

Oral Snake Skin Resulting in Anaphylaxis: How and Why?

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Abstract

Introduction: The use of snake skin, both transdermal and orally comes from ancient Chinese medicine. People eat snake skin for skin disorders, convulsions, gallbladder disorders and hypertension. People also apply snake skin by transdermal way for skin disorders such as sores,boils, itching, psoriasis, scabies, hemorrhoids, eye infections, cloudy spots in the eye..etc. There isn't enough reliable information available about snake skin to know if it is safe or what the side effects might be.

Case: The patient described in the case report has given his informed consent for publication. We present a case of anaphylaxis developed after 10 days of snake skin eating and discharged after 4 days treatment with full recovery.

Conclusion: It must be kept in mind that natural products are not always necessarily safe and also dosages can be important. Availability of exotic foods for different uses is steadily increasing. No matter how developed we are, those who try traditional medicine methods instead of chemical drugs will always be. So we must be careful and always be awake for different food consumptions.

Keywords: Allergens, anaphylaxis, angioedema, snake skin, traditional treatments

Introduction

Availability of exotic foods for different uses is steadily increasing. The use of snake skin, both transdermal and orally comes from ancient Chinese medicine. People eat snake skin for skin disorders, convulsions, gallbladder disorders and hypertension. No matter how developed we are, those who try traditional medicine methods instead of chemical drugs will always be. So, it must be kept in mind that natural products are not always necessarily safe and also dosages can be important.

Case Presentation

A 36-year-old 75 kilos man with no medical history presented to the emergency department complaining of common urticaria, itching and mild shortness of breath. He had itch in the mouth and throat, facial and body urticaria, angioedema and breathing difficulties (Picture 1). In physical examination wheezing was heard due to bronchoconstriction and uvula edema was seen. He had mild hypotension (90/60 mmHg) and heart rate was 110/min. Intramuscular adrenalin 0,5 mg,

intravenous prednisolone 80 mg and ranitidine 50 mg were applied urgently. Salbutamol 0,15 mg/kg was given for one time and nasal oxygen 4 lt/min was started. After 20 minutes, the hemodynamics were more stable (blood pressure 130/80, heart rate 105/min) and he was free of symptoms accept common body and facial urticaria (Picture 2). We also applied feniramine 45,5 mg intravenously against urticaria. He had normal sinus rhythm and no ST-T wave changes. Troponin T and creatinekinase-MB (CKMB) levels were normal. Arterial blood gas results were completely normal. Routine biochemistry and coagulation tests were normal. The percentage of eosinophils was % 6 (normal 0,0- 2,0) , white blood cell count was 14,2 $10^3/\mu\text{L}$ (normal 4,8-10,8) and the other parameters of hemogram were normal. There was no pathology in chest X-ray. He told he hasn't used any medication and has not consumed any different nutrients recently. At the end of 6-hour follow-up at emergency service, he still had urticarial lesions all over the body , so he was hospitalized prednisolone 160 mg/day and feniramine 45,5 mg/day was ordered. Despite this treatment, urticarial lesions were still same the next day. They decreased after drug administer but when the drug effect is over they were same again. Serum tryptase and allergen-specific IgE levels are not measured in our hospital so we couldn't evaluate

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them. We added oral cetirizine 10 mg of single dose in the evenings. On the second day of his hospitalization, we asked if he ate any different nutrient again and then he told us that he has been eating snake skin for the last 10 days. He has been treated for perianal warts for about 20 days with drugs and electrocoagulation by general surgeon and his lesions were about to disappear. After being recommended by relatives to eat snake skin with meals everyday to treat the warts, he bought shed snake skin which was found on mountain skirts. Then he started to consume snake skin by smashing it over his dinner. Another factor in allergy etiology has not been found so we attributed the current clinical picture to snake skin consumption. After 4 days of treatment, he was free of symptoms and discharged with full recovery. He was also advised to use oral cetirizine 10 mg for about 10 days after discharge.

Discussion

To the best of our knowledge, this is the first report of allergic reaction to snake skin which was taken orally. Availability of exotic foods for different uses is steadily increasing as our anaphylaxis example due to snake skin eating. Allergies to food and environmental antigens have steeply grown to epidemic proportions. The most common cause of anaphylaxis are foods. Nutrients are responsible for 33.2% - 56% of anaphylaxis cases¹. The frequency of foods that cause anaphylaxis varies regionally.

The use of snake skin, both transdermal and orally comes from ancient Chinese medicine. People eat snake skin for skin disorders, convulsions, gallbladder disorders and hypertension. People also apply snake skin by transdermal way

for skin disorders such as sores,boils, itching, psoriasis, scabies, hemorrhoids, eye infections, cloudy spots in the eye.. etc. But there is no scientific evidence to rate snake skin for these uses. It is told that snake skin is used in ointments and creams in order to reduce pain and stiffness in some places. There isn't enough reliable information available about snake skin to know if it is safe or what the side effects might be.

In new terminology, anaphylaxis formed by immunological mechanisms such as IgE, IgG, immunocomplex and complement system is defined as immunological anaphylaxis². IgE antibodies are key mediators of allergic disease, including life-threatening anaphylaxis³.

The epidermis of snakes is a multi-layered system consisting of keratin and associated β -proteins⁴. In our patient, symptoms appeared approximately 10 days after the first snake skin consumption. This late allergic reaction may be due to late digestion or non-digestion of keratin in the human gastrointestinal system.

Dietary metal exposure can be readily detected in shed snake skins, including at trace levels of exposure that may be consistent with, or below, environmental exposures. Lead, cadmium and mercury are frequently evaluated as part of wildlife bioaccumulation and health monitoring studies⁵. In developing countries, different herbal or animal resources are frequently consumed as healing and medicine for different diseases. So we have to be careful for heavy metals also.

A study showed that the thickness and lipid content of shed snake skin and human stratum corneum were not significantly different ($p>0.05$), whereas the water content of shed snake skin was significantly lower than that of human stratum corneum ($p<0.05$)⁶. Low water content may make digestion more difficult when snake skin is consumed as



Figure 1: Common urticaria at arrival to emergency service



Figure 2: 20 minutes after the first treatment common urticaria still exists

food and maybe this late digestion could mean longer contact with allergen in our patient.

In the beginning of covid-19 pandemic, there were rumors that the Coronavirus outbreak in China has been caused by a freshwater snake that has been frequently eaten there. The discovery of bioactive remains found in freshwater is thought to be proof of the beginning of biological warfare. It is likely that the current virtual information will be confirmed but it needs more investigation and real scientific publications than possibilities. It should not be dismissed that any food consumed outside the routine can have many risks such as allergies, infections, epidemics..etc.

Conclusion

In developing countries, different herbal or animal resources are frequently consumed as healing and medicine for different diseases. It must be kept in mind that natural products are not always necessarily safe and also dosages can be important. We must be careful against traditional treatment materials (both animal ve herbal) especially those that are not widely consumed because of acute anaphylaxis risk and

both known and unknown toxic side effects due to chronic exposure.

Conflict of interest: The authors have no conflict of interest.

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