

Hypersensitivity reaction after barium meal examination

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Hypersensitivity reactions can occur after the administration of barium products and all caused by one of the many additives. These reactions are extremely unusual. Authors report on a patient who developed urticaria shortly after a conventional barium examination.

Despite the large number of barium studies performed, reports of hypersensitivity reaction to barium mixture as opposed to water soluble contrast media are few (2). Infrequent reactions to additives to barium suspension have been noted for some decades. However, with the elimination of most natural additives, such as chocolate, the incidence of allergic reactions has decreased considerably. The incidence of allergic or hypersensitive reactions was estimated to be 1 in 750,000 barium examinations (3). 106 barium reactions have been documented up to date in American literature (7). Transient bacteremia associated with barium enema was reported in 20 (11.4%) patients in one study (4). In the present communication we report a case of barium hypersensitivity following conventional barium meal examination.

CASE REPORT

A 23-year-old man was referred for barium meal examination of the upper gastrointestinal tract because of abdominal pain. He had no known drug allergies.

Conventional barium meal examination was performed with 55% w/v microbar. (Microbar, Eskay Fine Chemicals, Bombay, India). No relaxant drug was administered nor the gas-forming effervescent powder.

The examination proceeded uneventfully and revealed no abnormality.

Fifteen minutes later the patient complained of generalized pruritus and developed urticarial lesions on his arms, legs and face, and mild periorbital oedema. These symptoms responded promptly to intramuscular injection of antihistamine. No further complications developed.

DISCUSSION

Barium is an inert substance and is incapable of triggering a reaction. However, commercial preparations include various additives that affect the suspension, miscibility, coating, taste and other properties of the product. The identification of such substances remains an industrial secret (6).

Reactions reported in the literature were involvement of skin (61%), respiratory tract involvement (8%), loss of consciousness (8%), and migraine headache (0.5%). Gelfand et al. (3) reported three cases of anaphylactic reactions and one allergic reaction during double contrast studies using glucagon. Review of English reports of adverse reaction to glucagon injection would suggest that allergic reactions are more common and varied than generally thought (1). Contrast media-induced anaphylactoid reaction may be caused by a variety of mechanisms including mast cell and basophil degranulation (IgE-mediated or Type I hypersensitivity), activation of the alternate complement pathway, and an idiopathic chemotoxic reaction (5, 9).

It may be assumed that substances contained in the vehicle in which barium is prepared for clinical use may also be absorbed through diseased and even normal mucosa. There is no evidence that the air contrast examination promotes more absorption of such matter. Immunological hypersensitivity to methyl paraben, a barium preservative, has been demonstrated by Nagel et al. (8).

We have no definite pointer as to the ingredient responsible in our barium suspension. However, gas-forming agents (Simethicone, calcium carbonate, tannic acid, etc.) and hypotonic agents (Buscopan, glucagon) were definitely not responsible for the hypersensitivity reaction in our patient, since it was a conventional barium examination. Until now we have performed more than one *lakh* conventional barium examinations and this is the first case to develop such an allergic reaction. Thus, it is not a common complication but it should be kept in mind that such a reaction can occur even after conventional barium examinations.

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