Syrian hamster **C)** Urine from Russian Hamster **D)** Urine from Syrian Hamster. Lane P_1: Patient 1 serum; lane P_2: Patient 2 serum; lane P_3: Patient 3 serum; lane C: Control serum (pool of serum from non-atopic subjects); Lane M: Molecular mass marker.

ELISA inhibition tests showed partial cross-reactivity with *Dermatophagoides pteronyssinus* extract.

Although the protein sequences of the Russian hamster *(Phodopus sungoris)* allergens have not been assessed, the molecular masses of them, 18- 23 kDa,[3–5] and the general knowledge about the identity of rodent allergens let us suppose they must be lipocalins.

In conclusion it is important to take into account the presence of a pet in the daily environment of a patient with asthma, and if the animal is a hamster and we want to carry out a reliable prick test assay, we should know the hamster species as the lack of allergen cross reactivity between the allergens from different hamster species could give us an erroneous result.

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Possible DRESS syndrome in a child with borreliosis

To the Editor,

Antibiotic hypersensitivity reactions are a major health concern as they can be a significant cause of morbidity and mortality, limit therapeutic options, and increase socioeconomic costs. Diagnosis can be challenging, as great number of drugs can elicit different immune-mediated reactions. A combination of clinical history and different tests is generally necessary to confirm the diagnosis, since none has sufficient sensitivity to be used alone.[1] In some non-immediate hypersensitivity reactions, the lymphocyte transformation test (LTT), which measures the *in vitro* proliferation of T lymphocytes in the presence of a suspected drug, can be the only tool to confirm the diagnosis.[2]

We report the case of a previously healthy 34-month-old girl who due to fever and odynophagia (interpreted as tonsillitis), was treated with amoxicillin without improvement.

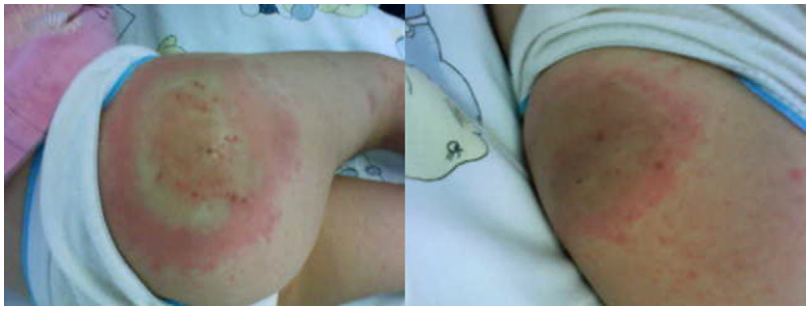

Figure 1 Lesions at sites of penicillin administration.

Three days later she began treatment with cefaclor, without result. She was then given two shots of penicillin, one in each buttock, with apyrexia after 48 h. Two weeks later, in the same location where penicillin was administered, two nodular inflammatory lesions appeared, with progressive worsening (Fig. 1). Due to the severity of these lesions, she was admitted to local hospital. Shortly after, she developed fever and was submitted to a surgical intervention at her buttocks for drainage of suspected abscess (not confirmed). Due to deterioration of her general status and suspected infectious panniculitis, she was transferred to our Central Hospital, and began flucloxacillin and clindamycin. Three days later, a diffuse exanthema (including both soles) appeared and an allergist was called. Flucloxacillin was stopped and the exanthema faded away, but a cutaneous *erythema migrans*, oedema of the left hand and both feet developed. After a careful and complete clinical history, a non-immediate hypersensitivity reaction to penicillin was suspected. The child began treatment with prednisolone (1.5 mg/kg/day). Buttock lesions began to disappear with objective improvement after third day of corticotherapy. Because of the *erythema migrans* lesion, a dermatologist was called.

Haemoglobin, platelets and creatinine results were normal. The white blood cells count showed leukocytosis with immature cells and eosinophilia (3000/μL), elevated AST (231 UI/L) and an aPTT time <20 s. IgG and IgA levels were normal, IgM was slightly elevated (239 mg/dL), as well as total IgE (314 mg/dL). Parvovirus B19, Epstein Barr virus (EBV) and Borrelia IgM antibodies were positive, as well as Herpesvirus 6 (HHV-6) DNA on peripheral blood. The immunophenotyping and lymphocyte function *in vitro* study were normal. Auto-antibody screening revealed negative antinuclear and anticardiolipin antibodies. A skin biopsy at the site of one *erythema migrans* lesion showed dermis with inflammatory infiltrate, mainly lymphocytes, some neutrophils and eosinophils, with perivascular localisation and transendothelial migration, and the presence of DNA of *Borrelia burgdorferi*, Parvovirus B19 and EBV. At the same time, the result from the buttock lesion biopsy done a few days before became available, showing an unspecific inflammatory infiltrate with abundant eosinophils and scarce plasma cells. Prednisolone was maintained, with slow dose tapering.

