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Upper airway edema due to nasal aspiration of undiluted juice of ecbalium elaterium: report of three cases

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Summary

Background:

Ecbalium elaterium, also known as squirting cucumber, is a very well known, among the peoples of the Eastern Mediterranean zone, gherkin-like fruit used ever since the antiquity as a traditional cure for a number of diseases including constipation, rheumatic diseases, sinusitis or even malignancies.

Case Report:

We present three cases of uvular edema due to nasal aspiration of undiluted juice produced from the plant Ecbalium elaterium. All of our patients were treated with oxygen administration, intravenous antihistamines, methylprednisolone and subcutaneous administration of epinephrine and they have been discharged, after a 24-hour period of close observation, in their prior state of health.

Conclusions:

Despite its toxic effect, which can guide to severe allergic reactions or even death, Ecbalium elaterium has also been attributed some interesting properties such as anti-inflammatory and solid tumor-inhibiting. Yet, it must be clarified and established through major series the exact amount, the diluted concentration and the route of administration so this juice so freely given from mother nature to become a useful tool in the management of inflammatory diseases.

Key words:

Ecbalium Elaterium • nasal aspiration • uvular edema • sinusitis

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BACKGROUND

Ecbalium elaterium, widely known as squirting or wild cucumber, is a hairy gherkin-like green plant of which ancient Greeks first as well as others in the region of the Mediterranean described for its use in treating several diseases. The potential anti-inflammatory or toxic effect of the fruit's juice upon a variety of conditions as well as the toxic concentration and dosage has been a matter of discussion. Herein we report three cases of nasal aspiration of undiluted juice of this fruit that led to excessive uvular and soft palate edema

CASE REPORTS

Case 1

A 22-year-old male was admitted to the emergency department with headache, shortness of breath and sore throat with no previous allergic history. He claimed he had aspirated intranasal undiluted juice of squirting cucumber of unknown amount in order to relief the symptoms of acute sinusitis (self-diagnosed) some one to one and a half hour prior to his admission. On arrival he was dyspnoeic and his vital signs were: blood pressure 140-70 mmHg, heart rate 110 bps, SaO₂ 96%. Clinical examination revealed a severe uvular and soft palate edema and hyperemia of the nasal mucosa without any sign of pharyngeal or laryngeal involvement (Figure 1-a). His laboratory findings as well as his ECG were unremarkable except for a sinus tachycardia. Treatment included oxygen administration, 1 gr methylprednisolone, 150 mg ranitidine, 4 mg dimetindene maleate intravenously. Moreover as shortness of breath persisted 2 mg of subcutaneous epinephrine were finally given. After an uneventful 24-hour period of thorough hospitalization the patient was discharged without any symptoms or clinical signs.

Case 2

A 54-year-old male, uncle to prior patient, was admitted to the emergency department with cough, sore throat and drooling. He stated he had also used intranasal undiluted juice of squirting cucumber some 7 hours before to comfort the symptoms he attributed to sinusitis. No history of allergy was known. On admission he was presented with a blood pressure of 110-70 mmHg, heart rate of 82 bps and SaO₂ of 94%, whereas on physical examination severe edema of the uvula together with pharyngeal and soft palate edema were apparently noticed accompanied with severe hyperemia of the nasal mucosa (Figure 1-b). Routine laboratory examination revealed no patho-

logic finding of any kind. He was given supplemental oxygen, 1 mg epinephrine subcutaneously, 1 go methylprednisolone and 4 mg dimetindene maleate. He returned to his previous everyday activities after a 24-hour period spent in hospital for observation while his symptoms resolved.

