Airline snack foods: Tension in the peanut gallery

"Attention all passengers, this is your chief flight attendant speaking. We will now be passing through the cabin to serve your choice of beverage and a snack of fresh-roasted peanuts." Although this may seem like a fairly routine and harmless announcement on any given commercial airline flight, it can be a very concerning, anxiety-provoking announcement for children and adults with peanut allergy (Fig 1). Recently, there has been increasing concern and debate about the potential for individuals with peanut allergy to experience an allergic reaction while on a commercial airplane that is serving peanuts and/or peanut-containing food. What are the main issues regarding this potential risk? What specific factors have fueled this debate, which at times has become confrontational? Moreover, is there any published scientific evidence to support the concerns that have been raised to date? Finally, how should our specialty proceed with the debate over this issue?

Current estimates reveal that allergic reactions after the ingestion of peanuts occur in approximately 0.5% to 0.7% of the general population and affect up to 2 million Americans.[1] Peanuts are a member of the legume botanical family and are always listed among the most common foods causing allergic reactions in both children and adults.[2] There are some very important features related to peanut allergy that deserve mention. First, allergy to peanuts typically lasts a lifetime.[3] Second, peanuts have been often implicated in reports of fatal and near-fatal allergic reactions induced by food ingestion.[4,5] Third, the prevalence of this allergic disease appears to be on the rise, not only in the United States but also in other countries.

For many years, individuals with peanut allergy and their families have had to be concerned about potential accidental exposures to peanuts and peanut-containing foods in a variety of settings, including restaurants, the work and/or school environment, picnics and parties, and commercial airliners. In fact, there is a published case report of an inhalation reaction to peanut allergen on a commercial airliner.[6] The cabin of a plane in flight is certainly a less than ideal environment in which to recognize and properly manage a potentially severe allergic reaction. Although the concern for potential allergic reactions has been present for some time, momentum to address these concerns in a more organized and effective manner has been increasing over the past few years.

Abbreviation used
DOT: Department of Transportation

In mid-1998, the Department of Transportation (DOT) issued a proposal that would have mandated that the 10 major US commercial airlines must provide "peanut-free zones" for passengers with allergic reactions to peanuts.[7] In essence, airlines would have been responsible for providing these "peanut-free zones," which would consist of the passenger's row and the rows immediately in front of and behind that row, on request and/or with advance notice from passengers with medically documented severe allergies to peanuts. This decision was based on the DOT's review of the problem, including (1) a published abstract from the Mayo Clinic documenting small amounts of peanut allergen collecting in the ventilation filters of commercial airplanes[8] and (2) specific complaints from subjects with allergies, with some claiming that some airline carriers were discriminating against them. Apparently, this mandate would fall under the 1986 Air Carrier Access Act, a federal law guaranteeing access to airlines for the disabled. To no one's surprise, this proposal met great resistance, especially from the Air Transportation Association, a trade organization supporting the major US airline carriers, who essentially do not recognize this as a problem.

Subsequent to the DOT decision, a flurry of activity transpired in the US Congress. On September 11, 1998, Senators Coverdell and Shelby submitted resolution number 117, which was referred to the Committee on Commerce, Science, and Transportation.[9] In summary, this resolution asked the Secretary of Transportation to rescind the proposal for "peanut-free zones" for several reasons, including the following: (1) it is an excessive regulation on airline carriers, ignoring the rights of the overwhelming majority of the traveling public who are not allergic to peanuts; (2) the directive unfairly singles out one product while ignoring other important allergens; and (3) establishing such a precedent might needlessly establish such "peanut-free zones" for all forms of public transportation. Ultimately, specific language was added to the omnibus appropriations bill that prohibited the DOT from spending any money to issue any regulations requiring such "peanut-free zones" on airplanes. Therefore this mandate was never implemented. One of the reasons cited by members of Congress was the lack of published, scientific literature describing passengers with peanut allergy who had experienced allergic reactions caused by airborne peanut allergen on commercial airliners.

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J Allergy Clin Immunol 1999;104:25-7.
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0091-6749/99 $8.00 + 0 **1/1/99288**



FIG 1. Should peanuts be allowed on airplanes?

