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Case Report

Fatal poisoning of pregnant women by peganum harmala L.: A case reports

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ABSTRACT

Introduction: Peganum harmala L. is a cosmopolitan plant within the Mediterranean region. It's normally employed in ancient drugs in Morocco as sedative and abortifacient however exposes users to the danger of dose and poisoning. The medical specialty active compounds of this plant embody variety of carboline and quinazoline alkaloids accountable of its pharmacological and medical effects.

Case report: We tend to report the case of a 20-year-old woman, intoxicated with the Peganum harmala L. On admission, she was shocked with agitation vomittiong and disturbances of consciousness. Laboratory tests showed anemia, thrombocytopenia, acute kidney disease, increase in transaminases and a positive plasma bHCG. Cerebral CT disclosed multiple areas of cerebral ischemia with subarachnoid hemorrhage, thoraco-abdominal-pelvic CT scan showed an enlarged uterus, the location of an interior hemorrhage while not physiological condition sac and inhalation pneumonia. Early treatment was given, she was intubated, ventilated artificially and sedated, symptomatic treatment was received. Hemodialysis was needed for her renal failure and anuria. She was extubated after six days and discharged from the hospital after one month and a half.

Conclusion: Doctors operating in areas where P. harmala is prescribed or used as an ancient medicine should recognize the signs and symptoms of its toxicity in order to treat and initiate prompt and adequate management. The prognosis is generally favorable, excessive use of high doses of P. Harmala L. can lead to fatal evolution.

1. Introduction

Peganum harmala L. (P. harmala), also known as Harmal or Syrian remorsefulness, is a furless plant widely distributed in the eastern Mediterranean region. Its grows in semiarid conditions, Champaign areas, and sandy soils [1].

This plant is commonly used in traditional medicine in North Africa, especially in Morocco, Central Asia and the Middle East [2]. It is used as sedative, emmenagogue, and an abortifacient, or to induce labor. Its misuse can lead to poisoning or even death.

It has various pharmacological effects. Its roots and seeds contains several alkaloids that have been evaluated during animal and cellular investigations which have concluded to antifungal, antibacterial, hypothermic, anticancer, antinociceptive and reversible inhibition of monoamine oxidase [3].

We report the case of intoxication of a young girl admitted to intensive care unit (ICU) for a multi-visceral failure following the ingestion of Harmal for the abortive purpose, and we discuss the attribution of this rare recorded poisoning.

2. Case report

20-year-old woman, single with amnorrhea (AS) admitted to our intensive care unit in a state of shock associated with agitation, vomiting and notion of bleeding followed by disturbances of consciousness. The interrogation of the entourage revealed a voluntary ingestion a day before her admission of a handful of seeds of P. harmala in order to induce an abortion as prescribed in the traditional Moroccan remedy.

Clinical examination found an unconscious patient with a Glascow score at 9/15, light-reactive miosis leaves, in shock with arterial pressure at 70/35 mmHg, bradycardia at 45 pulse/minute then a tachycardia at 132 pulse/minute was observed, polypneic at 33/minute and

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her SpO 2 was 96 % under oxygen facial mask at a flow rate of 6 L/min. Afebrile at 37.2 8C, with the presence of generalized edema of the extremities, oligo-anuric. Neurological examination found a restless without motor or sensory deficit, the osteotendinous reflexes were lively and diffuse with no signs location. The abdominal and cardiopulmonary examination was without special features. Gynecological examination revealed a contracture with uterine hemorrhage from the endocervix secondary to voluntary abortion. Pelvic ultrasound showed intrauterine pregnancy Scalable from 12 weeks with an image of trophoblastic detachment.

The laboratory tests were as follow: blood cell count unfolded anemia at 5g/dl, thrombocytopenia at 35,000/mm, renal and liver function tests revealed a renal failure and a liver injury: blood urea nitrogen at 2.69 g/L, creatinine at 11.06 mmol/L, L-aspartate aminotransferase (AST) level at 105 IU/L (N < 40), L-alanine aminotransferase (ALT) at 268 IU/L (N < 45), and alkaline phosphatase (APL) at 534 IU/L (N < 165). Hemostasis, total bilirubinemia level, and proteinuria were normal with a positive plasma bHCG. The cardiac enzymes were elevated, the troponine was at 0.78 ng/mL, and creatine phosphokinase-MB was at 126 IU/L, joined with a normal electrocardiography.

Brain CT scan showed multiple areas of cerebral ischemia with subarachnoid hemorrhage, and thoraco-abdominal-pelvic CT scan showed an enlarged uterus, the site of internal bleeding without a gestational sac with probable inhalation pneumonia.

