CASE REPORT

A Rare Case of Acute Myocardial Infarction Associated with Arsenic Poisoning

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Abstract

Background: Arsenic toxicity as a result of consumption of hair removal agent has been rarely seen in last few years in comparison with the past.
Case Presentation: In this case report, we presented a middle age woman referred to medical toxicology department due to epigastric pain and diarrhea following ingestion of hair removal agent. Urinary test for arsenic was positive. ECG changes and elevated cardiac Troponin levels were compatible with acute MI. Loss of consciousness and respiratory distress developed over next days and despite chelating therapy and other symptomatic treatments she deceased after 5 days of admission.
Discussion: Current case is a rare presentation of oral arsenic toxicity. A mild diarrhea, epigastric pain, ECG changes which were compatible with acute MI and hypotension were the main manifestations once admission.
Conclusion: Arsenic may still exist in depilating agents. Physicians should be aware of clinical manifestations of acute arsenic toxicity and chelating therapy should be initiated as soon as possible.

Key Words: Arsenic; Myocardial Infarction; Poisoning

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INTRODUCTION

Arsenic toxicity as a result of consumption of hair removal agent has been rarely seen in last few years in comparison with the past(1). Arsenic is in form of arsenic sulfide (As_2S_3) in formula of depilatory agent (Zarnikh in Persian word); it is mainly in combination with Ca(HCO3)(2). Both arsenic salt (acidic) and lime component (alkaline) are corrosive for mucus membranes in oral route consumption(1).

As the early clinical manifestation of acute toxicity, nausea and vomiting, diarrhea and abdominal pain occur several minutes to hours after ingestion. Diarrhea may be similar to cholera. Severe multi organ disease may develop following massive consumption.(2,3) Cardiovascular manifestations ranging sinus tachycardia to refractory shock are anticipated in this poisoning. Although not common, ECG changes may mimic myocardial infarction. Intravascular volume depletion as a result of a SIRS like pattern, capillary leak, diminished systemic vascular resistance, myocardial dysfunction and watery diarrhea are reported as the probable reasons for refractory hypotension in this toxicity. CNS symptoms and signs such as loss of consciousness, delirium and seizure may develop over days(3,4). Other expected complications include ARDS, rhabdomyolysis and AKI, hemolytic anemia, dysrhythmia and hepatitis(3). In this report, a rare presentation of arsenic poisoning in hair removal agent is reported.

CASE PRESENTATION

A 41 year old woman was admitted in emergency ward of medical toxicology department due to diarrhea following ingestion of two tablespoons hair removal powder. She was completely alert. Vital sign on admission were: SBP/DBP 70/50 mm Hg Pulse rate: 98/min Respiratory Rate: 16/min Temperature: 36.8ºC

ECG revealed ST depression in inferior leads (Figure 1) and elevated troponin I(TnI) levels was detected. After cardiology consult, medical treatment for acute non ST elevation MI was initiated. Left ventricle ejection fraction was 55-60% in echocardiography. She transferred to ICU due to hypotension which was refractory to hydration. Monitoring of central vein pressure was performed in ICU; it was low (4 mm Hg) on admission and after serum therapy it turned back to normal range although Hypotension remained refractory to serum therapy by normal saline 0.9% ; Infusion of norepinephrine was initiated (8 microgram/min as loading dose and then 3 microgram/min as maintenance dose); Because of abdominal pain and tenderness of epigastric region on abdominal physical exam, gastroenterology(GI) consult was requested and gastrographine swallow radiography was performed following recommendation of GI consultation. No perforation or mucus membrane change was reported. Infusion of intravenous pantoprazole was going on. Qualitative urine test was requested due to suspicious to

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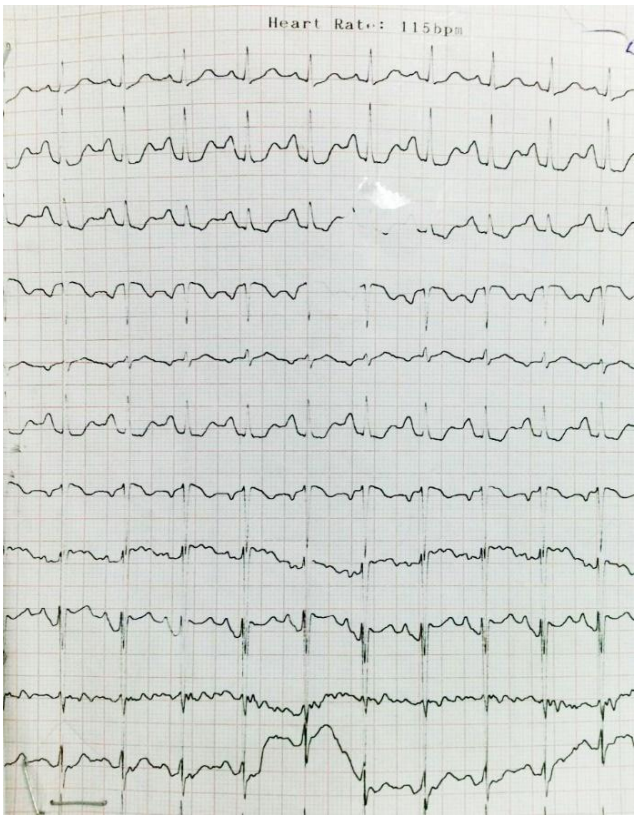

Figure 1. Electrocardiogram of patient once admission.

arsenic toxicity. Intramuscular injection of BAL was initiated (dosing 200mg every 4 hours).Urine arsenic test was positive on day 2 after admission. Diarrhea stopped at this time. Progressive tachypnea and respiratory distress developed on day 3. Level of consciousness was gradually depressed and she was intubated and underwent mechanical ventilation due to symptoms and signs of respiratory failure on day 4 after admission. Five days after admission heart rate dropped and despite treatment by atropine and other symptomatic treatments she went into cardiopulmonary arrest and after 45 minutes CPR she deceased.

DISCUSSION

Current case is a rare presentation of oral arsenic toxicity. She did not complain of nausea and vomiting which is considered as common GI symptoms early after poisoning. A mild diarrhea and epigastric pain was the first symptoms of the patient.ECG changes and TnI rise were compatible with acute MI that is not common in acute arsenic toxicity (3). Low blood pressure which was not in concordance with hemorrhagic shock (in context of acute MI) was another complication that was accordant with arsenic poisoning. Encephalopathy and ARDS are two adverse events anticipated in next days after poisoning although may occur early in massive ingestions (2). Chelating agent was administered (3 mg/kg IM every 4 hours in first two days and then 3 mg/kg every 12 hours on next days); although, intramuscular absorption is not predictable because of low perfusion rate due to dropped blood pressure in such cases. Unfortunately despite all conservative and specific treatments, our case deceased after 5 days of ingestion.

CONCLUSION

Physicians should be aware that arsenic may still exist in depilating agents, although it is rare compared with the past; special attention should be given to the cardiac manifestations. Chelating therapy should be initiated immediately and prior to achieve positive laboratory result in clinically suspicious cases.

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