In this issue of The Journal, Sicherer et al[10] summarize the clinical features of airline passengers experiencing allergic reactions to peanut while traveling on commercial airliners. The investigators conducted a phone interview with 42 subjects or, when appropriate, their legal guardians, who reported having an allergic reaction while traveling on an airplane. These participants were identified through the National Peanut and Tree Nut Registry, which was established in the late 1990s and is maintained in conjunction with the Food Allergy Network (Fairfax, Va). The median age of the participants was 2 years (range, 6 months to 50 years). Of these, 35 experienced allergic reactions to peanuts, and 7 experienced allergic reactions to tree nuts, of which 3 may have also involved peanut allergen. Exposures were the result of ingestion in 20 subjects, skin contact in 8, and inhalation in 14. Reactions generally occurred within 10 minutes; 5 reactions were severe, 4 were moderate, 26 were mild, and 7 were minimal. In 11 of the 14 subjects who reported that inhalation of peanut led to their reaction, over 25 passengers were estimated to have been ingesting peanuts at the time of the reaction. These inhalation reactions were generally not severe or life-threatening. Of note, 79% of the participants required medications to treat reactions; antihistamines were used primarily, but 5 subjects received injected epinephrine in flight to manage allergic reactions.

This report represents the first published investigation describing the clinical characteristics of allergic reactions to peanuts on commercial airliners in subjects with peanut allergy. This investigation was not designed as an exhaustive, epidemiologic analysis of the prevalence of allergic reactions to peanuts on commercial airlines. The self-reported allergic reactions, however, were very consistent with allergy, and most patients reported positive skin test responses for specific IgE to peanut. Although this investigation does not provide all the data needed to resolve this ongoing debate, it certainly provides a solid foundation to better address these potentially life-threatening exposures and allergic reactions. Several very important "take-home" messages need to be highlighted: (1) passengers may experience allergic reactions to foods (eg, peanuts and tree nuts) while traveling on commercial airliners; (2) these allergic reactions can be severe and may require emergency medications to resolve; and (3) allergic reactions can be triggered not only by ingestion but also by inhalation and skin contact.

There are some disturbing findings in this investigation. First, why was there such a low level of notification of flight crews and airline personnel of the actual allergic reactions to peanuts and/or tree nuts (33% notification rate)? Were the affected passengers unwilling to seek assistance from flight personnel for their allergic symptoms because of a fear of unpreparedness of the crew and/or a fear of not being taken seriously? Second, could other potential irritants (eg, strong perfumes, passive tobacco smoke on clothing of smokers, and cleaning agents) have contributed to the inhalation reactions in some of the subjects, especially those with asthma? Finally, 5 subjects received epinephrine while in flight to manage severe allergic reactions. This observation relates to another relevant debate focusing on the availability of injectable epinephrine on board commercial airliners and the availability of trained flight personnel to administer this medication. Epinephrine, which is available in self-administration devices, is the first medication that should be used in the emergency management of a person having a potentially life-threatening allergic reaction.[11] There are no contraindications for its use in a life-threatening allergic reaction, and delay in its proper administration can result in serious consequences or even fatalities.[4] Therefore injectable epinephrine and airline

personnel trained in its proper administration should be routine on all commercial airliners.

Two things are very clear to me as this debate continues to develop: education and preparedness should prevail. As allergy specialists, we need to continue to be strong advocates for our patients with peanut allergy and other significant food allergies. All potential allergen exposures should be anticipated, and a reasonable, practical emergency treatment plan should be written. We need to educate our patients, the airline industry, our medical colleagues, and ourselves about the best approach to this clinical problem. Specifically, the airline industry needs to be better educated about food allergy and to be willing to work with passengers who raise legitimate concerns. Patients with peanut allergy need to be encouraged to continue in their preventative efforts in dealing with their food allergy and to discuss their concerns with the airlines before actually purchasing a ticket. For example, inquiring about specific flights that serve an alternative snack other than peanuts and trying to book early morning flights when the cabins are generally cleaner are two reasonable alternatives passengers have pursued. As mentioned above, injectable epinephrine and airline personnel trained in its proper administration should be routine on all commercial airliners. In the final analysis, more objective data and proper education will help guide us in the ultimate resolution of this important debate and lower the tension in the peanut gallery.

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