Case Report
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Deliberate ingestion Of Potassium Salt of Fatty Acids an Organic Pesticide Leading to Airway compromise- A case report

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Abstract

Kerala is named as the suicide capital of India and it is notorious for consumption of organophosphates. There has been a paradigm shift in the trend of different poisons consumed. One such trend we have seen in our centre is depicted by the following case report. Organic pesticide soaps or soap salts are commonly potassium salts of fatty acids and are made from natural substances. Potassium salt of fatty acids are used as insecticides, fungicides and herbicides. Generally, it is marketed as safe but, it has corrosive properties in high doses. We present a 54 year old female presented to our Emergency department following consumption of a commercial brand of potassium salt of fatty acid. She was managed similar to that of acute corrosive poisoning. There has been no prior reports documented of having consumed soap salts.

Keywords: corrosive, organic pesticide, potassium salt of fatty acid.

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1. Introduction

Organic pesticides are now becoming very popular and is slowly replacing the conventional pesticides like organophosphates and pyrethroids. These organic insecticides are marketed as environment friendly, non-toxic and biodegradable.[1] Potassium salts of fatty acids are made by adding potassium hydroxide to fatty acids of animal and plant origin[2] Literature review done yielded no documented morbidities or mortality associated with this organic insecticide. LASTRAW® is a commercial product developed by Pest Control of India, Bangalore. LASTRAW® is specially formulated water soluble organic salt of fatty acids, obtained from natural sources of vegetable oil and kills all soft-bodied insect pests on contact. The composition is fatty acid 30%, softsoap of potassium salt 50% and deionized water 20 %.

2. Case History

54 year old female presented to the emergency department following deliberate consumption of more than 50 ml of a commercially available organic herbicidal. On arrival to the Emergency department (ED) she had a blood pressure of 140/90 mm of Hg. pulse rate of 110/min. The oxygen saturation was 87% in room air and respiratory rate of 27/min. There was pooling of greyish secretions from the mouth, both upper and lower lips were oedematous (Figure 1). The patient was poorly responding to call and she had hoarseness of voice and an enlarged tongue. Patient was intubated immediately in view of impending airway compromise and altered mental status. A charred and oedematous airway on direct laryngoscopy was observed (Figure 2) Patient was intubated with a 6.5mm cuffed endotracheal tube by direct

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laryngoscopy. The tongue and soft palate were friable. The endotracheal tube was snugly fit into the vocal cords. As a narrow airway was expected a smaller sized tube was placed. She was shifted to the emergency critical care unit for further monitoring and evaluation. Her ABG showed metabolic acidosis and respiratory acidosis. She was kept nil per oral and managed with proton pump inhibitors and antibiotics. Dexmedatomedine was the drug chosen for ICU sedation. Day 2: Patients vitals were stable. Esophagogastroduodenoscopy was done which revealed oedematous oesophagus.(figure 3) There were no signs of charring in the stomach. Her course in the critical care unit was uneventful and was extubated on the third day. Post extubation patient complained of dysphagia. Oral cavity and indirect laryngoscopy examination revealed erythema and congestion of the soft palate posterior pharyngeal wall arytenoids epiglottis and pyriform fossa. She was discharged on day 10 and was advised follow up with gastroenterologist.



Figure 1. Patient on arrival to the emergency department .Note the pooling of secretions.

Discussion: Potassium salts of fatty acids are used as food additives and the Food and Drug Administration (FDA) classifies them as GRAS (generally recognized as safe).[2] Potassium salts of fatty acids are made by adding potassium hydroxide to fatty acids found in animal and plant oils.(Figure 4) Fatty acids are extracted from natural oils like palm, coconut, olive, castor, and cottonseed to form this pesticide. Insecticidal soap is sold commercially for aphid control; these may not always use the word soap, but they will list "potassium salts of fatty acids" or "potassium laurate" as the active ingredient. Certain types of household soaps (not synthetic detergents) are also suitable. The mechanism of action is that the soap may dissolve the wax layer on the cuticle ("skin"), which leads to water loss by evaporation. The same mechanism could be the cause for local corrosive action over the mucosa. As from the case report the patient could have had local mucosal reaction over the tongue, lips, soft and hard palate, pyriform fossa arytenoids and epiglottis. Organic insecticides are marketed as safe, environment friendly and non toxic.[1] Soap salts on consumption are reported to cause dyspepsia and emesis on oral consumption.[4] On exposure to skin and eyes it can cause lacrimation and congestion.[5] This case report is intended to highlight that potassium salts of fatty acids can be corrosive in nature and may lead to airway obstruction and circulatory collapse if not intervened early. Such patients will also need follow up endoscopy to rule out strictures.



Figure 2. Direct laryngoscopy view of the vocal cords-note the charred epiglottis.

3. Key Messages

Kerala is infamous for its varied and bizarre toxicology presentations to the emergency departments. One such case here is a 54 year old woman who consumed potassium salt of fatty acids just to threaten her relatives because it is marketed as safe and presented to the our emergency department with altered mental status and airway compromise. We were unaware of such a poison and

searched literature which showed no useful information. This case report goes to show that every pesticide although marketed safe is dangerous and life threatening and also on how this case was managed successfully.

4. Conflict of Interest

None Declared

5. References

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