


CASE REPORT OPEN ACCESS

Aconite Poisoning: From Crisis to Healing

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ABSTRACT

Early recognition and prompt intervention are crucial in managing aconite poisoning. Rapid treatment with intravenous magnesium sulfate and amiodarone can stabilize severe cardiac arrhythmias. Vigilant monitoring and tailored therapeutic strategies enhance recovery and improve patient outcomes in acute poisoning cases.

Taxonomy Classification: Acute Medicine, Cardiology, Critical Care Medicine, Emergency Medicine

1 | Introduction

Aconite, commonly known as monkshood or wolfsbane, is a highly potent herb utilized in traditional medicine, particularly within Chinese and Indian practices, for its purported therapeutic effects [1]. Despite its long history of medicinal use, aconite is infamous for its severe toxicity, which has resulted in numerous cases of poisoning and even fatalities [2]. The primary toxic effects of aconite are attributed to its alkaloid components, such as aconitine, which interfere with cardiac and neurological functions [3]. These effects can be life-threatening, manifesting as arrhythmias, bradycardia, hypotension, and a range of gastrointestinal and neurological symptoms [4]. The clinical presentation of aconite poisoning is diverse and can progress rapidly, making early diagnosis and intervention crucial. Symptoms typically include vomiting, diarrhea, abdominal pain, and generalized sweating, followed by cardiovascular symptoms such as palpitations and bradycardia [5]. Neurological manifestations may also occur, including paresthesia, confusion, and seizures [6]. The rapid onset of symptoms often complicates the clinical management, as timely intervention is essential to mitigate the toxic effects before they become irreversible [7].

Management of aconite poisoning generally involves supportive care and specific therapeutic interventions aimed at stabilizing the patient's condition. Immediate treatment typically includes the administration of intravenous fluids, antiarrhythmic agents, and other supportive measures to manage cardiovascular instability [8]. Magnesium sulfate and amiodarone are commonly used to address arrhythmias associated with aconite toxicity [9]. However, the use of activated charcoal in the acute setting of aconite poisoning remains contentious. Although activated charcoal is effective in reducing the absorption of many toxins, its efficacy in aconite poisoning is debated because of the rapid absorption of aconitine and the potential for exacerbating gastrointestinal symptoms [10].

Recent guidelines and literature emphasize the importance of early recognition and aggressive treatment in managing aconite poisoning. Studies have demonstrated that prompt administration of supportive care and pharmacological treatments can significantly improve outcomes and reduce the risk of severe complications [11]. In cases where specialized toxicology services are unavailable, telephonic consultation with poison control centers or toxicology experts may provide valuable guidance on managing such complex cases [12].

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This case report details the clinical management of a 45-year-old female who ingested aconite along with other herbal medicines, highlighting the intricacies involved in diagnosing and treating aconite poisoning. The report underscores the need for a multidisciplinary approach to patient care, involving both immediate and ongoing management strategies to ensure optimal recovery. By examining the diagnostic challenges and treatment interventions in this case, we aim to contribute to the broader understanding of aconite toxicity and enhance clinical practices for managing such poisonings [13].

Thus, aconite poisoning presents significant challenges because of its severe toxicity and rapid progression of symptoms. Effective management requires a combination of supportive care, pharmacological treatment, and, where possible, consultation with toxicology experts. This case highlights the critical importance of early intervention and coordinated care in improving patient outcomes and addressing the complex issues associated with aconite poisoning.

2 | Case History/Examination

A 45-year-old female presented to the emergency room after ingesting aconite along with other herbal medicines as a remedy for abdominal pain. Aconite is known for its potent cardiotoxic effects and its consumption can lead to symptoms including vomiting, diarrhea, sweating, and episodic palpitations shortly after ingestion. These symptoms, coupled with vital signs indicating a blood pressure of 100/70 mmHg, pulse of 54 bpm, respiratory rate of 28 bpm, temperature of 99°F, and oxygen saturation of 97%. The patient also exhibited pupillary changes known as hippus—alternating contraction and dilatation of the pupils—an indication of aconite toxicity.

3 | Methods (Differential Diagnosis, Investigations, and Treatments)

Electrocardiogram (ECG) findings revealed ventricular arrhythmias with frequent premature ventricular contractions (PVCs), confirming significant cardiac involvement due to aconite ingestion (Figure 1). Prompt diagnostic evaluations, including a complete blood count (CBC), renal function tests (RFT), liver function tests (LFT), creatine kinase (CK), serum calcium levels, and coagulation profile (PT-INR), all returned within normal limits, suggesting that the toxicity primarily affected the cardiovascular system without widespread systemic impact.

During the management of this case, there was no immediate contact with a specialized poisoned referral center because of the proximity of such services. However, telephonic consultation with a toxicology expert was sought, who advised on standard protocols for aconite poisoning. Active charcoal, often used to mitigate the effects of certain poisonings, was not administered as the patient's rapid onset of symptoms and potential for worsening gastrointestinal symptoms made its use less appropriate in this acute phase. Future cases should consider the use of activated charcoal if ingestion is recent and gastrointestinal symptoms are manageable.

