



### Case Report:

#### An interesting case of suicidal poisoning

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#### Abstract:

Aconite is one of the most poisonous known herbs. It has been known to be used as a homicidal poison from long time in history. However this is rarely known to be used as suicidal poisoning. Poisoning with aconite is usually fatal and death commonly occurs due to arrhythmias and cardiotoxicity. We report a case of attempted suicidal poisoning by aconite where patient survived in spite of documented cardiotoxic effects of the poison.

**Key Words:** Suicidal poisoning, aconite, mohra

#### Introduction:

Aconite tubers are most toxic wild plants distributed from Asia to western Europe.<sup>1,4</sup> It was notorious in the 19<sup>th</sup> century as an agent for homicides and suicides. Aconite was believed by the Greeks to be the first poison created by the goddess Hecate from foam of the river Cerebrus.<sup>5</sup> Before the birth of Christ it was known as 'queen mother of all poisons'. Aconite was also known to Hindu medicine as recorded in Vedas around 900 BC.<sup>6</sup> The Lepchas of Sikkim have a saying that Aconite is 'useful to hunters for destroying elephants and tigers, useful to the rich for putting troublesome relatives out of the way and useful for jealous husbands for destroying faithless wives'. The Lepchas are believed to have poisoned the water supply of British troops with powdered aconite in the expedition of 1887.<sup>5</sup> Indian Aconite root or Nepal Aconite consists of the root of *A. laciniatum*. It is also called Bikh or Bish, and is collected in Nepal. It is a conical root, 2 to 4 inches long and an inch or more at the top, of a light brown color. Other varieties of Aconite are *A. chasmanthum*, known in India as Mohri and Mohra, which contains Indaconitine. Aconite is common in the Himalayas. In the state of Himachal Pradesh it occurs sporadically in many areas. In traditional medicine aconite is used externally in mustard oil for massage in neuralgia, paralysis and rheumatism. Root is used in diseases such as Leprosy and Cholera, and as a tonic in diarrhea and cough.<sup>7</sup> Aconite has been used as Chinese herbal medicine, which are freely purchased from herb shops and used as decoction by herbal practitioner for pain control.<sup>8</sup> In Japan, some cases of aconite poisoning appeared as result of

committing suicide or accidental ingestion, mistaken for edible grass. However aconite alkaloids have potential of serious and even fatal cardiotoxicity, which is difficult to manage. It has still remained difficult to save these patients with therapeutic resistant fatal arrhythmias.<sup>9,10</sup> We are reporting a case of suicidal poisoning with a herb locally known as mohri or mohra, the local name for aconite.<sup>11</sup>

#### Case Reports:

A 30 years old female patient was referred from a primary health centre with diagnosis of unknown herbal poisoning. The name of the alleged poison was mentioned as 'mohra' in the medicolegal case report attached with the referral slip. Patient's attendants told that when patient's husband returned home from work in the evening she was anxious and had two episodes of vomiting. Her seven year old son told that the patient had consumed a herb known as 'mohra'. Patient's attendants knew this herb to be a very poisonous herb which grew in the forest near the village and caused fatal poisoning. Attendants had this knowledge from local hearsay and also reported that this herb was available with local quacks and religious healers and was used in preparing medicines.

On further questioning they described the herb found with the patients as dry woody roots. Patient was asymptomatic apart from having restlessness and feeling of suffocation and nausea. Physical examination was unremarkable apart from occasional irregular beats in pulse and the patient was hemodynamically stable. Electrocardiogram showed presence of ventricular ectopics (Fig-1)

The treating doctors did not know about the herb but based on the description of the herb and presence of ectopics in the ECG possibility of aconite poisoning was kept and patient was shifted to cardiac care unit for continuous ECG and hemodynamic monitoring. Patient's attendants were shown pictures of aconite plant and roots and recognized these as those consumed by the patient. Patient was managed conservatively and improved. ECG changes reverted to normal after one day (Fig-2). Patient subsequently remained asymptomatic and was discharged after five days.



