



A Rare Case of Organophosphorus Poisoning Through Intramuscular Route

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Abstract

Organophosphorus poisoning is most common in rural India. Oral ingestion and topical exposure are most frequently anticipated in agricultural practices whether it is accidental or deliberate. Parenteral routes are very rare. Here we are reporting a case of organophosphorus poisoning through intramuscular route. Patient was brought to us after few days of exposure with local and systemic manifestations. Patients was treated accordingly with local wound debridement, atropine, pralidoxime and supportive care. Such cases presents as a challenge for the treating physician which requires thorough evaluation and management accordingly.

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Introduction

Organophosphorus (OP) pesticide suicidal poisoning is a major public health concern across majority of rural India. [1] As it is easily available and cheap. It is also associated with high morbidity and mortality associated with its ingestion. Early recognition of OP poisoning and its prompt management can save patient's life. We present a rare case of OP poisoning (deliberate self-harm) with intramuscular injection of "LETHAL SUPER 550" (Chlorpyrifos 50% + Cypermethrin 5%) insecticide.

Case Report

A 55 year old man was brought to our emergency department with alleged history of intramuscular (IM) injection of "LETHAL SUPER 550" (quantity – not known) 7days ago for which he was admitted in local hospital nearby, over 1 week where he was treated accordingly. His clinical condition was not improving and patient had developed cellulitis near his injected site (distal region of left hand). Patient was inadequately atropinized. Patient was brought with history of loose stools (4-5 episodes) and vomiting (2-3 episodes) since 2-3 days, with no co-

morbidities. On presentation patient was drowsy, arousable, obeying commands. His blood pressure (BP) was 190/100mmhg, pulse rate -112/minute, Spo2-99% at room air, respiratory rate-30/minute, had dry mouth, pin point pupil sluggishly reacting to light, neck holding - intact with no focal neurological deficit and a wound on distal aspect of left hand with erythematous and purulent changes. His serum cholinesterase level on day of admission was 474 IU/L (Normal- 3940 - 10850 IU/L). Patient was managed with antibiotics, IV fluids, supportive care and wound management. On day 3 of admission patients sensorium dropped further with motor weakness worsening with serum cholinesterase level being - 117 IU/L. Patient was taken on mechanical ventilation and was managed with atropine and pralidoxime accordingly. Patient underwent surgical debridement as the wound was worsening. Patient was continued with regular dressings, along with titration of atropine dose according to the clinical condition. On day 9 (day 16 of IM injection) patient sensorium and weakness started to improve, serum cholinesterase level started to improve (457 IU/L). On day 10-15th after admission patient gradually

improved neurologically and clinically. Further management and follow up. patient was transferred under surgical care for wound

Figure 1: Bottle containing the pesticide



Figure 2: Site of IM injection on presentation (Day 7 of injection).



Figure 3: Site of injection post debridement (Day 10 of IM injection)



Discussion

Organophosphorus compound poisoning is very common in rural part of India as it is easily accessible and available in agriculture market as a pesticide. [1] In our case the compound “LETHAL SUPER 550” (Chlorpyrifos 50% + Cypermethrin 5%) used by the patient was injected intramuscularly. These compounds can be absorbed in the body by various routes such as through ingestion, dermal route, parenteral route, inhalational, conjunctival and mucosal absorption. Exposure to these compounds by various routes have varied presentation. Cypermethrin is a pyrethroid compound which when taken in combination of organophosphorus compound, its toxicity is potentiated as organophosphorus compound inhibits pyrethroid metabolism. [2, 3]

Clinical features of organophosphorus compound depends upon the time of exposure which includes acute (minutes – 24 hours) – muscarinic, nicotinic and CNS features which is manifested as weakness, fasciculation's, paralysis, SLUDGE features (salivation, lacrimation, urination, defecation, gastric cramps, emesis), bradycardia, hypotension, miosis, convulsions, respiratory depression; delayed (24 hours to 2 weeks) – is manifested as intermediate syndrome, extrapyramidal manifestations, coma and late (more than 2 weeks) – manifested as OPIDP

(Organophosphorus induced delayed polyneuropathy) and neuro-psychiatric disorders. [4]

The systemic manifestation of the OP compound depends on the route through which the patient is exposed through. In our case patient presented to our hospital on 7th day post intramuscular injection with systemic manifestation as the rapidity of absorption depends on the plane of administration. In a previous study conducted by Vinay Pandit et al in 2011 reported a case on a young male who presented with seizure and altered sensorium on day 4 post intramuscular injection along with abscess formation over the injected site, along with ventilator support requirement for 12 days in the hospital. [5] In a similar case report by Sujeet Raina et al showed that the patient developed systemic features within 30 minutes of intravenous injection of OP compound. [6] Hence the systemic manifestation depends on the route of exposure.

Organophosphorus compounds are formulated with hydrocarbon solvents which are local irritants which can cause cellulitis and local tissue damage on local exposure which could explain the local reaction in our case along with a probability of usage of contaminated source. [7]

Conclusion

Parenteral route of Organophosphorus poisoning case was challenging in terms of evaluation and

management. Systemic manifestation initiation in such cases may vary accordingly based on the route and plane of administration which was delayed in our case, hence the treating physician should be cautious in such cases with late systemic manifestation. Course of illness may be prolonged. Local manifestation must be always kept in mind in such cases and routine follow up must be done to avoid further complication reducing patients morbidity and mortality.

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