

Case report

Hypersensitivity reactions from inhalation of milk proteins

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We describe the case of a young man with IgE-mediated hypersensitivity to milk, casein, and lactoglobulin, who went into respiratory crisis every time he milked his sheep.

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Hypersensitivity to milk proteins is a relatively common clinical condition (1–5% of babies, depending on geographic area) but it is a real socioeconomic problem, for both families and health services.

Whereas gastrointestinal disorders caused by milk intolerance and/or hypersensitivity are common and well known, reports of intolerance of milk proteins with a clinical picture of respiratory distress are very rare. Before this paper, only two papers (1, 2) have referred clearly to this condition. Moreover, recently in Italy, daily newspapers reported the death (perhaps by inhalation of milk) of a 20-year-old woman who was allergic to milk, but so far no scientific reports have been published.

Case report

In February 1992, we observed a cattle farmer, 33 years old, from a small town in northern Sardinia, with a clinical picture of possible intolerance of milk proteins which caused serious respiratory symptoms. He had worked as a farmer, but he had started to manage a large flock of sheep with his brothers just 8 days before the first respiratory crisis.

The first time he milked the sheep, he had a sud-

den and severe “lack of air”, a sensation of cold, and a feeling of imminent death. The patient lost consciousness; he was immediately given mouth-to-mouth resuscitation and taken to a doctor’s office after about 40 min. By that time, however, the respiratory crisis had already passed. The doctor could find no physical symptoms during the examination, and diagnosed a poorly defined nervous disorder.

The same type of crisis with the same characteristics occurred six more times, always when the patient was milking. Each time he was taken to the local hospital’s emergency ward, arriving there without respiratory symptoms. This prompted the doctors to advise him to have a neurologic examination, considering his condition to be a cenesthopathic crisis, notwithstanding a well-detailed description of the respiratory symptoms by the patient and the absence of past psychosomatic episodes in the patient and his family.

On the eighth day after one more such crisis during the milking of the flock, a friend of the patient, who was an asthmatic subject, remarked to the young man that the crisis seemed to be an asthmatic attack and brought him to our hospital, where the friend was usually treated. The clinical examination

revealed a true bronchospasmodic crisis, and the patient was admitted to the hospital. He exhibited some whistling at the bases of the lungs, a runny nose with very pale mucous membranes, a septum deviation, and nasal congestion.

The patient was able to describe in great detail the various crises, confirming that he never had suffered before from allergies, and he supplied two highly interesting bits of information: he declared that he had never used milk for food during the past 15 years, ever since his childhood, as it caused diarrhea and made him feel sick. Also he remarked that the ingesting of any kind of cheese gave him an instant "cold", a runny and blocked nose, and smarting eyes.

Spirometry showed a slight reduction of the PEF and the FEV₁, and rhinomanometry detected a minor bilateral obstruction.

The patient was advised to rest and refrain from milking without adequate protection, and to avoid contact with milk. A series of routine blood tests gave normal results. Cutaneous tests done 7 days later, either by prick test or by scratch for whole milk (including goat's milk), casein, and lactoglobulin gave strongly positive results. These were confirmed by grades 4–5 RAST for casein and lactoglobulin.

Ten days after the patient was discharged from hospital, he came back to be examined and was found to be in good condition. He declared that abstention from cheese completely cleared his nose. Clinical examination, spirometry, and rhinomanometry were normal. A month later, during an examination, the patient informed us that he was then able to milk his sheep with the protection of a gas mask of the kind used by civil defense. After completing his work, he left the place where the milk was stored without any trouble.

Six months later, the patient tried to milk without the gas mask, but after a few minutes he had a severe attack of asthma. He was given an injection of hydrocortisone (100 mg) and an aerosol of fenoterole and beclomethasone which he had been advised to keep with him for emergencies. Admitted to the hospital, he had mild chest wheezes, rhinorrhea, and conjunctival congestion. PEF and FEV₁ were mildly decreased as shown by spirometry; rhinoma-

nometry showed mild bilateral obstruction. One week later the patient was well and could milk his flock with gas mask protection without respiratory distress.

Discussion

Our patient exhibited IgE-mediated hypersensitivity to casein, lactoglobulin, and milk, as demonstrated by positive skin test and RAST. Moreover, his medical history seemed to reveal reaction to ingestion of milk and cheese. Lastly, the respiratory crisis during milking seemed also to be due to the same hypersensitivity. The fact that the crisis appeared only during that activity and not in other circumstances and the protective effect of the gas mask seemed to support the hypothesis that inhalation of casein or other milk allergens induced an IgE-mediated reaction in the respiratory tract. The trial spontaneously made by the patient of milking again without the mask and the consequent serious asthmatic attack, strongly confirm that the exposure to milk allergens induced a hypersensitivity reaction localized to the respiratory tract. No other reasons were found to explain the clinical picture presented by the patient, the symptoms occurring always in the same circumstances and with the same modalities.

The two papers cited (1–2) support the hypothesis that milk proteins can produce an important clinical picture of IgE hypersensitivity also by inhalation. These findings suggest that we should consider the possible effects of working in areas with high milk vapor concentration on people such as shepherds or milk and cheese workers with possible milk hypersensitivity, and that closer attention should be given to devising protective measures for them.

References

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