Management in the ER focused on immediate supportive care and targeted interventions to stabilize the patient's cardiac rhythm. Intravenous administration of magnesium sulfate (2g) and amiodarone (150mg over 15 min) was initiated to manage the observed arrhythmias effectively. These pharmacological treatments are standard in cases of aconite poisoning to counteract the toxic effects on the heart and restore normal cardiac function.

Following stabilization in the ER, the patient was transferred to the Intensive Care Unit (ICU) for continued monitoring and intensive management. ICU admission was crucial to closely monitor her cardiac status and ensure timely intervention for any potential complications. During her ICU stay, the patient experienced one episode of bradycardia (34 bpm), which was promptly managed with intravenous atropine (0.6 mg). This event underscored the dynamic nature of cardiac instability in aconite poisoning and highlighted the necessity for vigilant monitoring and prompt intervention in critical care settings.

4 | Conclusion and Results (Outcome and Follow-Up)

By Day 3 in the ICU, the patient's condition had significantly improved, with resolution of acute symptoms and stabilization of vital signs. She was subsequently transferred to the medicine ward for further observation and rehabilitation. Close monitoring of cardiac function, electrolyte balance, and neurological status continued during her ward stay to ensure comprehensive recovery and early detection of any potential relapse or complications. The patient reported that the aconite was consumed as part of a traditional herbal remedy, with the exact dosage unspecified but likely above the recommended therapeutic dose. The preparation was sourced from a local herbalist, and the patient did not verify the dosage or toxicity information provided. This underscores the need for proper labeling and education regarding the use of potent herbal substances.

Discharge on the 5th day marked a successful outcome, as the patient had fully recovered from the acute episode of aconite poisoning. At a 1-week follow-up visit, all clinical examinations and investigations remained within normal limits, confirming sustained recovery and absence of residual effects from the ingestion. This positive outcome underscores the effectiveness of early recognition, prompt medical intervention, and coordinated multidisciplinary care in managing aconite toxicity.

5 | Discussion

Aconite poisoning remains a critical and complex clinical challenge because of its severe toxicity and rapid onset of symptoms. This case report presents a unique example of aconite poisoning involving a 45-year-old female who ingested aconite alongside other herbal medicines. The patient's presentation was notable for the swift development of symptoms including vomiting, diarrhea, and significant cardiac arrhythmias, illustrating the potent effects of aconite on the cardiovascular system [1]. The rapid progression of these symptoms underscores the urgency required in managing such cases.

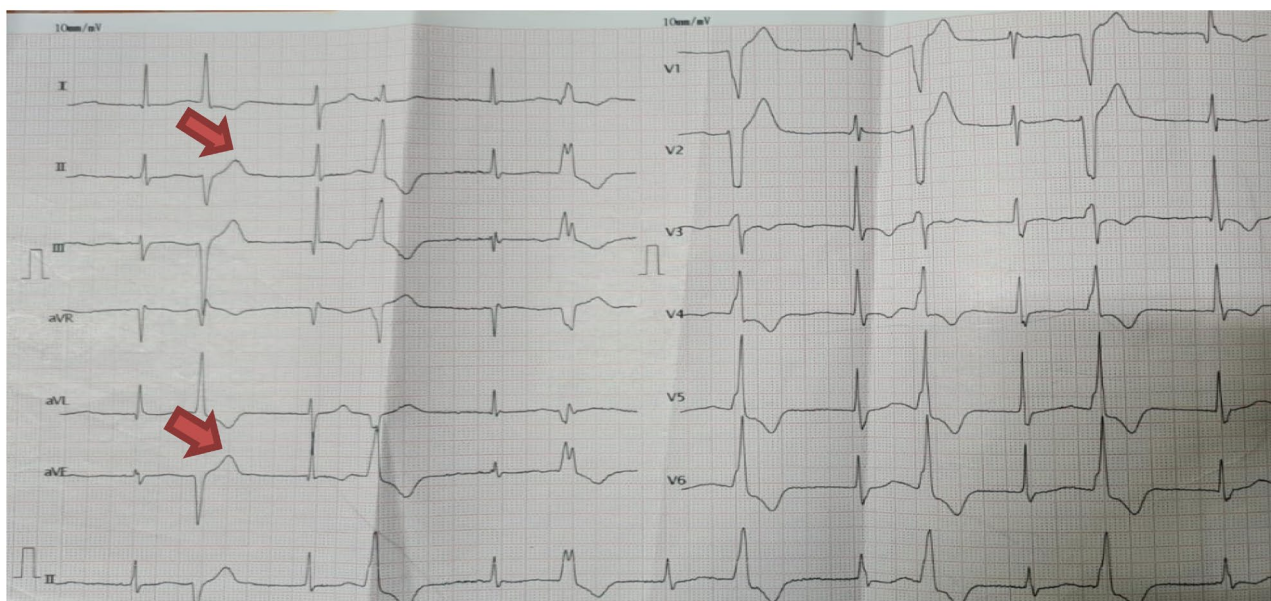


FIGURE 1 | Electrocardiogram (ECG) findings revealed ventricular arrhythmias with frequent premature ventricular contractions.

