Serious Latex Allergy in a Dental Surgical Procedure: Case Report

Dental Cerrahi Bir İşlemde Ciddi Lateks Allerjisi

Ramazan KÖYMEN,[a]
Zafer ÇALIŞKANER,[b]
A. Eralp AKCA,[c]
Mehmet KARAAYVAZ,[b]
Necdet DOĞAN[a]

Departments of [a]Oral Surgery, [b]Allergy, [c]Periodontology, Gulhane Military Medical Academy, ANKARA

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Yazışma Adresi/Correspondence:
A. Eralp AKCA
Gulhane Military Medical Academy
Department of Periodontology,
ANKARA
akcaeralpy@yahoo.com

ABSTRACT Recently the prevalence and severity of latex allergies have been increasing rapidly as latex is used in the production of more and more medical products. In case of a positive latex allergy history or in case of high-risk patients, exact diagnosis is crucial. Moving towards non-powdered latex gloves in all healthcare settings is the unique way of reducing occupational exposure, thereby reducing further sensitization, and decreasing symptoms in wide population. This case report was presented a patient with severe allergic reaction to latex gloves during dental surgery.

Key Words: Latex hypersensitivity, skin tests

ÖZET Son yıllarda, lateks allerjisinin görülme sıklığı ve şiddeti, lateks'in her geçen gün daha fazla tıbbi üründe kullanılmasıyla artmaktadır. Pozitif lateks allerji hikayesi olan veya yüksek riskli hastalarda kesin teşhis gereklidir. Pudra içermeyen lateks eldivenlerin sağlıkla ilgili yerlerde kullanılması, kullanıma bağlı hassasiyetin azaltılmasında tek yoldur. Bu şekilde hastalarda, daha uzun dönemde oluşacak hassasiyetler ve var olan belirtiler azalmış olacaktır. Bu olgu raporunda, dental cerrahi işlem sırasında lateks eldivene karşı ciddi allerjik reaksiyon geliştirmiş bir hasta sunulmuştur.

Anahtar Kelimeler: Lateks aşırı duyarlılığı, deri testleri

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Latex products have been in usage since the 18[th] century, and latex gloves have become widely utilized since the 1960s particularly in medical use.[1] Latex surgical gloves are an important component of universal precautions and act as a deterrent to the transmission of pathogens such as the Hepatitis B virus and HIV. Any anticipated contact between a health care provider and a patient's blood or body fluids requires the provider to wear gloves. Universal precautions have increased the exposure of health care workers and patients to latex products.[2] This in turn has increased the demand for manufacturers to produce and supply latex gloves, which may have temporarily altered manufacturing procedures, resulting in poor quality, highly allergenic products.[3] However, the reason for the increase remains unclear.[4]

A true latex allergy is a reaction to the latex proteins. Reactions can range from erythema, urticeria through to the most severe reactions characterized by anaphylaxis. Cornstarch, which is sometimes used to make powder gloves easier to put onto make it easier to put them on, binds to the free latex protein and the latex proteins can be aerosolized when putting on and taking off the gloves.[1]

The case report presents a severe allergic reaction which occurred in a hospital staff.

CASE REPORT

A 32-year-old female patient was admitted to the dental clinic with a complaint of pain on the left side of the mandible. Her medical/dental history was recorded before the physical examination with nothing remarkable. Personal and familial history of allergies was also investigated in accordance with our routine clinic practice. She did not describe any complaint that may be related to allergies. Following the clinical and radiological evaluation, an impacted third molar tooth was detected on the left side of the mandible.

Soon after the physical examination, the patient started experiencing chest tightness and having difficulty breathing. Since these complaints might have been indicative of a probable allergic reaction, she was referred to an allergy specialist.

Upon physical examination, the patient was diagnosed with bilateral biphasic rhonchi. After antihistamine injections and short-acting beta-2 agonist inhalation, the symptoms subsided, and no further treatment was required.

The patient was further investigated for allergies and atopy at the Allergy Clinic. Skin prick tests were applied with common inhalant allergens, food allergens and latex allergen. The latex was especially used since she was a nurse, occupational exposure to latex being unavoidable in such situation. Two different latex extracts were used for the skin prick test (Figure 1). One of them was a commercial extract (Stallergens S.A., France) and the other was a fresh, manually prepared extract.

