

Toad venom poisoning: a case report in Chiang Mai

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Poisoning after consumption of toad has been reported in many countries. The author reported the case of a Thai man who ingested a cooked toad and developed signs and symptoms consistent with acute digitalis toxicity. The patient presented with gastrointestinal symptoms and alternating bradyarrhythmias, and was treated initially with atropine and dopamine intravenously. He was then admitted to the coronary care unit and placed on a temporary pacemaker. Digoxin specific Fab was given as suggested by the Siriraj Poison Control Center. The patient subsequently improved and was discharged after 6 days of admission. **Chiang Mai Medical Journal 2014;53(3):143-145.**

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Toads have toxic substances similar to digoxin in their skin and parotid glands, and consumption of toads can result in signs and symptoms mimicking acute digitalis toxicity. Specific treatment with digoxin specific Fab, as given in the reported case, was proven to help with the patient's outcome.

Case Report

A 51-year-old Thai man was brought to a rural hospital in Chiang Mai, Thailand, with the chief complaint of vomiting and diarrhea that started 1 hour after ingesting a cooked toad. He stated that he had vomited 10 times and passed watery diarrhea without blood or mucous 10 times prior to his arrival at the hospital. His significant medical history showed pulmonary tuberculosis (TB) in the past and chronic obstructive lung disease (COPD), which was currently being treated. His blood pressure at the hospital

was 80/50 mmHg and pulse rate 30 beats/min. He was given atropine intravenously, a bolus dose of normal saline and dopamine IV drip, resulting in some improvement of his heart rate and blood pressure. He was then referred to the facility of this study.

On arrival, the patient was fully conscious. Physical examination revealed bradycardia with irregular rhythm, and coarse crepitation on the auscultation of both lungs. An initial electrocardiogram showed atrial fibrillation with a rate of 60 beats/minute, as shown in Figure 1. Hematologic investigation demonstrated a white cell count of $21.4 \times 10^3/\text{mL}$, hemoglobin at 14 g/dL, hematocrit of 42.3% and platelet count of $171 \times 10^3/\text{mL}$. His metabolic profile showed the following concentrations; sodium at 135 mmol/L, potassium at 7.7 mmol/L, calcium at 8.9 mg/dL, magnesium at 1.9 mg/dL and creatinine at 1.6 mEq/L. The patient was then admitted to

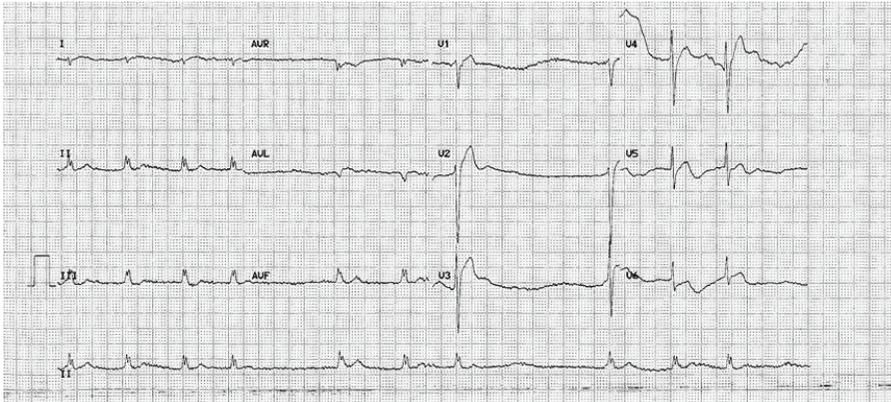


Figure 1. Electrocardiogram showing atrial fibrillation with slow ventricular response

the coronary care unit. By using the immunoassay method, his subsequent laboratory result for digoxin was positive, with a serum concentration of 0.62 ng/mL.

