

An 8-year-old girl had suffered from reactive airway disease since the age of 3 years. PFTs with adenosine challenge documented airway hyperreactivity at age 7 years. Genetic studies disclosed HLA-DR5. She had severe unstable asthma and underwent the same medical course described above for case 1.

For cases 1 and 2, blood tests showed total IgE levels of 434 and 477 kU/L, respectively, radioallergosorbent test (RAST)-specific IgE was 7.02 and 9.0 IU/mL. Normal levels of IgA, IgG and IgM, and peripheral blood eosinophils of 14.7% and 15%. Skin tests were positive for *Aspergillus fumigatus* (AF). Sweat tests were normal. The chest X-rays showed marked diffuse peribronchial cuffing with hyperinflation and infiltrates and scant perihilar bronchiectasis on high-resolution computed tomography (HRCT).

These children are representative cases of severe unstable asthma with frequent acute exacerbations which were detected by clinical status and PFTs and for which they received systemic steroids. Giemsa-stained induced sputum disclosed AF hyphae (Figure 1) and 72% and 50% eosinophils in the cell counts.

Our patients fulfilled most of the diagnostic criteria of ABPA, the diagnosis was confirmed by the demonstration of AF hyphae in their induced sputum. They received the appropriate treatment consisting of prednisolone 0.5 mg/kg/day in one single dose in the morning for

2 weeks, followed by a progressive decrease in dose over the next 6 weeks, and Itraconazole 200 mg/day for 16 weeks (1). They were monitored monthly by physical examinations, complete blood counts, liver function tests, and PFTs. There was an impressive clinical improvement in both of them and their forced expiratory volume in 1 second (FEV1) values increased from 22 and 52% to 96 and 92%.

Demonstrating hyphae in the induced sputum of a patient who fulfills most but not all of the acceptable criteria for the diagnosis of ABPA can provide confirmation of an early diagnosis and justify initiation of the recommended treatment aimed at preventing the known serious sequelae. A delay in diagnosis and treatment in the early stages can result in deterioration, with consequent lung bronchiectasis, fibrosis and end-stage lung disease.

This is the first description of the presence of AF hyphae being detected in induced sputum, a simple and noninvasive procedure which can confirm the diagnosis of ABPA when most of the established criteria have been met.

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Allergy to *Actinia equine* and *Anemona viridis*

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Key words: *Actinia equine*; anaphylaxis; anemones; immunoglobulin E mediated; invertebrates animals.

Anemones are coelenterates animals, classified in the phylum of aquatic invertebrates, which are responsible for more poisoning than any other marine phylum (1). Almost 9000 species of coelenterates exist; approximately 100 are toxic to humans.

The phylum coelenterate is

Allergy to anemones.

divided into four classes: hydrozoa, scyphozoa or true jellyfish, cubozoa or box

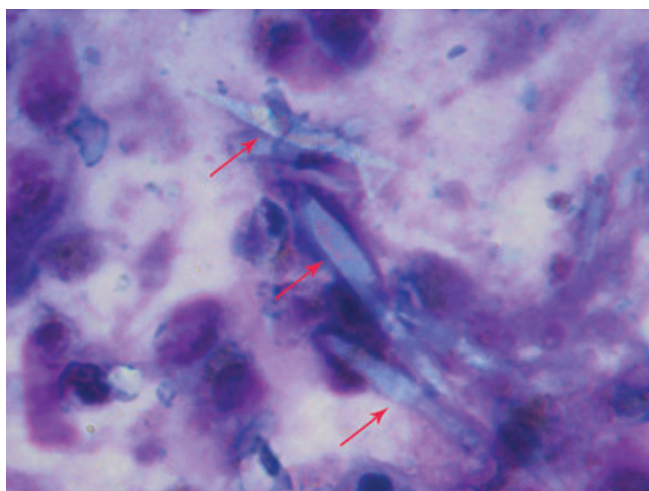


Figure 1. Giemsa-stained induced sputum. The *Aspergillus fumigatus* hyphae are stained with blue color (red arrows).

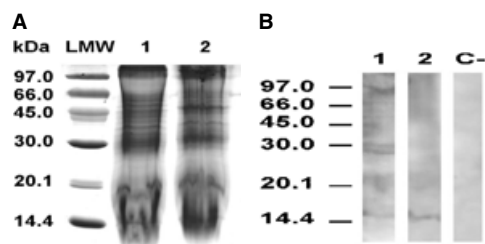


Figure 1. (A) Protein separation by 12.5% sodium dodecyl sulphate polyacrylamide gel electrophoresis (reducing conditions). LMW, molecular weight standard; lane 1, *Actinia equina*; lane 2, *Anemona viridans* (Coomassie blue staining of the gel). (B) immunoglobulin (Ig)E immunoblotting: lane 1, *Actinia equina*; lane 2, *Anemona viridans*; lane 3, negative control.

jellyfish and anthozoa or sea anemones. The toxin of coelenterates is located in the nematocysts and the most common presentation is a painful urticarial eruption. Systemic reactions are rare and reactions to venom are presumed to be toxic rather than allergic (2–6). Most toxins contain a complex mixture of polypeptides and proteins (catecholamines, histamine, hyaluronidase, kinins, phospholipases) and various haemolytic, cardiotoxic and dermatonecrotic toxins.

A 34-year-old underwater swimmer with personal history of allergy to mites with rhinitis and asthma. He accidentally collided with a rock cover with anemones (*Actinia equina*) that contacted his chest. Within a few minutes, he had evident local oedema and papules. Later he suffered from generalized flushing, dyspnoea, mild arterial hypotension and lost consciousness. When the doctors treated the patient, he was under cardiopulmonary arrest. He had to be given adrenaline and other par-enteral drugs at the emergency room. After 24 h, the patient was discharged after complete resolution of clinical manifestations.

The patient had had previous contact with anemones with minor symptoms-like local flushing.

Skin prick test (SPT) performed with commercial extracts were positive to mites, and negative to *Anisakis simplex* and other common inhalants. Prick-by-prick with the implicated anemone (*Ac. equine*) was strongly positive in patient (six control positive < histamine, because it is irritant). SPT with *Ac. equine* and *Anemone viridis* extracts prepared in DIATER laboratories (Madrid, Spain) were positive in patient and negative in 10 controls.

Sodium dodecyl sulphate polyacrylamide gel electrophoresis (SDS-PAGE) was performed and showed similar low bands in the two anemones (Fig. 1A). SDS-PAGE immunoblotting experiments using the patient's serum revealed different immunoglobulin (Ig)E-binding protein bands between *Ac. equine* and *Anemona viridis*, but a protein of 14 kDa was present in the two anemones extracts studied (Fig. 1B).

In conclusion, this case illustrates anaphylaxis and IgE-mediated sensitization to *Ac. equine*, a type of anemone. We could have found *in vitro* cross-reactivity,

co-recognition or co-sensitization (7) with other anemone. Allergy to anemones has not been previously reported in humans.

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