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LETTER TO THE EDITOR



Recurrent supraventricular tachyarrhythmia following *Ranunculus acris* ("Meadow Buttercup") ingestion

Dear Editor,

A 59-year-old previously healthy man was brought to the emergency department (ED) with gastro-intestinal symptoms. He did not use tobacco, alcohol or medications. He had, that morning, decided to taste for breakfast a plant picked from his garden and ate an entire plant mixed with eggs and bacon. About three hours later, he felt faint and complained of headache, dizziness and hot flushes. He lost consciousness for a few seconds. The relatives observed no tonic or clonic movements. On the way to the hospital, one hour later, he developed epigastric and thoracic pain. He also described the sensation of having paralyzed legs, although these moved perfectly well. At admission in the ED, vital signs were as follows: heart rate, 113 beats per minute, blood pressure, 89/58 mmHg, oxygen saturation (as measured by pulse oximetry), 100%, and temperature, 36.7°Celsius. The physical examination showed a sweaty and pale patient with tongue ulcerations (Figure 1) and marked bowel sounds. He vomited twice at admission, with fragments of a partially digested plant. His wife brought a similar plant collected in the same part of the garden, allowing the identification of *Ranunculus acris* (meadow buttercup) species (Figure 2). The relevant laboratory findings were: arterial pH 7.47, lactate 4.7 mmol/l (<2.2), potassium 3.8 mmol/l, magnesium 0.81 mmol/l, troponin-T 9 pg/ml (<20). He presented two prodromal syncopes with brief loss of consciousness. During the observation period of 6 hours, repeated electrocardiograms (Figure 3) demonstrated alternating episodes of atrial and junctional rhythms with supraventricular bigeminy. There were several episodes (>5) of transient and spontaneously reversible atrial tachycardia originating from multiple



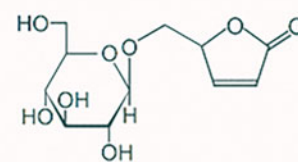
Figure 1. Multiple tongue ulcerations.

atrial foci. Amiodarone (300 mg) was administered intravenously after the third episode. No activated charcoal was given. The patient was discharged on day 2 with a normal ECG and echocardiography.

Ranunculus acris, more commonly known as meadow buttercup, is a herbaceous plant of the genus *Ranunculus* and the family *Ranunculaceae* that is distributed worldwide, mainly in the temperate regions of the Northern Hemisphere. Its flower is a glossy yellow color and has five overlapping petals. All buttercups contain a compound called ranunculin, which breaks down to an unpleasant bitter toxin called protoanemonin when the leaves of the plant are damaged [1]. Protoanemonin is unstable and transformed into anemonin which seems devoid of toxicity. To date, there is no report of human intoxication with *Ranunculus acris* probably because the plant is so excruciatingly bitter. Data extrapolated from animal poisoning cases suggest that this toxin may cause dermatitis with various symptoms such as burning, pruritus, along with rashes and blisters [2,3]. If the leaves are chewed, this can induce severe stomatitis with swelling, burns and ulcerations, and if swallowed, severe gastrointestinal irritation may follow, accompanied by dizziness, spasms and paralysis [2,3]. The toxic oil is also irritating to the eyes. The originality of our case is that the patient



Ranunculus acris
(meadow buttercup)



Protoanemonin structure

Figure 2. Plant collected by the patient's wife and identified as *Ranunculus acris* (from: A Colour Atlas of Poisonous Plants, Frohne D and Pfänder HJ, Eds, Wolfe Publishing Ltd, Germany, 1984, p.261). Chemical structure of protoanemonin formed by hydrolysis of ranunculin.

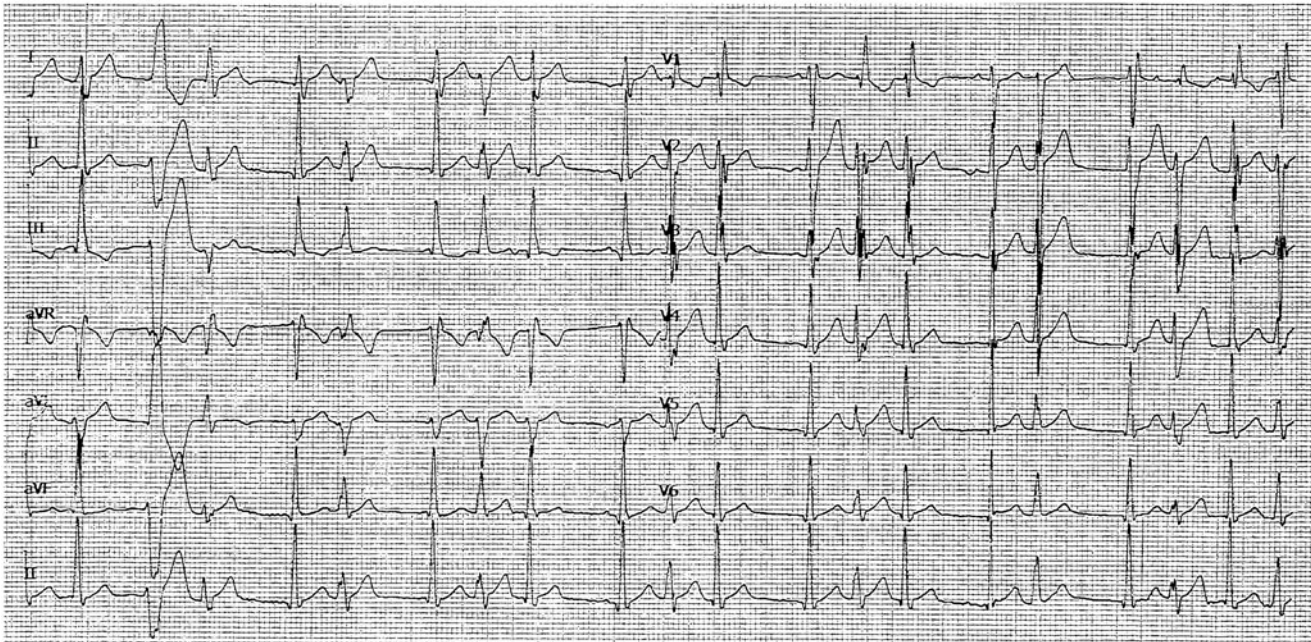


Figure 3. Electrocardiogram demonstrating alternating atrial ectopic and junctional rhythms with short coupling supraventricular bigeminy conducted with rate dependant (phase 3) incomplete right bundle branch block. Frequent premature ventricular contractions (see second beat) interrupted this rhythm.

presented, in addition to gastro-intestinal symptoms and tongue ulcerations, recurrent supraventricular tachyarrhythmia with syncope in the absence of pre-existing cardiac abnormalities or underlying ionic disorders. The underlying mechanism is likely an increased excitability at supra- and ventricular level. The resolution of cardiac symptoms seems more in relationship with the short duration of the toxin rather than with the administration of an antiarrhythmic drug.

Informed consent

A written consent was obtained from the patient.

Disclosure statement

No potential conflict of interest was reported by the authors.

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