Case 3

A 26-year-old male Romanian origin immigrant was admitted to the emergency department with a 24-hour history of sore throat and mild dyspoea. He also had used undiluted juice of squirting cucumber intranasal the day before to comfort the symptoms he attributed to chronic sinusitis. No history of allergy was known. On admission he was dyspnoeic and presented with a blood pressure of 140-60 mmHg, heart rate of 96 bps and SaO₂ of 90%. During physical examination expiratory wheezing and a severe uvular and soft palate edema were the main findings (Figure 1-c). Routine laboratory examination was unremarkable. He was given supplemental oxygen, 2 mg epinephrine subcutaneously, 500 mgr methylprednisolone, 150 mg ranitidine and 4 mg dimetindene maleate intravenously at the emergency department. Another 1 mg epinephrine and 500 mgr methylprednisolone intravenously was given during his first day of hospitalization. Two days after the patient was discharged without any symptoms or clinical signs.

DISCUSSION

Nowadays, although the variety of information sources, still a number of folk remedies are in use among various populations. Moreover as the influences and the osmosis between different civilizations are growing these practices become more and more possible. As a result emergency physicians in most, but every internal medicine physician in general, must be aware of such practices and clarify the possibility of their use. Even more, due to the unclear outcome, fatal in some cases, in all patients presenting at the emergency department complaining of throat discomfort, shortness of breath or even more for dyspnoea the possibility of using such substances must be in mind and all the necessary treatment measures must be quickly performed regardless the lack of any allergic history [1-6].

Upper airway edema can be caused by a number of different conditions including the exposure to the substances contained in the juice of the squirting cucumber [1-4]. Allergic reaction to ecbalium elaterium as well as its toxicity is mainly attributed to the contained alkaloids named cucurbitacins [1, 4, 5, 7-9]. These oxidated tetracyclic terpenes have been isolated from the juice of all of the parts of the plant, but

