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Letter to the Editor

A very rare case of allergy to beluga caviar

Dear Editor,

A 48 year old buyer of luxury foods developed tingling and itching of her ears with a burning sensation of her face, nausea and faintness within 2–3 min of eating of two types of Beluga caviar, foie gras, quail eggs, wheat blinis and champagne at a friend's dinner party. There was also swelling of the face and a mild constricting sensation of her throat. Her voice was noted to be altered and she had loose motions one hour later and a single vomit 2 h subsequently. An oral antihistamine led to gradual improvement over 2 h although her nausea continued for several days. The reaction was not accompanied by respiratory symptoms, itching of the torso and limbs or skin rash. None of the other diners suffered ill health and exercise, stress, non-steroidal anti-inflammatory drugs, and proton pump inhibitors could not be implicated as cofactors. The patient's medical history included hay fever but without indication of an oral allergy syndrome. She had mild asthma and her eczema had been absent for many years. She was not on regular medication.

For the one year prior to this reaction the patient had undertaken monthly visits to a caviar manufacturing company without allergic reactivity. On reflection, she wondered whether the consumption of caviar 9 and 12 months previously may have produced a mild burning sensation of the ears and nausea. She denied problems eating fish, crustaceans, bread, poultry and hen egg both prior to and since the reaction. There was no clinical suggestion of allergy to fungi. Skin prick to prick testing showed a very significant 11 mm wheal to the Oscietra caviar with a 5–6 mm wheal to the Imperial caviar (Fig. 1). The results were negative to boiled quail egg and foie gras. Later testing was also negative to salmon and herring roe. The patient's routine blood tests were normal as was her complement C4 at 0.28 g/L and mast cell tryptase at 3.1. Her specific IgE was less than 0.35kUA/L to house dust mite, dog dander, sesame seed, soya bean, mixed moulds, cod and the omega 5 gliadin protein. Skin prick testing with the Oscietra and Imperial caviar was completely negative in 5 healthy volunteers.

Recently our patient developed itching and tingling of her lips within 2 h of undertaking one of her regular visits to the caviar factory. She then suffered dyspnea with bronchospasm and cough followed by facial redness and then urticaria on her arms. The reaction was controlled by an oral antihistamine. She now carries a salbutamol inhaler in addition to her anti-histamines and adrenaline auto-injector. This was deemed especially important if she anticipated exposure to high levels of airborne caviar and other fish roe

proteins. Despite the negative SPT to salmon and herring roe, she was asked to avoid all fish roe.

Beluga caviar is obtained from the Caspian sea sturgeon, *Huso huso* and our patient's reaction was due to an IgE mediated allergy to one or more sturgeon egg proteins or other compounds in the caviar preparation. Allergy to sturgeon caviar is exceptionally rare and to our knowledge there have been only 2 previously reported cases.^{1,2} However, neither have involved allergy to both ingested and airborne caviar proteins. Allergy to salmon caviar appears to be a more frequent problem^{3–8} and there are also rare cases of allergy to king fish caviar.⁹ The precise allergen responsible for the Beluga caviar allergy was considered to be vitellogenin by Perez Gordo *et al.*¹ In salmon roe allergy, IgE mediated reactivity was detected towards fragments of vitellogenin and to lipovitellin while that in king fish caviar the allergy was to a 33 kDa alpha S1 casein like protein.⁹ Thus, there is similarity in the fish roe proteins that induce reactivity in those with allergy to different types of caviar. However, given that the skin testing was negative to salmon and herring roe in our patient, it is likely that the specific IgE antibodies here are restricted to species specific epitopes in the sturgeon egg vitellogenin or else other proteins entirely. Regardless, the rarity of Beluga caviar allergy may be related to the infrequent consumption of this tasty but expensive delicacy. The infrequent consumption of fish roe more generally may explain the relative rarity of allergy to fish eggs compared to fish meat allergy.



Fig. 1. Results of the skin prick testing to the 2 types of caviar consumed.

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The patient described in this report has provided full signed consent allowing the publication of her clinical details and her anonymity has been preserved.

Conflict of interest

The authors have no conflict of interest to declare.

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