



ALEX²® Case Study No. 11

Helene, 35 years, from Vienna, Austria

Clinical history

Helene has been suffering from urticaria and shortness of breath for some time whenever she consumed foods containing nuts. Her symptoms were particularly severe after eating baklava (can contain pistachio, walnut, almond, hazelnut). She was referred to an allergologist because her treating physician suspected a nut allergy.

Family history

Unknown.

Present situation (2021)

ImmunoCAP[®] measurements were performed which showed a value of 12 kU_A/L for cashew. The physician then ordered an ALEX²® Allergy test, which was performed according to the standard protocol, i.e., including a CCD blocker. The cashew extract and Ana o 2 & 3 gave negative results. Interestingly, several profilins were positive.

Therefore, an additional ALEX²® test without CCD blocker was performed, yielding a positive signal for CCD (Hom s LF) and cashew extract (2.15 kU_A/L). When the ImmunoCAP[®] measurement was repeated, including CCD blocking, the cashew extract was also negative.

ImmunoCAP[®]

- without CCD blocking: cashew extract positive (12 kU_A/L)
- with CCD blocking: cashew extract negative

ALEX^{2®} Results*

Allergen Source	Allergen	Biochemical Designation	IgE Level [kU _A /L] with CCD Blockierung	IgE Level [kU _A /L] without CCD Blockierung
	tIgE		193	187
Timothy grass	Phl p 12	Profilin	28.07	27.74
Birch	Bet v 2	Profilin	31.4	29.63
Walnut pollen	Jug r_pollen	Extract	16.74	28.01
Date palm	Pho d 2	Profilin	19.44	20.90
Annual mercury	Mer a 1	Profilin	19.71	20.87
Melon	Cuc m 2	Profilin	37.66	34.88
Latex	Hev b 8	Profilin	23.35	19.76
Cashew	Ana o	Extract	0	2.15
Pecan	Car i	Extract	0	9.1
Hazelnut	Cor a 11	7/8S Globulin	0	11.4
Walnut	Jug r 2	7/8S Globulin	0	13.8
	Jug r 6	7/8S Globulin	0	30.8
Macadamia	Mac inte	Extract	0	3.63
Pistachio	Pis v 3	7/8S Globulin	0	2.3
Almond	Pru du	Extract	0	2.45
Hom s Lactoferrin	Hom s LF	CCD	0.33	26.22

* For convenience extract results are not shown, if a corresponding component was positive.

Follow-up history

When the patient's allergy anamnesis was reassessed, Helene reported an episode where, after having eaten two baklavas at a wedding, she danced for 30 minutes. Shortly thereafter, her face, especially lips and eyes, exhibited pronounced swelling. Furthermore, she suffered from acute shortness of breath due to laryngeal swelling and had to vomit. Our patient reported a similar scenario after having eaten a nut bar, followed by physical exercise.

A prick-to-prick test was performed, which showed a weak positive result for walnut. In a provocation test, very mild symptoms (slight itching of the scalp, no objective symptoms) were recorded 15 minutes after ingestion of five cashews. As the symptoms always appeared only after consumption of nuts followed by physical exercise, the suspicion of an exercise-induced anaphylaxis due to nut profilins was obvious.

The patient's serum was tested for "research-use-only" Jug r 7 (profilin from walnut) on the ALEX^{2®}, which showed a positive result (36.80 kU_A/l).

Interpretation

- The ALEX²® allergy test gave positive results for several profilins, including walnut profilin (Jug r 7).
- A nut allergy had initially been suspected. Positive results for nut storage proteins only were obtained when the ALEX²® test was performed without CCD inhibition. With CCD blocking, which is done by default in the ALEX²® test, these results disappeared again.
- The patient showed a positive result to Hom s LF, a marker for IgE-reactivity with CCD.
- In accordance with the reported clinical reaction to walnut, IgE antibodies to Jug r 7 were detected. Based on the occurrence of allergy symptoms due to consumption of walnut and subsequent exercise, the patient was diagnosed with *walnut-dependent exercise-induced allergy*.

Summary

The results of the ALEX²® Allergy test, in conjunction with the medical history, confirmed the assumption of a walnut allergy that was triggered by physical examination.

To prevent an anaphylactic shock, the patient has to avoid nut products from now on. In addition, she was provided with an emergency kit consisting of an adrenaline autoinjector, a corticosteroid preparation and an antihistamine, including training in applying emergency medication.