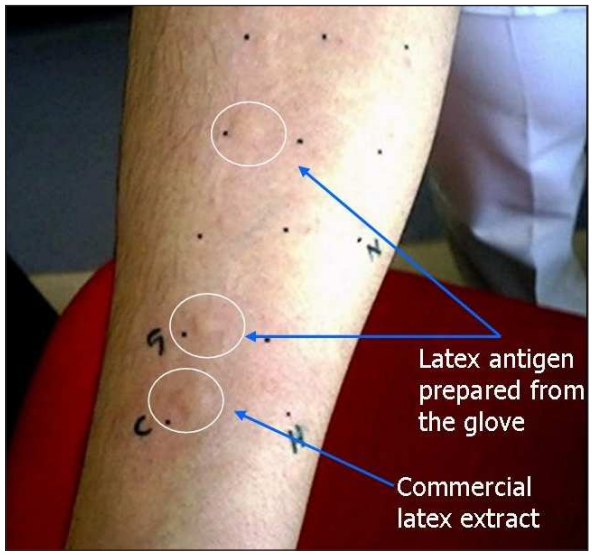

FIGURE 1. Prick test.

(A 100 microgram latex glove was broken into pieces and incubated overnight at +4 degrees Celsius in 10 ml of standardized diluent [0.9% sodium chloride and 0.4% phenol, Center Laboratories, Port Washington, USA]). Positive control (histamine, 10 mg/ml, Stallergens S.A., France) and negative control (scandalized diluent) solutions were also applied. Skin tests with food allergens and aeroallergens came out negative, while the latex tests were strongly positive. A marked wheal and flare reaction of approximately 20 mm had developed due to both of the latex extracts used. The negative control was negative and the positive control was positive. No further challenge tests such as "use test" or "latex-rich room test" were performed since the patient had a risk of having a systemic reaction.

At the end of these assessments, the patient was diagnosed as latex allergy. On the other hand, there was an obvious indication for dental surgery. To perform this operation without any complication, some strict precautions were taken:

First, a latex-free operation room was prepared. Second, a pre-medication protocol was applied (50 mg methylprednisolone at 13 hours, 7 hours and 1 hour prior to the operation, 10 mg chlorpheniramine maleate 1 hour and just before the operation). Third, the operation was performed as the

first one of the day and latex-free gloves and instruments were used by all dental surgeons and medical staff throughout the operation. Finally, the operation was performed under the close observation of an allergy specialist. Vital signs were continuously recorded during the operation and intravenous infusion of saline was administered in case of development of probable severe allergic reaction.

The dental operation was completed without any complications. The patient was also completely symptom-free during the postoperative observation period. The management was successful.

DISCUSSION

Although one of the main causes of allergic reactions for health workers and dentists is usually the use of anesthetic materials, latex allergy is more common.[1] Latex is present in a number of items used in dental surgeries in addition to gloves including latex dam, gutta percha, some prophylaxis cups, mixing bowls, orthodontic elastics, some suction tips, bite blocks, amalgam carriers. Therefore, dental workers are at high risk of developing latex allergy. In a survey carried out by U.S Army dentists[5] 13.7% reported symptoms are related to the use of latex gloves. In a more recent study conducted as part of the American Dental Association's annual health screening 6.2% of the participants among whom were dentists, dental hygienists and dental assistants tested positive for type I hypersensitivity to latex proteins.[6] The prevalence of latex allergy was reported as high in the Turkish population.[7] In the study 41.7% of the participants (health worker) were found to be allergic to latex products. However, 1% of the general population was estimated to be prone to latex allergy.[8] Although the number is low, reactions due to latex vary from allergic contact dermatitis to severe allergic reactions and can lead to serious problems such as anaphylaxis. Furthermore, latex sensitivity will continue to be a major issue as the incidence of atopy in the population appears to be increasing, and probably, exposure to latex will continue.

Although, a variety of plans to decrease latex exposure could be proposed, each would involve cost and compliance issues.[7] Adoption of powder free gloves in medical use would be a good start, as respiratory exposure might be significantly reduced.

The air in dental offices easily becomes contaminated with cornstarch during the replacement of gloves. Therefore, fresh air in dental offices or in hospitals might facilitate the prevention of hypersensitive reactions.

Observed sensitivity reactions generally consist of skin reactions, itching and redness. Dentists should be alerted the signs and symptoms of delayed and immediate hypersensitivity as well as be prepared to treat such medical problems.

In addition, a detailed medical/dental history form should be filled in by all patients and all necessary precautions should be taken in atopic patients. Allergy tests can be suggested for such patients. Currently the skin prick test is the most reliable method of diagnosing latex allergy with a sensitivity of 90% to 95%.[9] However, there are other tests, and any golden standard does not exist for the diagnosing of latex allergy.

We may propose that once a person has been diagnosed with latex allergy, they should always carry a card which indicates their allergic situation. The card may help health workers to take precautions in the treatment of these patients. Clinicians, have to prepare intravenous infusion of saline to administer important medications.

Latex allergy is becoming more frequent and an increase in the prevalence can be anticipated as long as latex products continue to be widely used.

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