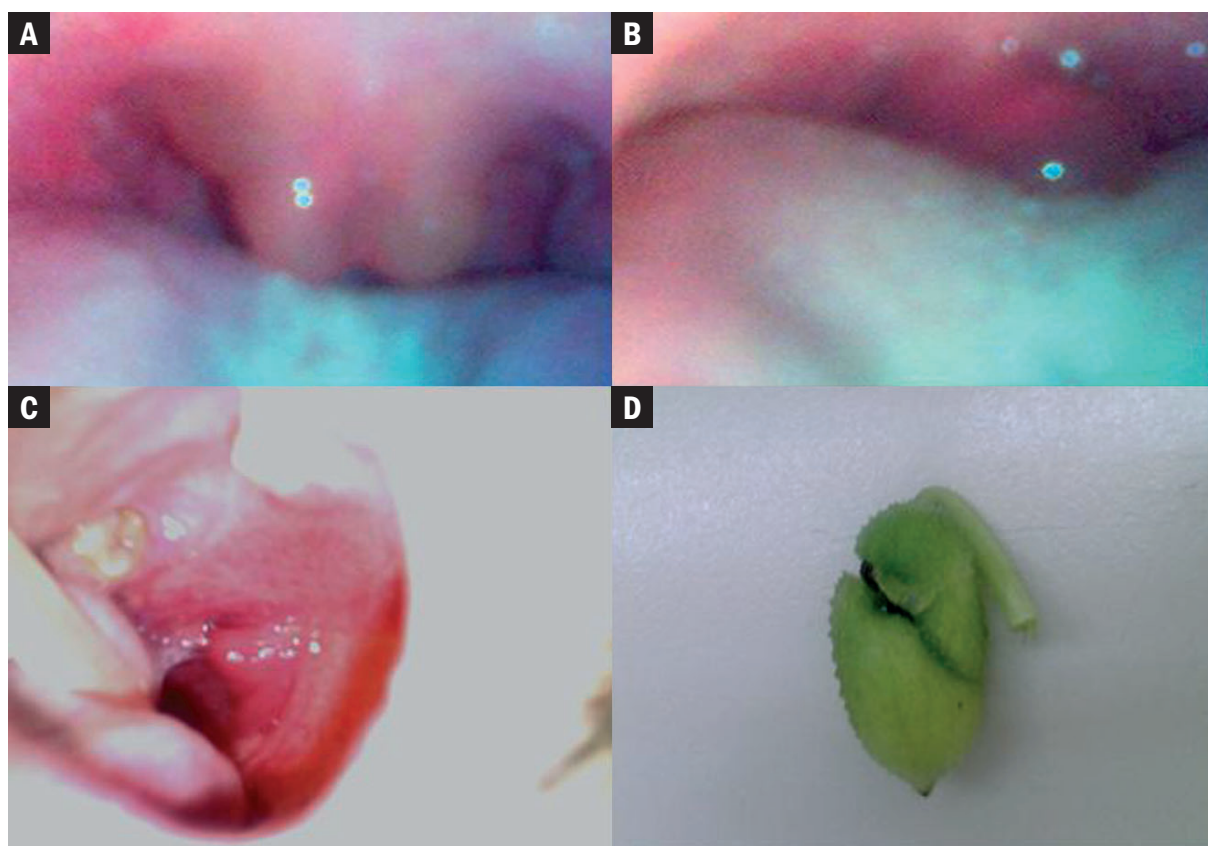


Figure 1. **A.** The intranasal use of the undiluted juice of squirting cucumber caused a severe uvular edema, as this image demonstrate, to this 22-year old male only one and half hour after the use. **B.** This image also demonstrates the effect of the intranasal use of the undiluted juice of squirting cucumber on this 54-year old male, who is uncle to prior patient. **C.** This 27-year old Romanian male presented with upper airway edema almost 24 hours after the intranasal use of the undiluted juice of squirting cucumber. **D.** The squirting cucumber (*Ecbalium elaterium*) fruit.

especially of the fruit [7]. Cucurbitacins B especially have been accused for the allergic reaction initiated by the *ecbaliu elaterium*, produced not only by the nasal but also by the oral and ocular use. So besides the upper airway edema, skin irritation, drooling, inflammation, conjunctivitis, corneal edema, erosion, vomiting, diarrhea, dysphagia, anurea, uremia, neurotoxicity (mainly with manifestation of muscular hypoexcitability, brachypnea and convulsions), dyspnoea and cardio respiratory failure have been described, depending on the route of use and the total dosage [1-9]. Vlachos et al reported a case of a 54-year-old woman from Crete who used repeated doses of diluted juice of the fruit intranasal over a period of 36 hours. She gradually developed severe airway obstruction. Although she was treated with steroids, intravenous fluids, and cardio-respiratory support on day 5 she developed renal insufficiency and passed away the day after due to cardiac failure [9]. On the other hand Kloutsos et al, in a retrospective review including the larger series of patients so far, reported that all have been discharged, with corticosteroids and antihistamines therapy, without the need of modalities such as intubation or tracheotomy, after a variable

period of hospitalization without any further symptom whatsoever [4]. Fortunately, after proper treatment and a brief period of hospitalization, an uneventful outcome occurred in our patients as well.

Despite its toxic effect *ecbaliu elaterium* has also been attributed some interesting properties such as anti-inflammatory and possible solid tumour-inhibiting [4, 8, 10-15]. This is why this plant has widely been used during centuries largely as a folk remedy for inflammatory conditions such as sinusitis and rhinitis. Yet, it must be clarified and established through major series the exact amount, the diluted concentration and the route of administration so this juice so freely given from mother nature to become a useful tool in the management of inflammatory diseases.

CONCLUSIONS

In conclusion, the use of *ecbaliu elaterium* as a folk remedy is still very well familiar to populations originated especially from the Mediterranean and Middle-East region. The juice of this ambiguous fruit contains elements with toxic properties that can cause

severe side-effects of which a doctor must be fully aware, with sometimes dramatic outcome, depending on the route of administration and dosage, even for persons yet not prone to any allergies. Besides that the potent anti-inflammatory therapeutic effects of this fruit as well as the curative result on some diseases

are still unclear even though there are some evidences to justify these properties and some well-designed studies are needed. Our cases finally reflect not only the insufficiency in public health information, but also the inability of modern medicine to prove its reason and dissolve popular misconceptions.

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