

far, no report of a rejection of an allogeneic ligament graft caused by an early type allergy to altered human collagen has been published.

Tutoplast allografts are sterilized in different ways, at the end they consist mainly of collagen type I. Our patient showed allergic reactions of the early type to ligament allografts, gelatine-containing jelly babies and pork gelatine. Gelatine is a product obtained by the partial hydrolysis of bovine or porcine collagen and consists mainly of denatured type I collagen. It is widely used in foods and pharmaceuticals. Reports of hypersensitive reactions to gelatine containing vaccines and to pork, beef and fish gelatine-containing foods have increased in frequency during the last years (2, 3). Although gelatine-specific IgE is a primary cause of immediate reactions including anaphylaxis, a cell-mediated immunity has been shown to be associated with both immediate and nonimmediate type reactions to gelatine-containing vaccine (4). In gelatine allergy denatured bovine or porcine type I collagen is the major allergen. The collagen molecule is a heterotrimer composed of two $\alpha 1$ chains and one $\alpha 2$ chain, the $\alpha 2(I)$ chain being the major allergen in gelatine allergy (5).

As ligament grafts are chiefly composed of type I collagen, there is a potential for immunological cross-reactivity with dietary collagen (gelatine). We postulate the idea that a preexisting sensitization to type I collagen, acquired by the intake of gelatine-containing food or vaccines, led to subsequent allergic rejection of the allogeneic graft in our patient. This report presents the first case of an allergic reaction to an allogeneic cruciate ligament graft in a patient with an allergy towards gelatine. As the incidence of allergies against gelatine is rising, preoperative allergy testing to exclude sensitization to gelatine might be appropriate in patients receiving allogeneic cruciate ligament grafts.

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Hand eczema by rubberized grip of ballpoint pen in patients with atopic eczema

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Key words: atopic eczema; ballpoint pen; hand eczema; latex allergy; rubberized grip.

We have previously reported that latex allergy is frequently found in patients with atopic eczema (AE) not only in adults, but also in children (1). In 2005 from August to December, we noticed hand eczema of thumb, index finger and middle finger in many AE patients including 16 children and 38 adults.

Subsequent study revealed that hand eczema was caused by rubberized grip of

Hand eczema by rubberized grip of ballpoint pen was observed in patients with atopic eczema.

ballpoint pen. Avoidance of rubberized grip of ballpoint pen improved clinical symptoms and decreased sensitization to latex in those patients.

All of the patients complained eczema of thumb, index finger and middle finger of right hand after using ballpoint pen as they were right-handed. Then, we noticed that the ballpoint pen had rubberized grip. Similar symptoms were caused by rubberized grip of ballpoint pen from different companies (Pilot Co. Ltd, Tokyo, Japan; Pentel Co. Ltd, Tokyo, Japan; Zebra Co. Ltd, Tokyo, Japan). After obtaining informed consent, 16 children with AE (SCORAD index: mean 8) (nine female and seven male, range 8–14 years), 38 adults with AE (SCORAD index: mean 12) (22 female and 16 male, range 24–40 years), 16 control healthy children (nine female and seven male, range 8–14 years) who visited hospital for screening of allergy, and 38 control healthy adults (22 female and 16 male, range 24–40 years) were studied (2).

All of the patients were treated with application of pinetar (Yoshida Pharmaceutical Co. Ltd, Tokyo, Japan) mixed with zinc oxide ointment, but without oral medication (2), and avoidance of rubberized grip of ballpoint pen. Skin prick test (SPT) to latex and rubberized grip was performed with natural rubber latex extract (C-serum) and extract of rubberized grip, respectively, before and after avoidance. Extract of rubberized grip of the ballpoint pen (Pilot, Pentel, Zebra) was made as followings. Grip was cut into 0.5 cm² piece and was incubated in sterile physiological saline (1 : 2, w/v) at room temperature for 17 h. The extract was then filtered through a Millipore filter (0.2 μ m) and freshly used for SPT (2). As results of extract from grips of ballpoint pen of three companies were almost same, results of data using extract from grip of ballpoint pen of Pilot Co. Ltd were presented. Blood was also sampled and serum latex-specific IgE was measured by fluorescence-enzyme immunoassay (FEIA) before and after

Table 1. Sensitization of patients to latex and rubberized grip of ballpoint pen

	Children				Adults			
	Patients (n = 16)		Controls (n = 16)		Patients (n = 38)		Controls (n = 38)	
	Before	After	Before	After	Before	After	Before	After
Skin prick test (SPT) to latex*								
3+	6	2	0	0	12	6	0	0
2+	10	6	0	0	26	16	0	0
0	0	8	16	16	0	12	38	38
SPT to extract*								
3+	2	0	0	0	8	4	0	0
2+	14	5	0	0	30	16	0	0
0	0	11	16	16	0	18	38	38
Latex FEIA**	2.4 (0.3)	0.6 (0.1)	<0.34	<0.34	12.8 (1.5)	7.2 (0.5)	<0.34	<0.34

*Skin prick test to latex or extracts from rubberized grip of ballpoint pen before or after avoidance of using of ballpoint pen. Positive results were rated as described in the text. Wheal responses greater than 2+ are considered positive, 0 indicates negative responses. Number of patients are shown.

**Mean (SE) serum latex-specific IgE levels (IU/ml) by FEIA.

avoidance. This study was approved by the ethical committee of the Moriguchi-Keijinkai Hospital.

As shown in Table 1, all of the patients were allergic to latex by SPT and FEIA, and extract to grip of ballpoint pen, while none of controls were allergic to them. Avoidance of grip of ballpoint pen decreased sensitization to latex and extract of grip. In addition, hand eczema was improved in all of the patients after avoidance and application of pinetar with zinc oxide ointment, while same treatment without avoidance failed to do so.

In Japan, use of ballpoint pen is very popular in children and adults. Rubberized grips were used in almost all of the ballpoint pens. It was reported that hidden latex allergen caused latex allergy, and hand eczema to latex was reported (2–4). Therefore, rubberized grip of ballpoint pen should be noticed as causative agents for latex allergy to both children and adults.

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The assessment of induced sputum in detecting *Aspergillus fumigatus* hyphae in steroid-dependent unstable asthma

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Key words: ABPA; induced sputum.

Aspergillus species are ubiquitous molds with worldwide distribution. The pathophysiology of various pulmonary manifestations related to *Aspergillus* infection depends on the quantity and virulence of the inhaled

Giemsa-stained induced sputum represents a simple method to confirm a suspected diagnosis of ABPA.

Aspergillus as well as on the immune status of the host defense (1). Host immunologic responses are central to the pathogenesis of allergic bronchopulmonary aspergillosis (ABPA), which is defined as a hypersensitivity disorder induced by *aspergillus* species (2). The incidence of ABPA is 1–2% in patients with persistent, steroid-dependent asthma (3). Pulmonary *Aspergillus* infection is initiated by inhalation of 2–3 µm airborne spores that reach the alveoli (4). In a susceptible host, failure of the alveolar macrophages to eradicate the inhaled conidia enables the fungus to germinate into hyphae, which is the invasive form of the organism (5). The common pathological findings are persistent airway inflammation and fibrosis with destruction of bronchial structural elements leading to bronchiectasis (6).

A 11-year-old boy who had suffered from reactive airway disease since 5 months of age had undergone pulmonary function tests (PFTs) at age 7 years and was diagnosed as having airway hyperreactivity. He then received regular treatment with inhaled steroids which was lately replaced by fluticasone 250 µg salmeterol 50 µg twice a day. Before treatment, PFTs showed bronchial hyperreactivity with severe obstruction, partially reversible.