CASE REPORT

Anaphylaxis secondary to *Parietaria judaica* (wall pellitory)

Chiara Vella, Patrick Sammut

Department of Paediatrics,
Mater Dei Hospital, Msida,
Malta

Correspondence to
Dr Chiara Vella, vella.chiara@
gmail.com

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SUMMARY

Aeroallergens are an unusual cause of anaphylaxis with sparse reports in the literature. We describe a case of suspected anaphylaxis to *Parietaria judaica* pollen and the difficulties encountered in confirming this diagnosis.

BACKGROUND

Anaphylaxis is a potentially fatal reaction that is often underdiagnosed and under-reported.¹ In the paediatric population, food allergens are the most common trigger for anaphylaxis, followed by insect bites or stings and medications.² Aeroallergens are a rare cause of anaphylaxis with very few cases reported in the literature. We describe a case of suspected anaphylaxis to *Parietaria* pollen in Malta, which to our knowledge is the first reported case.

CASE PRESENTATION

A 12-year-old boy suddenly developed itchy eyes and periorbital oedema followed by a generalised urticarial rash and shortness of breath, while waiting to be picked up outside his school in March. He recalled that these symptoms started after a gust of wind blew dust into his eyes. There was no history of food ingestion or exercise in the previous 2 hours. He had not taken any medication and had not experienced any respiratory symptoms over the previous few days.

He was taken to the emergency department where he was diagnosed with anaphylaxis. He received intramuscular epinephrine, nebulised salbutamol, hydrocortisone and antihistamines to good effect. Vital signs including level of consciousness, oxygen saturations, capillary refill time and blood pressure were maintained throughout.

On further enquiry, the patient gave a history of 'seasonal' allergic rhinitis. He also described a series of reactions involving urticaria, facial swelling and shortness of breath with no common trigger, although one had occurred while he was in a horse stable. He had a family history of allergic rhinitis and eczema.

Specific IgE (sIgE) testing using enzyme allergosorbent testing (EAST, R-Biopharm AG, Darmstadt, Germany) was carried out for a panel of food allergens and aeroallergens relevant to the Maltese Islands. The positive results (>0.34 IU/mL) are illustrated in table 1 and include an extremely high antibody level to *Parietaria* pollen.

Mast cell tryptase levels were not taken on admission. Mast cell tryptase and C1 esterase inhibitor levels taken 8 weeks later were normal.

OUTCOME AND FOLLOW-UP

The patient was given a provisional diagnosis of anaphylaxis to *Parietaria* pollen and the family were educated on the recognition of signs and symptoms of anaphylaxis. He was discharged home with an allergy action plan and an autoinjectable epinephrine device. He is currently being followed up in an outpatient allergy clinic.

DISCUSSION

This patient developed anaphylaxis soon after airborne dust entered his eyes making an aeroallergen the likely cause of the reaction. However, the history was unhelpful in isolating the responsible aeroallergen due to the vast array of airborne allergens to which the patient may have been exposed.

The patient was tested for a panel of aeroallergens based on known sensitisations of the local population. He had an extremely high sIgE level (70.27 IU/mL) for *Parietaria judaica* when compared with levels in a cohort of Maltese children with allergic rhinitis³ (figure 1).

P. judaica ('Xeht ir-Rih Komuni'), from the Urticaceae family, is the most abundant species of *Parietaria* on the Maltese islands.⁴ It has the longest pollen season (lasting over 5 months) and the highest pollen peaks of all the local anemophilous plants. The timing of this anaphylactic reaction coincides with an expected seasonal peak in airborne *Parietaria* pollen.⁵

The house dust mite sIgE levels were high but deemed an unlikely cause for the reaction due to probable daily exposure in his bedroom with no reactions. The low sIgE level to olive made it a less likely cause for the reaction. There were no horses near the patient at the time of the reaction.

Anaphylaxis to aeroallergens, including horse hair⁶ and grass pollen,⁷ has previously been reported. *Parietaria* spp are a common cause of sensitisation in respiratory disorders,⁸ but there are no reports of suspected or confirmed anaphylaxis.

It could be that none of the sensitising aeroallergens were responsible for this reaction, and with no recent exercise, food or drug ingestion to pinpoint the cause, the possibility of idiopathic anaphylaxis is raised. This could also be the explanation for the patient's previous episodes.

Molecular allergy testing, with the use of tools such as a p-friendly allergen nano-bead array or a immuno solid-phase allergen chip, which may

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Table 1 Positive sIgE results for food and aeroallergens

Allergen	sIgE (IU/mL)
<i>Parietaria judaica</i> (wall pellitory)	70.27
House dust mite	43.49
Horse hair	5.41
Olive tree	1.05
Walnut	0.49
Brazil nut	0.47

sIgE, specific IgE.

determine true sensitisation to the *Parietaria* allergen components, could have potentially enhanced our diagnostic accuracy.⁹ Unfortunately these tests were not available in our centre at the time of publication.

This patient was advised on the recognition of signs and symptoms of anaphylaxis and the appropriate use of an epinephrine autoinjector. Although immunotherapy is an established form of treatment for allergic rhinitis in patients sensitised to *Parietaria*,¹⁰ there are no reports of its use in patients with a history of anaphylaxis. The use of immunotherapy together with omalizumab has been previously reported.^{11 12} This recombinant humanised monoclonal anti-IgE antibody binds to circulating IgE at the site of high-affinity IgE receptor (FcεRI) binding, hence preventing mast cell activation.¹³ It may be an option to consider if the patient suffers repeated attacks.

Figure 1 Distribution of sIgE levels (IU/mL) to common aeroallergens within a population of Maltese children with allergic rhinitis (adapted from Sammut.³ HDM-DF: house dust mite–*Dermatophagoides farinae*; HDM-DP: house dust mite–*Dermatophagoides pteronyssinus*; sIgE, specific IgE.

Learning points

- *Parietaria* is an indigenous species in the Mediterranean basin including the Maltese islands and is a common cause of allergic sensitisation in these populations.
- Anaphylaxis caused by aeroallergens is unusual.
- A detailed and thorough history together with appropriate investigations are essential in eliciting the causative allergen in an anaphylactic reaction.
- Long-term management of aeroallergen-induced anaphylaxis requires a careful consideration of risks and benefits.

Contributors Both authors were involved in treatment and management of the patient in question; drafting of the case report and critically revising it; the decision of the final version to be submitted for publication and accountable for the accuracy and integrity of any part of the work.

Competing interests None declared.

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