Case Report

Aluminium Phosphide Poisoning and Skin Lesions - A Case Report

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ABSTRACT

A case of suspicious death of a married female with a history of marital discord is being reported. The postmortem examination was done in the Department of Forensic Medicine and Toxicology, Pt. BD Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana. As per the inquest report, the apparent cause of death was 'unknown.' External examination revealed a cannula in-situ on the right forearm near the elbow. Erythematous patches of sizes varying from 2–5 cm were present all over the body. On internal examination, the mucosa of the mouth, pharynx and oesophagus were found congested. Mucosa of the stomach was also congested, and there were erosions along the lesser curvature.

Histopathology revealed the heart to have mild to moderate atherosclerosis, while the liver showed fatty change. Lungs, spleen and kidneys revealed congestion. Pieces of skin taken from erythematous patches showed focal areas of dermo-epidermal separation and mild inflammatory infiltrate in the upper dermis.

Aluminium phosphide (ALP) was detected in the viscera sent for chemical analysis. ALP ingestion is not known to cause dermal reaction. The exact cause of the erythematous patches could not be established. Cause of death was attributed to aluminium phosphide poisoning; the multiple erythematous patches noted all over the body were also mentioned in the final opinion.

This case highlights the importance of drug screening in patients of suspected poisoning.

Key Words: Aluminium phosphide; Erythematous skin lesions

INTRODUCTION

The Case: Postmortem examination was conducted on the body of a 35-year-old female of average build and fair complexion, who was purportedly transferred dead from a hospital in Panipat (Haryana), run by the unqualified husband of the deceased, to the General Hospital, Panipat as the relatives wanted the postmortem examination done in the Dept. of Forensic Medicine and Toxicology, Pt. BD Sharma PGIMS, Rohtak.

As per the inquest report, the apparent cause of death was 'unknown.' A cannula was present in-situ on the right forearm. Mouth was partly open with fine froth seen around mouth and nostrils. Erythematous patches of sizes varying from 2 to 5 cm were present all over the body. Brain was congested and oedematous. Mucosa of the larynx and trachea was congested with a small amount of fine froth found in their lumen. Hyoid bone was intact. Both lungs were congested and frothy fluid blood oozed out from cut sections. Mucosa of mouth, pharynx and

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oesophagus were congested. Mucosa of the stomach showed erosions along the lesser curvature and its mucosa as a whole was congested. It contained approximately 100 grams of semiliquid material. Liver was congested and enlarged, with its surface glistening, and weighed 2100 grams. Other organs were also congested. Selected viscera, along with the cannula and skin and soft tissues around it, preserved in normal saline, together with blood in sodium fluoride was sent for chemical analysis to the Forensic Science Laboratory, Madhuban, Karnal, Haryana. Opinion on the cause of death was kept pending till the receipt of chemical analysis report and histopathology examination report.

The histopathology report disclosed that the heart had mild to moderate atherosclerosis, and fatty change, while the lungs revealed oedema and congestion. Spleen and kidney showed congestion. Pieces of skin with erythematous patches revealed focal areas of dermo-epidermal separation and mild inflammatory infiltrate in the upper dermis.

Aluminium phosphide (ALP) was detected in the viscera upon chemical analysis. The cause of death was furnished as aluminium phosphide poisoning. The erythematous patches noted all over the body were also mentioned in the final opinion.

DISCUSSION

ALP is marketed in India under various trade names (Alphos, Bidphos, Phosphotek, Phosphume, Phostoxin, Quickphos, Synfume, etc). It is generally available as greyish green tablets of 3 gm each, mixed with urea and aluminium carbonate. Each tablet liberates 1 gram of phosphine. Fatal dose is said to be 1–3 tablets.[1] The first case of ALP poisoning in India was reported in 1981 from MGM Medical College, Indore.[2] It is now the single most frequent suicidal agent employed in Northern India.[3-5] Mortality rates in published literature vary from 40 to 80%.[6] The actual numbers of cases affected could be much larger, as less than 5% of those with acute ALP poisoning eventually reach a tertiary care centre.[7] Factors associated with increased risk of mortality include serum creatinine concentration of more than 1 mg%, pH less than 7.2, serum bicarbonate less than 15 mmol/L, need for mechanical ventilation, and the need for vasoactive drugs like dobutamine and noradrenaline. Louriz et al concluded that the prognostic factors associated with mortality from ALP included low Glasgow Coma Scale score, shock, electrocardiogram abnormalities, the presence of acute renal failure, low prothrombin, hyperleukocytosis, use of vasoactive drugs and use of mechanical ventilation.[8,9]

Aluminium phosphide ingestion is not known to cause dermal or allergic reaction. The exact cause of erythematous patches in this case could not be established. It is possible that they were caused by some medication administered by the unqualified husband (quack) of the deceased. It is known that various kinds of dermal reactions, most commonly maculopapular (95% of cases) occur in patients taking allopathic drugs such as allopurinol, beta-lactam antibiotics, sulfonamides, anticonvulsants, angiotensin-converting enzyme inhibitors, nonsteroidal anti-inflammatory drugs, hypoglycaemics and thiazide diuretics. They can also occur with almost any other drug. Usually such dermal lesions appear within 1–4 weeks of initiating the drug therapy, and the key to correct diagnosis is the timing of the rash in relation to drug use.[10] History of drug administration prior to the death of the deceased was not available in this case.

CONCLUSION

This case featuring unusual dermal lesions in a case of aluminium phosphide poisoning highlights the need for complete information being made available to a doctor before postmortem examination, relating to the background history. It is however not certain that the lesions were caused by the chemical itself, or were the result of some unknown drug having been administered. We suggest that a functional analytical toxicology laboratory with required manpower must be attached to every department of forensic medicine and toxicology in India that can test not only for suspected agents in a particular case, but also screen for a wide variety of drugs whenever required.

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