

Unusual Poisoning By Oral Ingestion Of Wild Berries

I Dar, M Kamli, S Dar, H Wazir

Citation

I Dar, M Kamli, S Dar, H Wazir. *Unusual Poisoning By Oral Ingestion Of Wild Berries*. The Internet Journal of Toxicology. 2008 Volume 6 Number 1.

Abstract

Poisoning by the intentional use of pesticides, rodenticides and other chemical substances is well known in the Kashmir Valley of J & K State India with the commonest being organophosphorus poisoning. [123] But poisoning by the use of wild berries has not been reported in Kashmir so far. We report five cases of poisoning by the ingestion of raw wild berries not previously reported in literature from India.

CASE REPORT

Five children between the ages of 8 and 16 years were admitted to the emergency ward of SMHS Hospital Srinagar Kashmir in an actively convulsing state after reporting consumption of wild berries in the central district of Budgam in the Kashmir Valley of J & K state India. The children had reportedly consumed the berries about one and a half hour ago prior to their hospitalization. They had started with giddiness, nausea and vomiting and later developed frank generalized tonic clonic seizures with urinary and fecal incontinence. There was no history of loose motions, abdominal pain, haematemesis, hematuria, chest pain or shortness of breath. On arrival to the hospital the patients were actively convulsing and in a state of epileptic status. The patients were immediately administered a loading dose of phenytoin intravenously (20 mg/kg body weight) and blood samples were drawn for investigations and to ascertain the nature of the poison. All investigations including CBC, ESR, Urine analysis, Blood sugar, KFT and Electrolytes were normal. Liver function tests except ALP were normal. ALP showed a three-fold increase in all the children (Normal 117 iu/ml). Chest X-ray, ECG and Ultrasound examination of the abdomen were normal. The patients responded to IV Phenytoin and seizures stopped. Patients were subsequently put on oral phenytoin 4-8 mg/kg which was gradually tapered off over a period of two weeks. ALP, which was initially raised, normalized after three weeks. The children were regularly followed and did not develop any further episode of seizures. The nature of the poison could not be established from the blood samples analyzed. Samples of the wild berries were obtained and sent to identify the toxin responsible for the clinical manifestations.

The toxin identified in the wild berries was reported as "TUTIN" a potent neurotoxin causing convulsions which has no known antidote and requires symptomatic treatment if the presentation is early but otherwise fatal if treatment is delayed.

DISCUSSION

Accidental poisoning in children is not uncommon and has been enlisted as a medical emergency⁴. The causes of poisoning vary in different countries and between the rural and urban population. In children the major factors involved in accidental poisoning are the inexperienced child, a toxic agent, an unsafe environment, ignorance of the parents and impulsive attitude of the child to try and seek new things. The incidence of accidental poisoning varies widely ranging from 0.33% as reported by Satpathy et al⁵ to 7.64% by Buhariwalla et al⁶. Poisoning in children can occur by accidental ingestion of kerosene, chemicals and medicaments, pesticides, poisonous seeds, corrosives and plant poisons with varying frequency. Accidental ingestion of plant poisons has been well known and the plants incriminated are dhatura, castor seeds etc^{6,7}. In the children who presented with an actively convulsing state after the consumption of wild berries the nature of the poison could not be established from blood samples. Samples of the wild berries obtained were found to belong to a bushy plant *Coriaria Nepalensis* Wall of the Family *Coriariaceae* an exotic angiospermus grown as an ornamental in Kashmir & elsewhere in South Europe, South America, China, Japan, North Africa & New Zealand. The earliest reference with respect to the description of this plant has been recorded in 1773 in New Zealand when two sheep were found to be dead