Figure 1

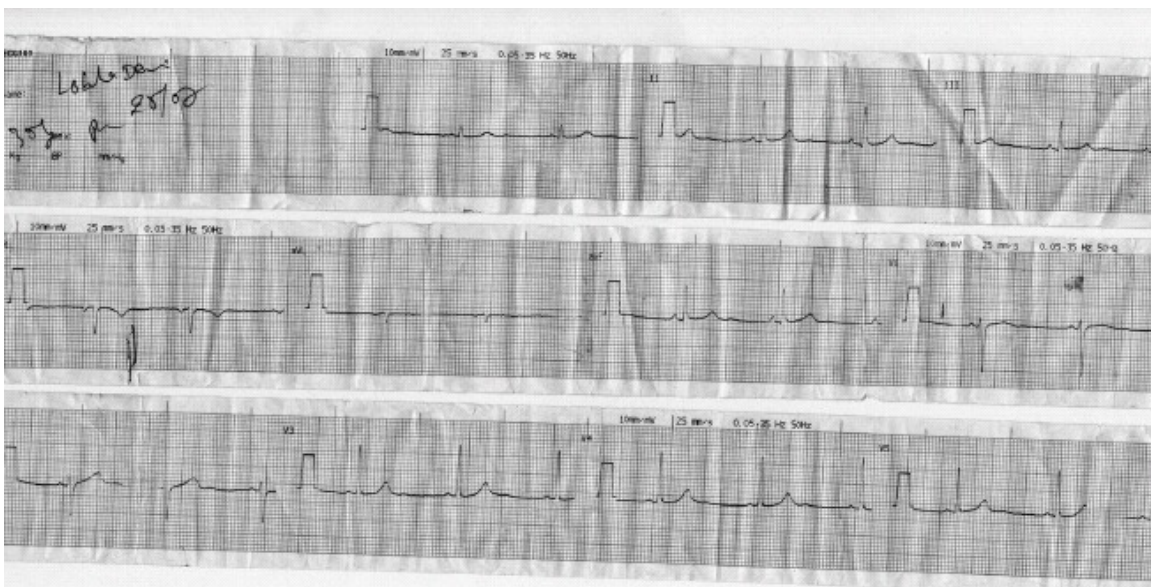


Figure 2

### Discussion:

Aconite was used throughout Europe as a wolf poison, and in India as a tiger poison, lacing meat left for the man-eaters to scavenge. Several of its common names allude to this value: Wolfsbane, Leopard Bane, Tiger Bane, Dog's Bane, & occasionally, a mite absurdly, Wolf's Hat. It was even called Mousebane, because of the belief that its odour could kill a mouse at a great distance. Aconite root contains from 0.3 to 1 per cent alkaloidal matter, consisting of Aconitine - crystalline, acrid and highly toxic - with the alkaloids Benzaconine (Pieraconitine) and Aconine.<sup>12</sup> Aconitine is the only crystallizable alkaloid in it and amounts to less than 0.2 percent. The Aconitines are a group of highly toxic alkaloids derived from various species of Aconite. They are chemically distinguishable according to the source from which they are obtained. The Aconitines are divided into two groups: (1) the Aconitines proper, including Aconitine, Japaconitine and Indaconitine, and (2) the Pseudoaconitines - Pseudoaconitine and Bihhaconitine.

The symptoms of poisoning are tingling and numbness of tongue and mouth and a sensation of ants crawling over the body, nausea and vomiting with epigastric pain, difficult breathing, irregular and weak pulse, cold and clammy skin, giddiness with preserved sensorium.<sup>12</sup> Aconite alkaloids have potential of serious and even fatal cardiotoxicity, which is difficult to manage. It has still remained difficult to save these patients with therapeutic resistant fatal arrhythmias.<sup>9,10</sup> Mechanistically, aconitine increases sodium influx through the sodium channel, increasing inotropy while delaying the final repolarization phase of the action potential and promoting premature excitation Sinus bradycardia and ventricular dysrhythmias can occur. Symptoms can occur from 5 minutes to 4 hours after ingestion.<sup>5</sup>

This patient had typical symptoms of aconite poisoning including nausea, vomiting, epigastric discomfort and weak, irregular pulse. Patient was in hypotension and had ventricular ectopics in her ECG. The patient improved with conservative management and didn't develop other arrhythmias. This relatively benign course may be because poison consumed had probably been processed for medicinal use. Though aconite is considered to be an ideal homicidal poison for many reasons, it has also been used for suicide at many occasions. But not all deaths have been intentional homicides or suicides, for Monkshood is sometimes mistaken for fennel or horseradish or other edible plant, as even the species name *napellus* or "Little Turnip" alludes to its resemblance to something edible.<sup>12</sup> Aconite chasanthamum is the most commonly used species among the poisonous species of aconite. It is used in a number of medicines after mitigation/detoxification. Detoxification usually involves soaking aconite roots in cows urine for several weeks or prolonged boiling for as long as 48 hours.<sup>11</sup> According to an article by the Indian scientists Thorat and Dahanukar, "Crude aconite is an extremely lethal substance. However, the science of Ayurveda looks upon aconite as a therapeutic entity. Crude aconite is always processed i.e. it undergoes 'samskaras' before being utilized in the Ayurvedic formulations. This study was undertaken in mice, to ascertain whether 'processed' aconite is less toxic as compared to the crude or unprocessed one. It was seen that crude aconite was significantly toxic to mice (100%) mortality at a dose of 2.6

mg/mouse) whereas the fully processed aconite was absolutely non-toxic (no mortality at a dose even 8 times as high as that of crude aconite). Further, it says "all the steps in the processing were essential for complete detoxification".<sup>13</sup> This patient had consumed aconite in the form of a dry root which is some times kept by faith healers and quacks for medicinal purposes. She took it with the intention of committing suicide but survived, may be because the dried roots of aconite kept for medicinal use are usually processed by various methods mentioned above. This case was unique because despite of being touted as an ideal homicidal poison aconite is very uncommonly implicated or even suspected in poisonings. Survival after aconite ingestion is even less common. Even more intriguing is the fact that given the relatively easy availability, ease of administration, simulation of natural illness by symptoms and difficulties in isolating poison from viscera.<sup>5</sup> It still remains a rare cause of poisoning deaths. Or is it that it is not just suspected to be!

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