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Letter

Code red: a case of anaphylaxis to a soda

Gum arabic, or gum acacia, is an edible carbohydrate with a small amount of glycoprotein by weight that is obtained from the acacia Senegal tree.¹ It is commonly used for emulsification and stabilization in foods because of its properties of complete water solubility, lack of taste or odor, and low viscosity.^{2,3} Although generally considered nontoxic, there have been reports of allergic responses in the occupational setting. Specifically, workers in a candy factory were found to have occupational asthma, contact urticaria, and eczema after exposure to gum arabic,^{4,5} and a pharmaceutical industry worker was found to have an IgE-mediated response to gum arabic after experiencing work-related rhinitis and dyspnea.⁶

One case report involved 4 separate allergic reactions after a man drank coffee made from gum arabic-coated coffee beans.⁷ Two of the reactions were anaphylactic in nature, leading to cardiac arrest; however, these were noted to have occurred after the patient had been prescribed timolol eye drops. Although the patient was found to have dual sensitivity to coffee and gum arabic-coated coffee beans via skin prick testing and human basophil degranulation testing, the case also highlighted the potential risk of β -blockers in potentiating anaphylaxis to these allergens. An extensive search on cases of anaphylaxis to gum arabic alone yielded no results. We report a case of a 21-year-old college student with no prior exposure to the pharmaceutical or confectionery industry who experienced anaphylaxis after drinking soda that contained gum arabic.

The patient reported having symptoms of anaphylaxis 1 hour after imbibing approximately 4 oz of Mountain Dew Code Red (contains gum arabic). She noted urticaria on the central upper part of her chest, dyspnea, and inability to complete full sentences. The patient was then immediately taken to her university's health services clinic for further evaluation, at which time she was noted to have facial swelling and wheezing on examination. Because of the anaphylactic reaction, the patient was initially unclear of all the events that occurred before treatment; however, further investigation revealed that the patient's clinical presentation immediately improved after epinephrine administration in the health clinic. She reported that since the incident, she has avoided drinking Mountain Dew Code Red and has had no further anaphylactic episodes. The patient underwent allergy testing via the skin prick method. The results demonstrated a 4-mm induration response to gum acacia; no response to gum karaya, gum tragacanth, or the control; and a 3-mm response to histamine (Fig 1).

ImmunoCAP testing (Quest Diagnostics San Juan Capistrano, California) also verified the presence of IgE to gum arabic, demonstrating an IgE level of 0.36 kU/L. She was prescribed epinephrine and told to monitor food labels closely for presence of gum arabic or acacia.

To our knowledge, this is the first reported case of anaphylaxis to gum arabic alone. The history of this young woman's anaphylactic episode and resultant skin prick test result suggest that this



Figure 1. Allergic response to gum acacia via skin prick test. 1, gum acacia; 2, gum karaya; 3, gum tragacanth; 4, control; and 5, histamine.

complex should be considered a significant allergen for patients who present with history of anaphylaxis after consumption of confectionary products and soft drinks.

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