

Case study

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Patient history

A 2-year old Chinese girl developed seborrheic dermatitis at 6 weeks of age, followed by moderately severe early-onset infant eczema. At 2 months, she started to be bathed with goat milk on the recommendation of her mother's friend, to overcome extensive xerosis. The girl cried persistently during these baths, but her mother did not know why. However, at 4 months, the patient developed urticaria with noticeable worsening of eczema whenever she was bathed with goat milk.

The patient had been exclusively breastfed since birth. At 4 months, her mother tried to introduce a small quantity of cow milk formula, but the infant refused to drink it. Consequently, the mother stopped feeding the infant formula and continued breastfeeding. The patient was weaned onto solid foods at 6 months. Her mother observed immediate lip redness and swelling when her daughter ate cherries, banana, lychees, tomato, zucchini, avocado, or parsnips.

Anaphylactic reaction 1

At 8 months, she developed urticaria, vomiting and chest congestion a few minutes after eating egg custard. At this time, exacerbation of her eczema was noted. She was brought to the emergency department, treated, and advised to return to hospital the next day for re-evaluation.

Analysis: With these presenting symptoms, the patient is likely to be allergic to goat milk and some of the introduced fruits. Contact irritation may also be suspected, as shown by lip redness upon fruit contact. As the patient had developed seborrheic dermatitis, treating the skin condition was necessary.

Anaphylactic reaction 2

Two months later (at age 10 months), the patient ingested processed organic salmon, which also contained minimal quantities of cow milk and

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cheese. After a few minutes, she had bouts of vomiting, urticaria, and generalized flush. Her mother administered four drops of cetirizine syrup, which exacerbated the symptoms. The girl was brought to the emergency room for treatment. During the clinical examination, the patient was dusky and irritable, accompanied by urticaria, tachypnea, bilateral coarse crackles, and wheezing. Intramuscular adrenaline (1:1000) at a dose of 0.1 ml (0.012/kg), nebulized salbutamol, and intramuscular hydrocortisone were administered. The patient was observed for several hours for any signs of exacerbation or reduction of symptoms. Her mother refused any test involving blood drawing from the patient. Prior to discharge, her mother was advised to return for a follow-up consultation and counseling on allergen avoidance and preparing an emergency action plan. During follow up, skin-prick test (SPT) evaluation was performed with the following results (wheal size): hen egg – 3 mm; cow milk – 10 mm; soy – 0 mm; peanut – 4 mm; beef – 15 mm (not eaten); chicken – 2 mm (tolerated chicken); pork – 5 mm (not eaten); cod fish – 0 mm; salmon – 0 mm.

Analysis: During counseling, patients should be advised to avoid fish, cow milk and egg, as these were the foods ingested prior to the development of the two anaphylactic episodes. Recommendations about whether or not to perform SPT 3 to 4 weeks after manifesting symptoms are inconsistent; however, this case may be an exception to the rule due to the urgent need of SPT results. The physician should ensure that no antihistamine is administered before the SPT, as this medication can interfere with the results. SPT values for hen egg and cow milk indicate positive sensitization to these allergens. Despite the negative SPT to salmon, an oral food challenge (OFC) should be carried out for

confirmation, as the anaphylactic reaction was life-threatening.

Inadvertent Allergen Exposure

At 11 months, OFC with salmon was performed, with negative results. A subsequent OFC with pork at 13 months was also negative. However, at 15 months, the patient had an allergic reaction including hives, vomiting (twice) and transiently turning slightly blue, after consuming infant brown rice cereal containing cow milk. Her caregiver administered emergency cetirizine. A few hours later, the patient was admitted with generalized urticaria.

Analysis: A patient visit to the clinic for whatever reason is the best time to provide systematic counseling. Due to the anaphylactic symptoms persistently inflicted by cow milk, strict avoidance of this allergen should be advised. In addition, the physician should reinforce the importance of reading food labels, as this will help facilitate avoidance of ‘hidden’ allergens. Antihistamines, EpiPen[®], and emergency action plans are also helpful in case of inadvertent allergen exposure. It is important for physicians to provide detailed information about emergency treatment, including the directions for use, side-effects, proper storage and the general precautions of the medication. For re-evaluation of allergies, advise patients to return for follow-up every 6 months.

Anaphylactic reaction 3

At 19 months, the girl’s father gave her some of her older brother’s cow milk formula by accident. She developed anaphylactic reactions including cyanosis, wheezing, and generalized urticaria. Her father administered cetirizine, despite having two doses of EpiPen Jr[®] at hand. She was brought to the hospital and treated with two doses of intramuscular adrenaline, and observed overnight.

SPT at 24 months gave the following results (wheal size): hen egg – 12 mm; peanut – 4 mm; beef – 12 mm; SPT for cow milk, soy, chicken, pork, codfish and salmon, were not done.

Analysis: In actuality, after their first counseling session most parents may not be able to understand all of the huge amount of new information provided to them. They may be overwhelmed and incapable of sorting through the various recommendations and pieces of advice. It is therefore necessary to re-educate parents or caregivers at every physician visit, until they are able to grasp the important points in allergy management. Having a conference to educate family members and caregivers about the disease is the favored method of counseling, as this will encompass individual values, concerns and expectations, as well as those of the family.

Conclusion

This is an exceptional case of an allergic patient who had repeated anaphylactic reactions to inadvertent exposure to cow milk. From the initial anaphylactic reactions, persistence of symptoms has been noted upon every exposure to cow milk protein. In such cases, OFC is strictly contraindicated, as performing such a diagnostic test can have detrimental health consequences, or even cause unexpected death.

Taking a fully-detailed patient history is important for confirming a diagnosis. Physicians should make virtues of obsessiveness and perfectionism to gather all the pertinent information necessary to make an accurate diagnosis.

The patient should be re-evaluated at every visit to find out whether they have outgrown or developed new allergies in the interim.

Patient and family counseling also play a pivotal role in managing cow milk protein allergy. Physician should be able to provide key information about the diagnosis, treatment and prevention modalities. Counseling allows patients and family members to communicate their values and preferences in making treatment decisions, and build a therapeutic doctor-patient relationship, which facilitates the achievement of desired health goals.

