Case Report

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Rare Presentation of Semecarpus Anacardium Poisoning

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Abstract

Semecarpus anacardium (SA) commonly known as ballataka or bhilwa has been used in various traditional systems of medicines or various ailments since ancient times. Chemical and phytochemical analyses of its nut reveal the presence of biflavonoids, phenolic compounds, bhilawanols, minerals, vitamins and amino acids which show various medicinal properties. The fruit and nut extract shows various activities like anti atherogenic , anti inflammatory, anti oxidant, anti microbial, anti reproductive, CNS stimulant, hypoglycemic, anti carcinogenic and hair growth promoter. Here we present a rare case of SA poisoning with convulsion, behavioral changes and orange discoloration of body and its fluids, no such presentation has been reported till date to the best of our knowledge.

Keywords: Semecarpus anacardium; Orange coloured urine; convulsion.

Introduction

Semecarpus anacardium linn (Family: Anacardiaceae) is distributed in sub Himalyan region, tropical and central parts of India. The nut is commonly known as marking nut and in vernacular as 'Bhallatak.[1,2] Bhallatak is generally classified in Ayurveda under the category of toxic plant.[3] The fruit is arcid hot, sweetish, digestible, aphrodisiac, anti-helmentic, stays looseness of bowels, removes vata, kapha , ascites, skin disease, piles, dysentery, tumors, fevers, loss of appetite, urinary discharges, heals ulcers, strengthens teeth, useful in insanity, asthma. The oils tonic makes hair black, good for leucoderma, coryza, epilepsy, and other nervous disease lessens inflammation, useful in paralysis and superficial pain.[4] Reports regarding toxicological studies of plant are scanty. However the crude extracts were found to be very toxic according to Patwardhan *et al.*[5] The latex of leaf and stem has found to be toxic for skin in traditional knowledge also.[6]

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Case history

A 5 year old male child was referred from a peripheral centre in a convulsing state with history of pain in abdomen since 3 hours, which was sudden, sharp shooting, continuous pain, followed by an episode of orange colored vomiting , which was non projectile, non-foul smelling and mistook as blood by relatives. There were 2 episodes of prior convulsions which had subsided on its own. On examination, it was generalized tonic-clonic convulsion; the eyes were wide open with conjunctiva being bright orange in colour. The patient was given anti-convulsants and the episode was controlled. All routine investigations were within normal limits. Gastric aspirate was tested for occult blood which was negative. Prothrombin time and serum cholinesterase were done to rule out snake bite and organophosphorus poisoning respectively.

Subsequently the patient started getting orange discolouration of body (Figure 1) and urine. The urine examination was normal. On

Figure 1: Orange Discolouration of Body

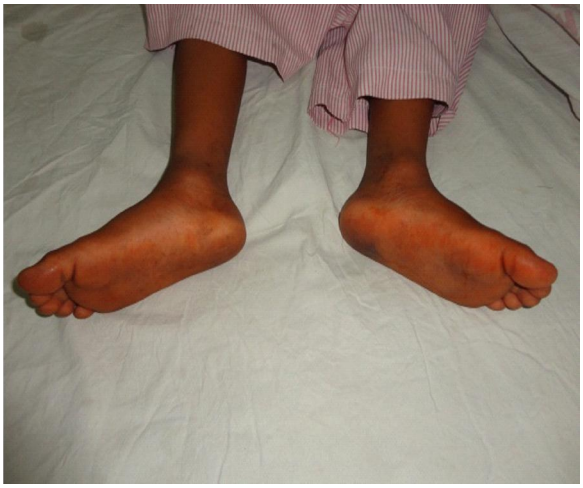
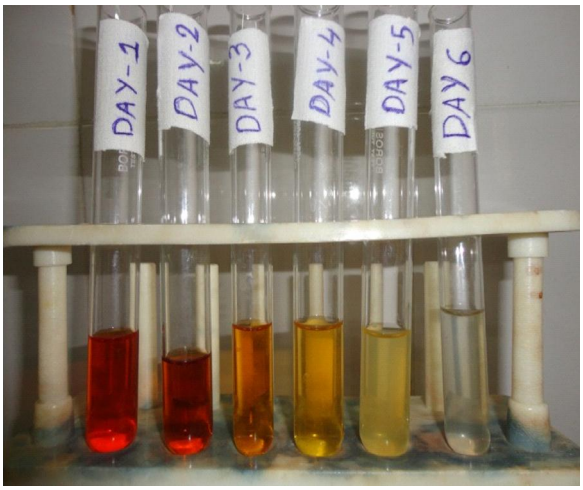


Figure 2: Fading of Urine Colour Subsequently



enquiry history of ingestion of dried pericarp of SA was obtained. The patient gained consciousness the next day, along with aggressive and abnormal behavior for which an electroencephalogram was done which showed share wave discharges in bilateral temporal region, so started on anti-convulsant therapy. The urine colour became faint in the next 5-6 days (Figure-2) and the patient was discharged on day 7 of admission. The patient is on regular follow-up with no convulsions and behavioral changes.

Discussion

Accidental ingestion of plants and seeds by children are not uncommon and can result in significant symptoms necessitating hospital admission and emergency treatment. Indian data on the exact proportion of poisoning due to these toxic plants are not available. SA is extremely hot and sharp in its attributes; it should be avoided in pediatric age group, pregnant women, and predominant pitta prakruti persons and also in certain diseased conditions such as bleeding diatheses, renal function disorder, history of vesications and past history of intolerance to SA. SA is known to have narrow therapeutic range. The commonly seen SA related adverse effects are generalized itching, vesication, erythematous patches, mucocutaneouspapular eruptions, stomatitis, gastritis, proctitis, urethritis, etc. The oil part of the nut is toxic and its degree of removal is proportional to its safety margin. Nephropathy is associated with exposure to toxins of plant origin. It was noted that with the exception of Djenkol bean nephrotoxicity, SA toxins lead to renal failure due to hemodynamics effects.[7] The SA toxicity patients suffer from a very peculiar and contradictory state of mind such as laughing at serious matters and serious over trifling things. They are also subject to illusions of hearing and smell. They also suffer from fixed ideas as their mind and body is separate; they suspect everybody and everything around them.[8]

Animal behavior is a neurologically regulated phenomenon, which is mediated by neurotransmitter substances. Exposure to sub lethal dose of aqueous extract of SA caused significant changes in various parameters such as akinesia, hole board test, swim test, catalepsy and loss of body weight of fish. The nature and rapidity of the onset of these behavioral responses indicates that the plant extract is active at the neuromuscular system of the exposed mice.[9] Choudhary *et al* conducted a study effect of aqueous extract of SA leaf on mice brain and found enhanced lipid peroxidation in both the region of brain that is cerebral cortex and mid brain, and this was confirmed by ultrastructural finding in neural cell (cerebral cortex) of SA leaf extract

treated mice where shrunken nuclei and fragmented chromatin were evident contrary to normal nucleus in control animals. As the behavioral outcome, enzyme assay and the ultra-structure of the brain were abnormal it can be concluded that the aqueous extract of SA leaf carries a mark potential toxicity to the nervous system of the mice. So this experimental study can be taken as basis of the pathophysiology of the symptoms exhibited by our patient as convulsion and behavioral changes.

Conclusion

In conclusion SA is used for various medicinal properties but in higher doses it may cause toxic effect. Life threatening convulsion with behavioral changes may occur. High degree of suspicion in diagnosis of such condition is needed. The deleterious effects should not be overlooked, especially when children are involved who may bite into this innocuous looking plant. Treatment is symptomatic and supportive.

Acknowledgment

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