

Adverse reaction to sodium metabisulfite from fresh fish

SULFITES of sulfiting agents include sulfur dioxide and some related substances which liberate sulfur dioxide when used. Increased use of sulfites as preservatives for foods and drugs partly explains the increase in prevalence of allergic reactions to these antioxidants. It has been demonstrated that sulfites produce asthmatic reactions by several mechanisms (1, 2). Nevertheless, all organs that are affected by allergic reactions may be affected by adverse reactions to sulfites (3). We report on an adverse reaction to sulfites caused by raw fresh fish.

■ A 46-year-old man, who had neither personal nor family history of allergic diseases had presented, in the last 18 years, eight episodes of urticaria, vomiting, and throat tightness, with angioedema of his lips, tongue, and larynx. Discomfort and a feeling of pressure in his ears preceded every episode. Clinical manifestations were off by 30 min after parenteral injection with methylprednisolone (40-80 mg).

All the episodes occurred after eating several kinds of fresh fish (codfish, anchovy, whiting) at home, and appeared from within a few minutes to 3 h after ingestion of the fish. Clinical manifestations were elicited neither by exposure to fish odors or fumes nor by handling the fish. In the same way, symptoms occurred neither after eating cooked frozen fish, nor after eating cooked fish at restaurants.

Skin prick tests were performed on our patient with commercial extracts of fish (Laboratorios Leti®, Spain); with raw and cooked fish (sardine, whiting, codfish, anchovy, and halibut), through prick-by-prick; and with fish extracts produced in our laboratory from the same species (extracted in PBS at 1:10 w/v, and dialyzed). All the skin prick tests were negative; only those with cooked fish elicited a slight positive reaction, which became negative to the extracts prepared from the same cooked fish.

His clinical history showed us that adverse reactions occurred only when our patient ate fish at home. This detail is important because he was in the habit of eating pieces of raw fresh fish only at home. Therefore, oral challenge tests with sodium metabisulfite (simple blind) were performed twice, as described previously (4). Both times, our patient experienced discomfort and a feeling of pressure in his ears by 15-30 min after taking the 10-mg dose (the same onset as previous reactions), together with blood pressure levels of 190/120 and 180/110 mmHg, respectively (basal blood pressure 130/80 mmHg). Symptoms were off and normal blood pressure was restored spontaneously in the first test and after parenteral treatment with methylprednisolone (40 mg) in the second one. Our patient refused to undergo an oral challenge test with fresh fish.

■ There are several proposed mechanisms for reactions to sulfites (inhalation of sulfur dioxide liberated under conditions of use, sulfite oxidase deficiency, and IgE-mediated mechanisms). Reactions elicited as a result of these last two mechanisms represent a very small percentage of the adverse reactions to sulfites (2).

In any event, clinical history is fundamental because of the lack of effectiveness of skin tests (3). Regarding *in vitro* tests, an assay for the determination of total serum sulfite has been developed (5), but, at the moment, there is no available test, fast and reliable enough, for detection of sulfite-treated foods (6).

We diagnosed this patient as having an adverse reaction to sulfites through his clinical history and because clinical manifestations appeared twice after oral challenge tests with sodium metabisulfite. Moreover, objective changes in blood pressure (hypertension), enough to stop the challenge tests, were detected. As far as we know, hypertension is an unusual adverse reaction to sulfites, and it has not been described in the literature. The other symptoms, such as angioedema, urticaria, and throat tightness, have been widely described before (6).

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REFERENCES

1. Simon RA. Food and drug additives. *Immunol Allergy Clin North Am* 1995;15:489-527.
2. Simon RA. Pulmonary reactions to sulphites in foods. *Pediatr Allergy Immunol* 1992;3:218-21.
3. Drouet M, Sabbah A, Hassoun S, Bonneau JC. Investigation of allergic pathologies induced by sulphites. *Allerg Immunol (Paris)* 1994;26:184-8.
4. Protocolo de provocación con conservantes y antioxidantes en pacientes con patología dérmica sistémica. In: Sociedad Española de Alergología e Inmunología Clínica, editors. *Aditivos: Patología alérgica*. Madrid: SANED, 1994:347-8.
5. Jacobsen DW, Savon SR, Ji AJ. Determination of total serum sulfite by HPLC with fluorescence detection. *Clin Chem* 1995; 41:897-903.
6. García González JJ. Conservantes y antioxidantes. In: Sociedad Española de Alergología e Inmunología Clínica, editors. *Aditivos: Patología alérgica*. Madrid: SANED, 1994:95-113.

Diet by proxy

FOOD hypersensitivity reactions by inhalation have been described in the literature, though infrequently (1, 2). In particular, there have been very few descriptions of patients with hypersensitivity reactions from inhalation of milk proteins. This possibility has been well described in the occupational setting (3), and the case was recently reported in Sardinia of a farmer who developed anaphylaxis while milking his sheep. The same report mentions a news report of a 20-year-old woman allergic to milk who died just a few minutes after entering a dairy from severe systemic anaphylaxis caused by ingestion and/or contact with milk (4).

We report the case of a 6-year-old boy referred for repeated episodes of acute bronchospasm and nasal symptoms related to inhalation of milk proteins. The reactions were so strong that his younger brother, who was nonallergic, also had to follow a diet of soy milk.

■ The patient had his first anaphylaxis after exposure to cow's milk in the first bottle of infant formula given him at the age of 3 months. From then on, he had followed a diet strictly avoiding cow's milk. At around 3 years of age, he began to suffer from chronic

rhinitis and recurrent episodes of asthma-like bronchitis, and was referred to our hospital. Epicutaneous testing showed marked reactions to *Dermatophagoides pteronyssinus* and *D. farinae*, cat dander, and lactalbumin and cow casein. These

allergies were confirmed by positive RAST of classes 4-5, for lactalbumin and casein.

Although cow's milk protein was carefully excluded from the child's diet for the next 2 years, he continued to exhibit extreme clinical sensitivity. On one occasion, he ate a piece of biscuit and within a few minutes developed a reaction which included vomiting, urticaria with angioedema, and asthma. The most interesting symptoms, however, were the manifestations of hypersensitivity to inhalation of cow's milk protein. He had an attack of asthma after inhaling milk when the pan accidentally boiled over in the kitchen. On another occasion, he developed wheezing, bloodshot eyes, sneezing, and a runny nose shortly after entering a dairy shop. At the supermarket, too, he had to avoid standing too close to the dairy products, because he exhibited immediate respiratory symptoms.

But the most unusual manifestations appeared after his brother was born, when our patient was 6 years of age. The baby was breast-fed for the first 2 months and was then given conventional infant formula. From then on, whenever he came into the baby's room (which his mother describes as having the typical "milky smell"), he developed immediate respiratory symptoms. Another time, some of the baby's regurgitation dripped onto his arm, causing immediate localized urticaria.

On her own initiative, the patient's mother decided to use the same soy milk formula for the baby that she had used with his elder brother (Alberto). That very day, after the room had been well-aired, Alberto was able to enter his baby brother's room and remain symptom-free.

■ The child's history began with typical anaphylaxis after the first ingestion of cow's milk (5). Usually, such patients become negative to challenge tests with milk by the end of the first year of life. Our patient continued to exhibit both cutaneous and respiratory hypersensitivity reactions upon contact with milk or even after just inhaling it. Similar occurrences have been described in the literature (3, 4), but, as far as we know, this the only reported case of cow's milk hypersensitivity which made it necessary for another member of the family to follow the same diet: a diet by proxy.

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