

Thallium Poisoning – Still a Possible Differential diagnosis

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ABSTRACT

A 22 years old male patient presented with dysphagia, multiple ulceration in the lips and mucous membrane of the mouth, hyperaesthesia, paraesthesia, hyperalgesia, and motor weakness of the lower limbs, with foot drop. Two days latter he developed generalized alopecia. Further inquiry proved that he ingested thallium in a suicidal attempt. The purpose of this communication is to alert the clinician to this rare type of poisoning and to stress the clinical features, diagnosis, and management.

Thallium sulphate is commonly used as an insecticide and rodenticide in many countries. Its toxicity was quickly recognized by its discoverer, sir William Crookers. He and his assistant, Lawy, both suffered from symptoms of mild thallium poisoning in 1861. The extreme toxicity of thallium, has led to its use as homicidal poison, and as such it has been said to be 100% fatal.

Thallium sulphate is a colourless, odourless salt. It is available as powder, paste, or sugar coated tablets. The consequences of thallium poisoning are less well known and publicized than those of other kinds of insecticide poisoning. It has many features in common with arsenic toxicity and thiamine deficiency neuropathy; the sensory and motor distal neuropathy.

THE CASE

A 22 years old student, was admitted to Salmaniya Medical Center with dysphagia, peeling of the skin of the lips, and mucosal membrane of the mouth. This was associated with severe pain in the lower limbs. Physical examination revealed multiple ulcerations of the lips (fig 1) and oral cavity, hyperaesthesia, paraesthesia and hyperalgesia of both lower limbs and motor weakness grade 3/5 of both lower limbs with a foot drop. Two days later he developed generalized alopecia (fig 2). Four days after admission he admitted that he ingested Zolio (thallium paste, Bayer) three weeks, ago in a suicidal attempt.

FIGURE 1

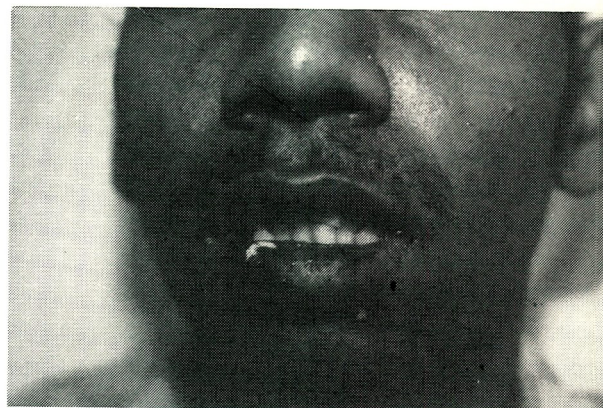
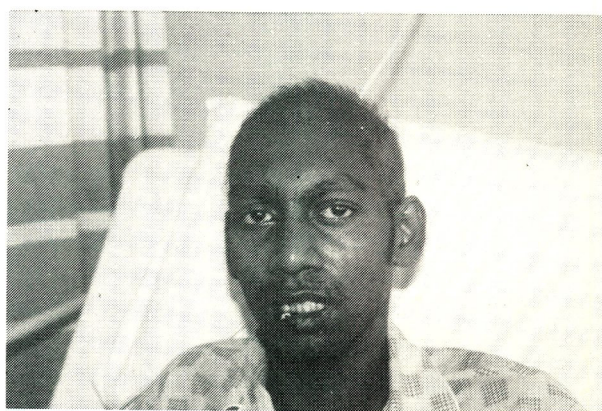


FIGURE 2



Investigation included a complete haemogram, routine stool, urine and blood chemistry tests, chest x-ray, ECG, CSF and EEG. All were normal except for blood urea, creatinine which were slightly raised. Presence of thallium in his stool, urine and serum confirmed the diagnosis.

The patient received conservative treatment with copious fluids, potassium salts, analgesics and castor oil. Carbamazepine was very effective in relieving his pain and physiotherapy in returning his muscle power to normal. Treatment was continued until his stool, urine and serum was free from thallium. The patient slowly progressed back to normal.

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DISCUSSION

The clinical features of thallium poisoning varies according to dose, age and acuteness of intoxication. The most common manifestation reported are : polyneuritis, epilation, gastrointestinal symptoms, encephalopathy, and retrobulbar neuritis ¹. Long nerves are affected early, while short fibres shows changes later. These anatomically distinctive features, together with a distal type of involvement, are characteristic of thallium poisoning ². Ataxia and paraesthesia are more prominent symptoms with small doses. The paraesthesia is usually more severe in the lower limbs and may progress to peripheral neuropathy with muscle weakness and atrophy ³. Deposition of thallium in the brain may lead to psychological disturbances, convulsion, and comma, and death might occur from cardiac arrest or respiratory failure. The best-known feature of thallium poisoning is alopecia, which characteristically occurs 15-20 days after ingestion ⁴.

Thallium has a number of industrial uses, for example in lens manufacture, photography, and scintillation counters. Radioisotope thallium - 201 scanning is a well-recognized technique in the diagnosis of myocardial ischemia. Thallium sulphate has also been widely used for killing small mammals. However, although long banned as a pesticide in the U.K. and the USA, it is still used in many countries as a rodenticide, despite the World Health Organisations recommendation against such use ⁵.

Severe acute thallium poisoning with coma seems to be associated with lethal outcome. However, less severe poisoning can be treated successfully. Within the first day after ingestion and stomach should be emptied. Specific treatment with chelating antidote should comprise soluble prussian-blue (ferrihexacyanoferrate) given orally. The antidote confined to the gut lumen, and intestinal mucosa acts as a dialysis membrane. At later stage copious fluids and potassium therapy seems to speed up the urinary thallium excretion.

CONCLUSION

The author conclude this report by emphasising the existence of thallium poisoning in Bahrain, and to stress the importance of this type of poisoning in the differential diagnosis of polyneuritis associated with alopecia.

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