During admission, his electrocardiogram alternated between an atrial fibrillation rate from 30 to 80 beats/min, complete heart block, second degree AV block mobitz II, sinus arrest and junctional rhythm. He was placed on a temporary pacemaker and given 10 vials of digoxin specific Fab, as suggested by the Siriraj Poison Control Center in Bangkok, Thailand. His potassium level was controlled by using bicarbonate, glucose with insulin and sodium polystyrene, and his serum potassium was monitored closely. He was also given Ceftriaxone empirically for diarrhea. The patient was admitted for 6 days. His electrocardiogram returned to sinus rhythm, his potassium level lowered and his diarrhea improved. He was discharged without complication.

Discussion

Poisoning after consumption of toad has been reported in many countries^[1-5]. As Southeast Asia is part of a wide geographic distribution of *Bufo spp*, there should be more cases of toad poisoning recorded in Thailand, but lack of reporting has prevented available data.

As previously reported, toads have toxic substances in their skin and parotid glands^[2]. Inges-

tion can lead to signs and symptoms similar to acute digitalis toxicity; gastrointestinal symptoms and digitalis toxicity-like cardiac effects. Common cardiac manifestations are bradycardia, atrioventricular conduction block, ventricular tachycardia, ventricular fibrillation and sudden death^[2-3]. Laboratory studies may demonstrate hyperkalemia as a result of $\text{Na}^+\text{-K}^+$ ATPase inhibition, and positive digoxin concentration, as cross reaction occurs between toad venom and the serum immunoassay for digoxin.

The first step of treatment for patients with toad poisoning is life support. After stabilization, gastrointestinal decontamination with gastric lavage and activated charcoal should be considered. Treatment of arrhythmia should follow the advanced cardiovascular life support (ACLS) protocol, although bradyarrhythmia might not respond to atropine alone and a pacemaker placement may be required. Calcium administration should be avoided in the case of hyperkalemia, due to the presence of intracellular hypercalcemia from the effect of digitalis-like substance, which may result in synergistic action on the heart, causing cardiac dysrhythmias. Finally, the use of digoxin specific Fab is reported as a life-saving medicine, both in previous studies^[6-7] and this one. As digoxin specific Fab is not available nationwide in Thailand, a challenge is posed for future cases in this and other hospitals that are without such useful medicine.

Although toad poisoning is rare, it is life

threatening. Physicians need good history taking, high index of suspicion, good standard of laboratory study and prompt life-saving care measures together with digoxin specific Fab, in order to provide care for patients. Nevertheless, patient education also is essential in preventing such environmental hazards.

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รายงานผู้ป่วยได้รับพิษจากคางคกในจังหวัดเชียงใหม่

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มีรายงานการได้รับพิษจากคางคกในหลายประเทศ ผู้นิพนธ์นำเสนอรายงานผู้ป่วยชายไทยที่มาตรวจด้วยอาการและอาการแสดงของพิษจากดิจิทาลิส (digitalis) หลังจากรับประทานคางคก ผู้ป่วยมีอาการทางระบบทางเดินอาหารร่วมกับภาวะหัวใจเต้นช้าผิดปกติ (bradyarrhythmia) หลายรูปแบบ โดยได้รับการรักษาด้วยยา atropine และ dopamine ทางหลอดเลือดดำ ก่อนรับไว้รักษาตัวในหน่วยอภิบาลโรคหัวใจ ขณะรักษาตัวผู้ป่วยต้องใช้ตัวคุมจังหวะหัวใจชั่วคราว (temporary pacemaker) ร่วมกับการรักษาด้วย digoxin specific fab ตามคำแนะนำของศูนย์พิษวิทยา หลังจากรักษาผู้ป่วยมีอาการดีขึ้น และถูกจำหน่ายออกจากโรงพยาบาลหลังจากเข้ารับการรักษาตัวทั้งสิ้น 6 วัน **เชียงใหม่เวชสาร 2557;53(3):143-145.**

คำสำคัญ: ภาวะเป็นพิษ คางคก