after the consumption of this plant⁸. Since then the plant has been extensively studied in New Zealand, China & Nepal for its varied properties of poisoning. The earliest symptoms of poisoning recorded in humans were vomiting, giddiness, delirium, stupor, coma, convulsions & death⁹. Common species of this plant recorded are *C myrtifolia*, *C nepalensis*, *C thymifolia* & *C ruscifolia*. All parts of the plant are poisonous^{10,11,12}. Riban (1863) isolated a glycoside named Coriamyrtin from the plant¹⁴. In 1890 Christie examined the physiological action of the oil extracted from the plant & concluded that the poison acts on the grey matter of the cerebral cortex that results in convulsions.¹³ In 1900 Esterfield & Aston succeeded in isolating a crystalline glycoside called TUTIN from all parts of the plant. TUTIN is poisonous in small doses (0.01gm) & causes convulsions & is fatal in about 5 hours if untreated^{15,16}. Recent research carried out in China has proved that not only Tutin but eight other compounds by the names of Braylin, Norbraylin, Dihydrocoriamyrtin, Coriamyrtin, Coriatin, Apotutin, Hydroxycoriatin & Gallic acid have been identified & isolated^{17,18}. Since the plant is cultivated for its ornamental character & has tasty fruits there is a high chance of poisoning especially in children. The identifiable toxin is TUTIN, which is found in high concentration (20%) in leaves & a still higher concentration in the fruit. Tutin is a neurotoxin and is poisonous in large doses.¹⁹ This kind of neurotoxin found in these wild berries has so far not been reported in medical literature from India. The clinical manifestations of the toxin consisted mainly of nausea, vomiting, giddiness and generalized tonic clonic convulsions without any history of loose motions, abdominal pain, haemetemesis or headache. Patients were managed along the lines of status epilepticus besides supportive treatment. All of them recovered fully and showed no complications on follow up.

CORRESPONDENCE TO

Dr. Ishrat Hussain Dar
Consultant Department of Medicine
Govt. Medical College, Srinagar.
J&K India – 190010
Email: dardrshrathussain@yahoo.com
Phone: 91-0194-2437645

References

1. Basu D. The profile of acute poisoning in a teaching hospital at Calcutta. *J Ass Phy India* 1999; 47(1): 61.
2. Malik G M, Romshoo G J, Mubarik M et al. Increasing incidence of Organophosphorus Poisoning in the Kashmir Valley. *J K Pract.* 1998; 5 (2): 117-120
3. Khan G Q, Romshoo G J, Hassan G et al. Profile of acute poisoning in the turmoil affected Kashmir Valley. *J Ass Phy India* 2001; 49: 192.
4. Sitaram S, Sharma U, Saxena S . Accidental Poisoning in Children. *Indian Pediatrics* 1985; 22: 757-760.
5. Satpathy R, Das BB. Accidental Poisoning in Childhood. *J Indian Med Assoc* 1979; 73: 190-192.
6. Buhariwalla RJ, Sanjanwalla . Poisoning in Children. A study of 303 cases. *Indian Pediatrics* 1969; 6: 141-145.
7. Buch NA, Kaiser A, Sethi AS. Poisoning in Children. *Indian Pediatrics* 1991; 28: 521-524.
8. Life & voyages of Captain James Cook by Andrew Kippis D, D; FRS. George Newnes (Limited); 1904: 179.
9. Otago Colonist. 25th of October 1861.
10. Plants of New Zealand by R.M. Laing & E .W. Blackwell. New Zealand 1906; 228.
11. Art Album of New Zealand Flora by Mr & Mrs E .H. Featon. London 1889; vol.i: 104.
12. "On certain properties of the Tutu plant" by H G Hughes. M P S Trans New Zealand Institute. Vol iii (1870); 237.
13. "On the physiological action of Coriaria rusciflora " the Tutu poison of New Zealand by W L Christie MD. *New Zealand Medical Journal* July & October 1890.
14. Sur le Coriamyrtin et ses Derives by M J Riban. *Comptes Rendus* .p-746. Paris 1866.
15. Manual of New Zealand flora by T F Cheeseman FLS, FZS. Wellington 1906. 105.
16. Tutu Part 1 by T H Easterfield & B C Aston. Wellington 1900.
17. Wei,-H, Zeng,-F, Lu,-M, Tang,-R. Yao-Xue-Xue-Bao. 1998 September; 33 (9): 688-92.
18. Shen,-YH, Li,-SH, Han,- QB, Li,-RT, San,- HD. Coumarins from Coriaria nepalensis wall. *J of Asian Natural Products Research* .8 (4); June 2006: 345-356.
19. Anonymous. Wealth of India Vol. 1, 1948, CSIR New Delhi.

Author Information

Ishrat H. Dar, MD

Consultant, Department of Medicine, Government Medical College, Srinagar

Muqtasid A. Kamli, MD

Professor and Head, Department of Medicine, Government Medical College, Srinagar

Showkat H. Dar, MD

Registrar, Department of Medicine, Government Medical College, Srinagar

Hardeep S. Wazir, MD

Assistant Professor, Department of Medicine, Government Medical College, Srinagar