

Short Communications

Contact urticaria and anaphylactoid reaction due to corn starch surgical glove powder

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I recently reported (1) what I believe was the first case in the United States of contact urticaria due to corn starch surgical glove powder.

A 28-year-old, non-atopic male nurse noted pruritus, erythema, and edema of the dorsa of his hands and wrists whenever he wore surgical gloves. Patch testing to a one-inch square of a thoroughly washed rubber glove gave negative results. A patch test to a one-inch square of an unwashed rubber glove produced an immediate urticarial reaction.

The glove contained powder, a corn starch derivative composed of the polysaccharides, amylose and amylopectin. 1% magnesium oxide and 1% calcium phosphate were added to the powder by the manufacturer for "flow control" and absorption. A small amount of this powder was rubbed into intact skin on the patient's forearm and produced a large wheal in 20 min. 12 control powders gave negative reactions. The patient did not react to full-strength magnesium oxide or tricalcium phosphate powders.

The patient was informed that he was allergic to corn starch surgical powder. He removed as much of the powder as he could by turning the gloves inside out and washing and wiping them with sterile towels. Apparently he could not remove all of the corn starch since he continued to have dermatitis of the hands.

Since this report appeared, I have become aware of 4 dermatologists and 1 dermatologist's nurse who could not tolerate surgical gloves of any variety, including the so-called "hypoallergenic" type. It should be noted that practically all surgical gloves in the United States contain corn starch powder to prevent "slippage", and that all these patients could tolerate surgical gloves free of powder. (Pristine® Gloves made in Japan are available in the United States from World Medical Supply, Inc. 4340 Stevens Creek Blvd. Suite 200, San José, California 95129.)

We recently received the following letter from a physician, who writes:

I have just read with interest your article in *Cutis*, regarding contact urticaria to corn starch in surgical gloves. In approximately 1977, when I started my 3rd year of medical school at the University of Texas Medical Branch in Galveston, I noticed considerable eyelid edema and urticaria which progressed to a considerable irritation of the skin and actually produced some skin breakdown and oozing. This was variously treated with mild topical steroids with excellent relief and with oral antihistamines.

It was some time before I noted a stimilar reaction on the dorsa of my hands, and at that time began to wonder if I were indeed allergic to the usual, standard surgical gloves. When I had occasion to take dermatology as an elective in my 4th year of medical school, I had the opportunity to be patch tested for the various chemicals and rubber compound and had no reaction to any of these. I began to consistently request hypoallergenic gloves to the multitude of hospital administrators and surgical nurses.

Throughout most of my residency, I continued to use hypoallergenic, expensive gloves and had little or no relief unless I carefully washed my hands on removing any and all gloves, including non-sterile exam gloves.

I learned that I was severely allergic to corn in any form, including highly purified corn starch and corn syrup. At that time, I also began to notice severe neurological reactions, including depression, somnolence and hyperirritability along with bowel disturbances any time I would eat corn. This had been going on all my life and I was finally able to explain why I slept through the lectures of the first 2 years of medical school, after eating various doughnuts, jellies etc.

I am now in private, family practice and have learned, after numerous repetitions of the learning cycle, that I must invariably wash my hands to

remove all powder after removing any gloves, and I do believe that this is due to the corn starch allergy.

I believe the eyelid reaction was simply due to my habit of rubbing my eyes after removing my surgical mask and gloves. This I have also learned to avoid doing until after I have washed my hands.

It should be noted that recently, Van der Meeren & Van Erp (2) reported that they suspected that lubricant powder could produce immediate-type life-threatening contact urticaria from surgical glove powder, and that the implicated, absorbing, dusting powder consists of 97% corn starch (amylose and amylopectin) with 1.5% magnesium oxide and 1.5% tricalcium phosphate.

It is my belief that contact urticaria due to corn starch surgical glove powder is by no means rare. Fortunately, all the patients in the United States with this allergy could wear Pristine® Gloves, free of corn starch, after suffering many months or years from gloves containing such corn starch powder.

References

1. Fisher A A. Contact urticaria due to cornstarch surgical glove powder. *Cutis* 1986; 38: 307-308.
2. Van der Meeren H L M, Van Erp P E J. Life-threatening contact urticaria from glove powder. *Contact Dermatitis* 1986; 14: 190-191.

Contact urticaria to tobacco

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Urticaria, minor erythema and contact dermatitis have rarely been described in cigarette and cigar factory workers. The main problem in tobacco dermatitis is the irritancy of tobacco, and true allergic contact dermatitis has rarely been confirmed (1-3).

Case Report

A 38-year-old woman complained of relapsing generalized urticaria which first appeared 1 year earlier. She had been working in a cigarette and cigar factory for 12 years. She smoked 15 cigarettes daily. Intense itching followed by a generalized wheal eruption appeared daily 15-30 min after she started to work at a cigarette-making machine. In the past few months, she experienced bronchial asthma and rhino-conjunctivitis as well. All these symptoms regressed completely when she stopped work for 1 month.

Routine laboratory examination, including total IgE, was normal.

Open patch tests on unaffected skin with all types of tobacco leaf handled by the patient showed a positive wheal reaction after 30 min to several blends (Table 1). The wheals persisted for about 30-60 min. Occlusive patch tests with the standard ICDRG series, fragrances, pesticides, preservatives and the tobacco leaves showed positive reactions to several tobacco blends (Table 1). A prick test with tobacco dust was also positive. We were not able to perform a radioallergosorbent test to tobacco dust.

Open patch tests on 20 volunteers with the same tobacco blends were negative. Occlusive patch tests, however, showed a positive reaction to some of the tobacco blends in 2 of 20 controls. Clinical investigation of the remaining 750 factory workers showed no other cases of urticaria.

Table 1

Open tests	Patient		Controls	
All blend mixture	+	+	+	neg.
Herzegovina	neg.			neg.
Bright (USA)	+	+	+	neg.
Bright (Italy)	+	+	+	neg.
Bright (Brazil)	+	+	+	neg.
Burley (USA)	+	+	+	neg.
Burley (Italy)	+	+	+	neg.
Xanti Yaka	+	+	+	neg.

Patch tests	Patient		Controls	
	48 h	96 h	48 h	96 h
All blend mixture	+	+	+	+
Herzegovina	+	+	neg.	neg.
Bright (USA)	neg.	+	+	+
Bright (Italy)	neg.	+	neg.	neg.
Bright (Brazil)	neg.	neg.	+	+
Burley (USA)	+	+	+	+
Burley (Italy)	neg.	neg.	neg.	neg.
Xanti Yaka	neg.	neg.	neg.	neg.

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