

Beer induced angioedema – A case report

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ABSTRACT

Beer is a popular alcoholic beverage consumed all over the world. Type I hypersensitivity reactions like urticaria and anaphylaxis due to beer have been reported very infrequently in the literature. We report a case of a 29 year old male who presented with episodes of acute urticaria and angioedema after intake of beer while tolerating other alcoholic beverages. A positive prick test to beer was observed which confirmed the diagnosis of beer induced angioedema. On cessation of beer consumption, no recurrence was observed over a follow-up period of six months.

Key words: Angioedema; Beer; Type I hypersensitivity

INTRODUCTION

Beer is a popular alcoholic beverage consumed all over the world. It mainly contains brewer's yeast, malt, hops and water but wheat, rice, corn and enzymes are added in some special varieties. Barley is the main ingredient of beer which on germination and roasting produces malt which lends beer its richness of flavor and its color. Hops provide the distinctive aroma and bitterness to beer, while yeast *Saccharomyces cerevisiae* and *S.carlsbergensis* induce fermentation that gives rise to alcohol and carbon dioxide.

In spite of widespread consumption, there have been only a few reports of type I hypersensitivity reactions to beer including urticaria and anaphylaxis which has been attributed to the presence of certain allergens in the barley malt [1-5]. We herein describe the case of a 29 year old male who presented with episodes of angioedema after intake of beer but not with other alcoholic beverages.

CASE REPORT

A 29 year old male presented to us with the history of generalized urticaria and angioedema on two occasions

immediately after drinking beer. He was treated with systemic corticosteroids and antihistamines and improved immediately within hours. He also had a history of bronchial asthma and prick tests and specific IgE for pollens of *Compositae* mix were positive. The patient tolerated other alcoholic beverages well and did not develop any symptoms after consuming other alcoholic drinks. Laboratory tests revealed normal blood counts, liver and renal functions but serum IgE level was 440 IU. To confirm our diagnosis of beer induced angioedema, a prick test to beer was performed using histamine phosphate 10mg/ml and normal saline as the positive and negative controls respectively. A wheal with a mean diameter 3mm or more with erythema observed 15 minutes after testing was considered as a positive reaction. A positive prick test to beer was observed in the form of a wheal with erythema measuring 5X5 mm (Fig. 1), thus confirming an immune response against beer. An oral challenge was offered but was declined by the patient. The patient was informed regarding the allergic response to beer and was advised regarding cessation of beer intake. After stopping beer intake, the patient observed no recurrence of symptoms over a follow-up period of six months.

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Figure 1: Wheal and flare indicating a positive prick test to beer.

DISCUSSION

Angioedema is a vascular reaction characterized by the development of wheals involving virtually any area of the body. Foods, drugs and physical factors like heat, cold and vibration are the common precipitants of urticaria. Urticaria due to food products occurs due to development of specific IgE antibodies against the specific food allergens. Food induced urticaria is a common entity with reported prevalence rates ranging from 1-2% in children to 6-8% in adults with cow's milk, eggs, peanuts, fish and seafood being the most commonly implicated allergens causing food induced urticaria [6].

Despite its high consumption, allergic reactions to beer have been only rarely reported in the literature. In the reported cases of beer hypersensitivity, barley malt proteins have been identified as the causative allergens in the majority. Beer has been found to contain a large variety of proteins and polypeptides with molecular weights ranging from five to more than 100 kDa which are formed by the proteolytic and chemical modifications of barley proteins occurring during the process of brewing. Curioni *et al* [7] observed that urticaria from beer is an IgE-mediated hypersensitivity reaction induced by a protein component of approximately 10 kDa derived from barley which is unrelated to the major barley 16-kDa allergen responsible for baker's asthma. Generalized urticaria after drinking beer is thought to be due to hypersensitivity to these antigens whereas contact urticaria to beer, without symptoms after drinking, might be caused by differences in end-organ sensitivity.

Hypersensitivity reactions to beer have been seen predominantly among patients with an atopic

diathesis. Among the various manifestations reports in the literature, urticaria, especially contact urticaria is the most commonly reported hypersensitivity reaction but a few cases of anaphylaxis have also been reported with beer consumption [1-5]. Van Ketel [2] reported two cases of immediate-type hypersensitivity to beer, one patient developed acute urticaria on entering a bar and anaphylactic shock on drinking beer and the other patient having recurrent episodes of urticaria on consuming beer, with both the patients showing a positive scratch test to malt. Gutgesell *et al* [3] reported the case of a bar waitress who developed hives on her hand upon contact with beer but developed no symptoms on drinking beer. Keller *et al* [4] reported a patient who developed angioedema after drinking beer or eating white bread or cake, the hypersensitivity being attributed to wheat and barley allergens.

In conclusion, hypersensitivity reaction to beer is a rare phenomenon. We report this case of beer induced angioedema to emphasize that beer should also be considered as a potential angioedema inducing agent.

CONSENT

The examination of the patient was conducted according to the Declaration of Helsinki principles.

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