The clinical manifestations in this case, particularly the presence of hippus—an alternating contraction and dilation of the pupils—served as a significant diagnostic marker of aconite toxicity [4]. Although hippus is a well-documented sign, it is less frequently observed in clinical settings, making its identification in this case particularly noteworthy. The inclusion of this symptom emphasizes the importance of recognizing less common signs of aconite poisoning to facilitate accurate diagnosis and prompt treatment.

This case also highlights the effective use of specific therapeutic interventions. The administration of intravenous magnesium sulfate and amiodarone was critical in managing the patient's cardiac arrhythmias. Magnesium sulfate is often used to address various types of arrhythmias and is particularly effective in cases of aconite poisoning because of its stabilizing effects on cardiac muscle [9]. Amiodarone, a class III antiarrhythmic agent, played a crucial role in restoring normal cardiac rhythm [3]. The successful application of these treatments underscores their value in managing severe arrhythmias resulting from aconite toxicity.

Comparing this case with similar reported instances reveals both commonalities and unique aspects. For instance, the review by Lee et al. [2] outlines various manifestations of aconite poisoning and management strategies, aligning with the treatment approach utilized in this case. However, our case adds a distinct dimension by demonstrating the efficacy of magnesium sulfate in combination with amiodarone, which was not as prominently highlighted in their review. This combination proved effective in stabilizing the patient's cardiac condition, contributing to a positive outcome.

In contrast, Gupta, Sharma, and Gupta [3] reported a case with a similar clinical presentation but employed traditional management strategies. Their approach, which involved supportive care and standard antiarrhythmic treatments, aligns with the

broader principles of aconite poisoning management. However, the decision to omit activated charcoal in our case, because of the rapid onset of symptoms and potential for exacerbation, reflects a critical consideration not extensively discussed in their report. This decision highlights the importance of tailoring treatment strategies to individual patient scenarios.

Reddy et al. [11] emphasized the benefits of early intervention in aconite poisoning, which is consistent with the timely management observed in our case. Their findings support the notion that prompt treatment and appropriate pharmacological interventions can significantly improve patient outcomes. The successful recovery in this case reinforces the importance of rapid and effective management strategies, including the use of specialized treatments like magnesium sulfate and amiodarone.

Activated charcoal, often used to reduce toxin absorption, remains a contentious issue in the context of aconite poisoning. Teng et al. [6] discuss the pros and cons of activated charcoal in managing various poisonings. In our case, the decision not to use activated charcoal was based on the rapid absorption characteristics of aconite and the potential for worsening gastrointestinal symptoms. This case illustrates the need for careful consideration of treatment options on the basis of the timing and clinical presentation of the poisoning.

Finally, the involvement of toxicology experts through telephonic consultation due to the absence of local specialized centers highlights the value of accessing expert advice in managing complex poisonings [12]. This approach not only facilitated appropriate management but also contributed to the overall positive outcome for the patient.

In summary, this case report contributes to the understanding of aconite poisoning by documenting the clinical presentation, management strategies, and successful recovery of a patient with severe toxicity. The insights gained from this case

emphasize the importance of early recognition, tailored treatment, and the value of multidisciplinary care in addressing the complexities of aconite poisoning. Future research should continue to explore the efficacy of various treatment modalities and refine management strategies to enhance patient outcomes in similar poisoning scenarios [13].

6 | Conclusion

In conclusion, the successful management of acute aconite poisoning in this 45-year-old female highlights several critical aspects of emergency medicine and toxicology. Prompt recognition of symptoms, including characteristic pupillary changes and cardiac manifestations on ECG, facilitated timely intervention with intravenous magnesium sulfate and amiodarone in the ER. Transfer to the ICU ensured close monitoring of cardiac function, leading to the swift management of bradycardia with atropine. Throughout hospitalization, meticulous observation in the medicine ward supported ongoing recovery and the absence of residual effects at the 1-week follow-up underscored the effectiveness of the multidisciplinary approach.

This case underscores the importance of a coordinated response involving emergency medicine, critical care, and toxicology teams in handling complex herbal poisonings. It highlights the pivotal role of early supportive care and targeted pharmacotherapy in stabilizing vital signs and mitigating cardiac complications associated with aconite toxicity. Moreover, it emphasizes the need for ongoing patient education regarding the risks of herbal medicines and the criticality of seeking medical attention promptly in case of ingestion. Continued research and awareness are essential to improve outcomes in similar toxicological emergencies and ensure optimal patient care and safety.

Author Contributions

Barsha Baral: conceptualization, data curation, writing – original draft. **Arjun Kandel:** conceptualization, writing – original draft. **Sajjad Ahmed Khan:** writing – original draft, writing – review and editing. **Pratik Raj Regmi:** conceptualization, writing – original draft. **Saurav Jha:** data curation, writing – original draft. **Rajat Shah:** writing – original draft, writing – review and editing.

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Consent

Written informed consent was obtained from the patient to publish this report in accordance with the journal's patient consent policy.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Data will be provided by the corresponding author upon reasonable request.

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