



Allergic reaction to blue cheese: serendipity or actual causation?

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Cutaneous allergic reactions in the form of urticaria are a condition commonly encountered in everyday clinical practice. Often we clinicians fail to identify the precipitating cause. A thorough history and a high index of suspicion are useful in identifying the potential triggering factor.

We report a case of allergic reaction after consuming blue-veined cheese.

Case report

A 40-year-old man attended Accident and Emergency Department with a 2-day history of worsening shortness of breath, difficulty of swallowing, and generalised itchy skin rashes. He is known to react to penicillin and denied taking any recent medications.

He recollected that the itching started immediately after consuming a meal comprising of papaya, mangoes, and a newly found brand of blue cheese. The patient had consumed mangoes and papayas several times in the past as well as most brands of cheeses commonly available in the UK supermarkets.

Figure 1 shows multiple erythematous skin rashes



Physical examination revealed multiple erythematous annular rashes with some of the lesions resembling target lesions of erythema multiforme (Figure 1). He was treated with intravenous steroids, antihistamines, and nebulised salbutamol.

We contacted the food standards agency and were advised that *Penicillium* species are used in the manufacture of blue cheeses but these fungi are not known to produce penicillin and they were not aware about penicillin allergic patients reacting to blue cheeses. However, we advised the patient to avoid taking blue cheeses as it may trigger another reaction.

The patient remained in the hospital for 5 days and his condition slowly improved. Two months later, he was contacted by telephone and remained asymptomatic without further problems.

Discussion

Antibacterial properties of the fungus *Penicillium chrysogenum* was first observed by Sir Alexander Fleming in 1928. Since then a few more species of *Penicillium* were also found to produce penicillin. The known penicillin producers are *P. chrysogenum* (previously known as *P. notatum*), *P. nalgiovense*, *P. dipodomis*, *P. griseofulvum*, and *P. flavigenum*. Interestingly, many fungi belonging to *Penicillium* genus are also used as starters in the manufacture of blue cheeses.

Uniform colonisation of the cheese by *Penicillium* fungi prevents the growth of unwanted micro-organisms and also imparts a characteristic flavour to the cheese.¹ Famous examples are *P. roqueforti* in Roquefort cheese as well as *P. camemberti* in Camembert and Brie cheeses. However, these fungi do not have the necessary genes for penicillin production.¹

Penicillin in the food chain should be avoided as it can lead to antibiotic resistance and some authors have pointed it out as a potential causative factor in chronic urticarial reactions;² it can also lead to allergic reactions in penicillin-sensitive individuals.

Allergic reactions in penicillin-sensitive individuals have been reported after consuming milk, chicken, pork, and beef containing small amounts of penicillin.³ However, there are no such reports in the literature after consuming cheese. It is difficult to prove that the cheese our patient consumed contained penicillin or antigenically similar compounds, as there was no sample left out for analysis. As per the advice of Food Standards Agency, we urged the patient to contact the Environmental Agency about this incident.

We propose that the allergic reaction in our patient was triggered by either contamination of the cheese with penicillin or antigenically similar compounds produced by the *Penicillium* species used in the manufacture of the cheese.

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