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Challenging diagnosis: successful recognition and treatment of a transdermal carbamate poisoning

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Objective: We report a diagnostic challenge encountered, where an early diagnosis of organophosphate/ carbamate poisoning is made solely based on limited physical signs without any history of exposure and investigations.

Case report: A 27-year-old Burmese gentleman presented to Emergency Department (ED) for recurrent vomiting and diarrhea for one day, associated with generalized limbs weakness. We couldn't obtain any other useful history due to language barrier. Upon examination, patient was lethargic. BP 150/101mmHg, HR 83/min, RR 30/min, Temp 34.1°C and SpO₂ 100% on air. Bibasal lungs crepitations present. Abdomen was soft, bowel sounds were active. Pupils were constricted. He had intermittent fasciculation and hypertonia over bilateral limbs, power was normal. There is no chemical odour. Initial blood gas showed lactate acidosis. We suspected poisoning due to multi-organ systems involvement. Thus we contacted his employer and learnt that the patient worked in a flower garden. However, his employer initially confidently denied that the patient's usage of any pesticides. Serum cholinesterase level was still pending. The patient subsequently became more tachypnoeic. Excessive salivation was noted requiring frequent suctioning. Generalized lungs crepitations developed. He desaturated rapidly and was intubated. In view of profound cholinergic syndrome, a provisional diagnosis of organophosphate/carbamate poisoning was made without a history of exposure. Patient was given boluses of atropine followed by infusion. Lungs crepitations and salivations disappeared. Serum cholinesterase activity result returned as 1906 U/L (35% reduction). After the patient's employer clarified with his co-workers, it was finally revealed that patient had used carbamate pesticide: Carbofuran (powder form) the day before. He spread the powder over garden with his bare hands. The patient's condition improved and was extubated. He was discharged well after 6 days of admission.

Discussion: History of exposure is helpful in recognizing poisoning cases [1]. When history is missing, clinical knowledge in toxidromes is crucial in making diagnosis [2]. Although carbamate poisoning is commonly seen as ingestion in deliberate self-harm [3], accidental poisoning can occur through transdermal route which doesn't have pesticide odour. Investigation results might not be immediately available for emergency cases.

References:

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3. Eddleston M. Patterns and problems of deliberate self-poisoning in the developing world. *QJM*. 2000;93(11):715-31