

CASE REPORT

BEYOND THE PLEASURE PRINCIPLE - FATAL CARDIAC ARRHYTHMIAS AFTER INGESTION OF AN HERBAL MEDICATION

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There is increasing popularity in the use of herbal medicine for different ailments as these natural products are considered safer than conventional medicines; however, their use in dosage exceeding prescribed limits can result in serious toxic side effects. We present a case of a 63-year-old male who presented with complaints of restlessness, nausea, vomiting and tingling sensation on his body and ECG evidence of bi-directional ventricular tachycardia. On interrogation, it was revealed that the patient had self-prepared and consumed large quantity of an herbal medication (containing toxic aconite roots) as therapy for erectile dysfunction resulting in a fatal outcome.

Keywords: Herbal medicine; Erectile dysfunction; Bi-directional ventricular tachycardia

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INTRODUCTION

There is a trend towards increasing use of herbal medicines for treating different ailments like joint pain, headache, abdominal pain, anxiety, etc. The increasing acceptability of herbal medicine use is the perception that they are safe, cheap, and easily accessible.¹

Patients suffering from erectile dysfunction are usually diffident to disclose their sexual problems to their treating physicians. They tend to seek alternative therapies and herbal supplements are perceived to be a safer and effective option.² There is a tendency for self-medication and using larger than prescribed quantities of herbal medications to get the desired effect, this can lead to intoxication as some herbs contain heavy metals and alkaloids which can result in multi-systemic toxic side effects.

Bi-directional ventricular tachycardia is an uncommon and unique arrhythmia with extremely limited differential diagnoses.³ We present a case of bi-directional ventricular tachycardia and refractory bradyarrhythmia occurring after acute ingestion of large quantity of a multi-herb compound with a devastating clinical course.

CASE REPORT

A 63-year-old hypertensive and diabetic gentleman with prior history of coronary artery bypass graft surgery presented to the cardiac emergency department during early morning hours with complaints of restlessness, nausea, vomiting, tingling sensation on his body and face for the last 2 hours. The patient was well till the day before. On examination, the patient appeared restless and confused, diaphoretic, was retching and vomiting, pulse was fast and irregular, blood pressure was 105/68 mmHg, respiratory rate of 26 breaths/min, pulse oximetry of 96% on room air, rest of the systemic examinations were unremarkable. Initial ECG showed irregular wide QRS

complex tachycardia with alternating left and right QRS axis on frontal plane, consistent with bi-directional ventricular tachycardia. (Figure-1)

On further probing into the history, the family members disclosed that the patient was suffering from erectile dysfunction and had used an herbal medication advised by a local “Hakeem”. The spouse revealed that the medication was prepared by the patient at home as per the “Hakeem’s” prescription and was instructed to use it in a total dose of approximately 100 grams by weight. The patient consumed this medication but did not achieve the desired result. Feeling desperate, the other night he himself packed the multi-herb preparation into two large size home-made capsules and consumed them for the desired result (this dose would be tantamount to more than 15 times of the prescribed dose). It was soon after consuming this treatment, that the patient developed the symptoms. The “formula” had the following main ingredients - *meetha telia* (aconite root), *shingraf roomi* (cinnabar), *jund be dostar* (castoreum) and *javitri* (mace).

Laboratory tests revealed raised total leucocyte count of $17.0 \times 10^9/L$, arterial blood gas analysis showed pH of 7.17, CO₂ 22.1, HCO₃ 10.5, O₂ sat. 96% and base deficit of 19.1, Covid-19 PCR was negative. Echocardiography showed akinetic inferior wall, inferior ventricular septum with estimated EF of 45–50%. Chest X-ray was unremarkable.

The patient was started on intra-venous fluids, IV magnesium, IV betablockers and amiodarone infusion. He continued to be restless with retching and vomiting and had repeated episodes of bidirectional ventricular tachycardia without significant hemodynamic instability. Some improvement noted in frequency of ventricular arrhythmias was noted. (Figure-2). After 2 hours on amiodarone infusion, the patient had sudden development of bradycardia with asystole

followed later by ventricular escape rhythm at a rate of 20–25 beats/min. (Figure-3). Immediate cardiopulmonary resuscitation (CPR) was instituted, and patient was intubated and put on mechanical ventilation. Temporary transvenous pacing was commenced. Unfortunately, the patient had aspirated gastric contents during intubation attempts; hence broad-spectrum IV antibiotics were initiated, and supportive care was continued. Following this event, the patient developed hypotension and vasopressors were started. After 2 hours, the patient again developed asystole with ventricular standstill, the asystole was refractory to treatment with atropine, he did not respond to 25 minutes of effective CPR and was finally declared expired.