Because allergy to penicillin was one of the most probable diagnosis, second line therapy with azithromycin for Borreliosis (14 days) was started, with clinical improvement and disappearance of the *erythema migrans*. The inflammatory lesions on both buttocks slowly disappeared. Specific IgE for penicillolyl G and V were both negative. A LTT was performed with penicillin, amoxicillin and cefuroxime. The stimulation index (SI) was calculated as proliferation with drug/proliferation without drug. The result was clearly positive to penicillin with a SI of 60.2 (considered positive when >3) at 100 μg/mL, and indeterminate for amoxicillin and cefuroxime. DNA for all agents on peripheral blood was negative after five months.

Lyme borreliosis is the most commonly reported vector-borne disease in Europe and North America, and represents a major public health challenge. It is transmitted by ticks harbouring the infectious agent *B. burgdorferi*.[3] The age distribution of lyme disease is bimodal, with the highest number of cases occurring in children with ages ranging from 5 to 14 years and adults from 55 to 74 years.[4]

This child developed a delayed hypersensitivity reaction to penicillin, with severe local manifestation, misinterpreted as panniculitis. She was successfully treated for Borreliosis (her basic illness) with a non-beta-lactam antibiotic. The diagnosis of beta-lactam allergy was confirmed by the LTT, which prove to be a useful tool to confirm the diagnosis of non-immediate drug hypersensitivity reaction. Several authors have suggested an association between severe drug hypersensitivity reactions, as is the Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) syndrome, and reactivation of herpesvirus, including HHV-6 and EBV,[5–7] such as seen in this patient, and which might explain the leukocytosis with immature cells and eosinophilia, and the hepatic involvement.

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Experience with intravenous immunoglobulin in severe childhood atopic dermatitis

To the Editor,

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterised by dysregulated immune responses, which affects approximately 10–15% of children and persists until adulthood in approximately 6% of the population. Treatment generally relies on a balance between control of the condition and quality of life, and safe long-term treatment. The role of intravenous immunoglobulin (IVIG) in severe atopic dermatitis has been investigated in only a few trials with inconclusive results. We herein present our experience with this drug in four patients with severe AD refractory to standard treatment.

Cases

Here we present our experience on four severe AD cases who were treated with IVIG. The use of IVIG in each of these patients was approved by the local Drug and Therapeutic Committee. Informed consent was obtained from all the patients or their parents.

Patient 1

A 165/12-year-old boy with severe AD had been referred to our unit for further evaluation four years before, when he was 12 years old. He had multiple skin prick test positivity including house dust mite (HDM), egg and milk. He was then started on a series of topical anti-inflammatory medications. Since his respiratory symptoms were refractory to avoidance measures and optimal pharmacological treatment, he commenced sublingual immunotherapy (SLIT) for HDM (ALK, Abello, Madrid, Spain). His skin problems exacerbated during these treatments. Treatment with first and second line drugs, including potent topical steroids and topical calcineurin inhibitors for several months, systemic steroids for three months and cyclosporin 5 mg/kg for 12 months (interrupted due to severe infections) failed to control his disease. At 14 years of age, he was started on IVIG (Octagam®, Octapharma, Stockholm, Sweden) with a dose of 0.5 g/kg given monthly and continued for a total of 16 months (=16 cycles). His AD symptoms started to improve dramatically after the second cycle and completely resolved at the end of the treatment along with a decrease of a total IgE level from 37,400 kU/L (1–200 IU/L) initially, to 2450 and an eosinophil count from 1900/mm^3 to 200/mm^3. His AD remains currently in remission off immunoglobulin therapy for the last seven months (Table 1).

Patient 2

A girl of seven years and three months had a four-year history of persistent AD, which had failed to respond to potent topical corticosteroids, 0.1% topical tacrolimus, daily emollients and oral antihistamine treatments. Laboratory examination revealed a serum total IgE level of 8982 kU/L and a positive Radioallergosorbent test for HDM. The initial Scoring Atopic Dermatitis (SCORAD) index was 71. When she was 6.5 years old, she was started on IVIG with a monthly dose of 1 g/kg in addition to her usual treatments (Octagam®, Octapharma, Stockholm, Sweden) After nine cycles, her AD symptoms improved. The SCORAD index and IgE level decreased to 25 and 3420 kU/L respectively, with a minor decrease in eosinophil count.

Patient 3

A 13-year-old girl who has had AD since five years of age presented with extensive disease involving almost her entire body surface area. The disease remained active despite topical steroid therapy for a year, 0.1% topical tacrolimus for three months, and oral antihistamine treatment as needed. Her skin prick testing was positive for HDM, grass, wheat and cockroach. The initial level of IgE was 18,868 kU/L, and a SCORAD index of 84. Systemic steroid therapy for four months and phototherapy for two months were commenced, however they yielded no improvement. IVIG therapy with a monthly dose of 1 g/kg was initiated (Octagam®, Octapharma, Stockholm, Sweden). After five doses, a satisfactory improvement has been noted, and she is still currently under this mode of treatment. The SCORAD index and the IgE level decreased to 25, and 5489 kU/L respectively, and eosinophil count also declined from 3700/mm^3 to 1200/mm^3.

Patient 4

A 23-year-old young man who has had asthma since five years of age and AD for the last five years presented with the exacerbation of his skin symptoms. He had been