The gastric lavage was not conducted and activated charcoal was not administered because the delay between intoxication and admission to the hospital exceeded 6 hours. She was intubated, ventilated artificially. The ventilation was set in volume control mode as followed: tidal volume 7 mL/kg, PEEP 5 cmH2O, respiratory rate 15/min, FiO2 0.50. She was sedated with a continuous infusion of midazolam 0.1 mg/kg/h and her hemodynamic instability required vasoactive drugs were administered by norepinephrine at a dose of 0,05 mcg/kg/min. A blood transfusion was given by 3 red blood cells. Cimetidine at a dose of 200 mg twice a day, infusions of normal saline, 5 % dextrose solution and other symptomatic treatments were used. Unfortunately, laboratory tests to detect alkaloids in the blood are not available with us, toxicological analyzes were carried out including the detection of benzodiazepines and morphine and were negative. Hemodialysis was performed due to the decrease in urine output to 0.4 mL/kg/h. An improvement in renal function was noted and the patient restarted her urine output the next day at 1mL/kg/h.

Two days after her admission in our intensive care unit, the fetus was expelled without bleeding following fetal death in utero.

Six days later, the patient woke up and was extubated after a marked clinical and biological improvement.

Unfortunately, she retained neurological sequelae of severe peripheral polyneuropathy. She thus benefited from intensive motor rehabilitation. After moderate recovery of her motor functions, she left the hospital after a month and a half, while continuing the motor rehabilitation program.

This case reports follows scare guidelines [4].

3. Discussion

The Zygophyllaceae family has 24 genera and 240 species, including Peganum harmala L. This plant has been used in traditional medicine in a variety of ways. Because of the wide range of effects it produces, it is frequently used as an emmenagogue, oxytocic, abortifacient, sedative, anthelmintic, antimalarial, emetic, antiseptic, healing, and sudorific [2].

P. harmala contains a number of -carboline and quinazoline alkaloids that are pharmacologically active. The major -carboline alkaloids in P. harmala extracts were discovered and quantified as harmaline, harmine, harmalol, har-mol, and tetrahydroharmine [2].

Quinazoline alkaloids found in P. harmala (e.g., vasicine and vasicinone) have been linked to the plant's abortifacient properties [5,6]. In our situation, the seeds of P. harmala were consumed in order to induce abortion.

Seeds and roots are IMAO competitors, inhibiting MAO 5 in humans [3], resulting in the breakdown and reuptake of monoamines such as serotonin and norepinephrine.

P. harmala poisoning accounts for 4.6% of all plant poisoning in Morocco [5] are used to diagnose intoxication. Visual hallucinations, hearing loss, amaurosis, euphoria, and seizures are all neurological signs with neurosensory symptoms found in this intoxication. All these symptoms and clinical signs are linked to poisoning with this medicinal plant P. Harmala.

In the literature, we noted different symptoms of severe intoxication by P. Harmala L. such as digestive disorders (epigastric pain, nausea and vomiting), circulatory problems such as bradycardia, arrhythmia and arterial hypotension, respiratory disorders (dyspnea, respiratory paralysis), neurological signs (cerebellar ataxia, severe peripheral polyneuropathy) and death [6–8]. Liver damage and renal failure (uremia, anuria) was also observed [9,10]. In our case, the patient presented digestive disorders (nausea, vomiting), bradycardia, liver damage and renal failure with anuria that needed initially hemodialysis.

The diagnosis of intoxication with P. Harmala can be made using high performance liquid chromatography to identify alkaloids, or a more sensitive approach such as gas chromatography/mass spectrometry [6].

There is no a specific antidote. The patient's care entails first determining the route of administration and the amount consumed. However, an adequate diagnosis and prompt therapy should be initiated. The treatment of P. harmala intoxication consists first of all in hospitalization in intensive care with stabilization of the patient, gastrointestinal decontamination (gastric lavage, activated charcoal) with correction of organ failure and symptomatic treatment of digestive, cardiac and neurological disorders [11].

The prognosis of this intoxication is generally favorable. Most cases can be managed successfully; However, the evolution might be fatal, particularly when the plant is used in a specific way and at extremely high doses.

The limitation of this case reports is the lack of laboratory tests to identify alkaloids and to confirm the diagnosis.

Our patient was satisfied from our medical care.

The plan for the future is that resuscitators and doctors in emergency services must be aware of the inevitability of this poisoning and must recognize and put in place rapid and adequate therapeutic management in order to treat this intoxication in the absence of specific antidote.

4. Conclusion

Poisoning by Peganum harmala L. in pregnant women is a reality in Morocco. A multidisciplinary approach is necessary in this kind of poisoning including emergency doctor, resuscitator and obstetricians in order to restore a rapid diagnosis and treatment. The prognosis remains variable; the outcome may be favorable in most cases, but with high doses of intoxication, the outcome may be fatal.

Ethical approval

The ethical committee approval was not required give the article type (case report. However, the written consent to publish the clinical data of the patients was given and is available to check by the handling editor if needed.

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Consent

Obtained.

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

EL AIDOUNI Ghizlane: Corresponding author, study concept, Data collection, data analysis, writing review & editing. MERBOUH Manal: Contributor. HADDAD Arhoun Ines: Contributor. DIYAS Soufiane: Contributor. LAZREG Moussa: Contributor. BKIYAR Houssam: Supervision and data validation. HOUSNI Brahim: Supervision and data validation.

Registration of research studies

This is not an original research project involving human participants in an interventional or an observational study but a case report. This registration is was not required.

Guarantor

EL AIDOUNI Ghizlane.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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