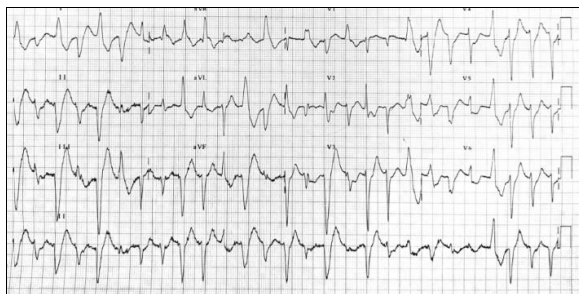


Figure-1: Wide QRS complex tachycardia with beat to-beat change in the morphology and axis of the QRS complexes consistent with bidirectional ventricular tachycardia



Figure-2: Amiodarone infusion resulting in reduction in the rate of bidirectional ventricular tachycardia



Figure-3: Development of bradycardia with brief salvos of ventricular tachycardia and intervening sinus pauses

DISCUSSION

The use of plant products and herbs for treatment of different diseases is historical. Herbal remedies are widely used for the treatment of various illnesses. In recent years, herbal and alternative medicine is being increasingly used in both developed and developing countries.¹ However, improper uses may be harmful.

Patients suffering from erectile dysfunction (ED) are usually diffident to disclose their sexual problems to their treating physicians. There is search for alternative therapies and they are likely to get recommended herbal medicine as a safer, effective, and easily accessible option.² In the Indian subcontinent, “Hakeems” - physicians who practice Unani traditional medicine system, are frequently consulted for ED and they prescribe multiple herbs combined in the form of a traditional “formula.” Our patient used a multi-herb supplement for erectile dysfunction and the substance in the prescription that was related to arrhythmias was “*meetha telia*” which is derived from aconite roots. Raw aconite roots are toxic and must be adequately pre-processed to reduce their alkaloid content.

The genus *Aconitum* (Ranunculaceae) contain alkaloid toxins, such as aconitine, which have been related to gastrointestinal, neurological, and cardiac toxicity.⁴ Aconitine binds to the voltage sensitive sodium channel in its open state and delays repolarization by prolonging influx of sodium and membrane depolarization which promotes early afterdepolarization. There is also activation of the sodium-calcium exchanger resulting in transient inward current and development of delayed afterdepolarization.⁵

Half-life of aconitine is reported to be approximately 3 hours and the resultant toxicity may persist for 30 hours.⁶ Patients with acute aconite poisoning can develop symptoms within an hour of ingestion and can present with nausea, vomiting, paraesthesia, and numbness affecting the mouth and limbs. Ventricular tachyarrhythmias especially bidirectional ventricular tachycardia and refractory cardiovascular collapse as well as bradyarrhythmias have been observed due to intense vagal stimulation by aconite.⁷

Since the first report of bidirectional ventricular tachycardia (BVT) by Schwensen in 1922,⁸ only few disparate aetiologies have been associated with this arrhythmia including digoxin toxicity, catecholaminergic polymorphic ventricular tachycardia,⁹ familial hypokalemic periodic paralysis, acute coronary ischemia,¹⁰ aconitine poisoning, Andersen–Tawil syndrome, fatty replacement in right ventricle, tumour of the ventricle, fulminant myocarditis and left ventricular noncompaction. The

classic ECG presentation comprises of tachycardia with predominant right bundle branch block (RBBB)-like configuration in lead V1 with alternating left and right shift of the frontal plane QRS axis. Alternating left and right bundle branch block-like morphologies have also been reported. Postulated mechanisms suggest a single focus in the proximal His bundle or bundle branches with alternating left fascicular block, or single or double foci in the distal His Purkinje system as well as reentry.³

Management of aconite poisoning is generally supportive. No specific antidote exists. Ventricular arrhythmias are often refractory to antiarrhythmic medications, but amiodarone and flecainide have been used with benefit. Electrical cardioversion is often ineffective as aconite toxicity potentiates persistent sodium channel activity. Hypotension is treated with vasopressors and inotropes and atropine or pacing therapy is utilized for clinically significant bradycardia. Finally, early use of mechanical circulatory support should be considered in case of hemodynamic instability.⁵

CONCLUSION

Our case provides an example of the potential devastating side effect of self-medication. Concomitant use of alternative medications for different ailments can confound and delay identification and correct management of disease conditions and their use should be suspected when confronted with a devious clinical presentation.

Educational campaigns targeting the public as well as the medical community should be implemented to highlight acute intoxications caused by improper use of certain herbal-derived products.

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