

Skin manifestations of mercury poisoning

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Eight patients with skin lesions attributed to methylmercury exposure are reported. The outbreak of poisoning occurred in Iraq as a result of the handling and ingestion of treated grain and home-made bread. The skin manifestations were rather rare and varied in severity and histological appearance.

Key words: Exfoliative dermatitis – glossitis – mercury poisoning – pigmentation – wheat.

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Mercury and its salts have been used in medicine for centuries, and particularly in the treatment of syphilis up to the early decades of this century. Its uses include that of a skin antiseptic, a sterilization fluid for surgical instruments, a purgative, and a preservative in many biological fluids, vaccines and other therapeutic agents. Many of these uses have declined with the development of more effective antibacterial agents and antibiotics, and awareness has grown of its chronic side effects in the form of renal damage and so-called pink disease (acro-dynia). Late in 1971 and early 1972, reports appeared in Iraq of mercury poisoning from the ingestion of home-made bread from seed wheat which had been coated with a methylmercurial fungicide (Bakir et al. 1973). The epidemic of mercury poisoning was the most severe ever known: 6530 cases were admitted to hospital and 459 died.

Clinical Features

The patients presented to different departments of the hospital including pediatrics, neurology, urology, psychiatry and ophthal-

mology, as well as to the dermatology department with skin manifestations. Some of the varied symptoms were vomiting, abdominal pain, diarrhea, loss of weight, ataxia, tremor, dysarthria, fatigue, headache, joint pains, salivation, pruritus and skin rashes.

Eight patients presented to us with skin lesions. There were five males and three females. It is possible, however, that a number of patients came to the skin department with lesions diagnosed as dermatitis, in whom mercury estimations were not carried out.

The following case is typical. F. K., a man aged 26, worked as a farmer. He was seen on 6 March 1972. He said that he had received treated wheat seed for planting in October 1971, but he and his family had eaten some of the seed and planted the rest. He was the only member of the family who had planted the seed but shared in eating it. Although there were thirteen members of his family, he was the only one to show manifestations of mercury toxicity.

In December 1971, he had rigors and fever. A few days later a rash appeared on

his left forearm, and 2 days later he had a generalized eruption spreading from his face to all parts of his body. It was accompanied by severe itching and excessive salivation. Examination showed a generalized erythrodermia with brown pigmentation and yellowish desquamation. On the extensor surfaces there were follicular hyperkeratotic papules, mainly on the forearms, arms, front of the thighs and back of his trunk. Some areas were covered with yellow crusts. There was fissuring with serous exudate and crusting in the flexures of the neck, axillae, elbow flexures, popliteal fossae and around the ankles. The scalp hair was sparse and later shed completely when in hospital. The nails were normal, and the tongue showed an acute glossitis with redness and atrophy of the papillae.

The patient was treated with procaine penicillin 400,000 units intramuscularly daily for 15 days, as well as vitamin B complex intramuscularly and ascorbic acid orally. Oily calamine lotion was the only local application. He was given a high protein diet. He made a complete recovery; his hair re-grew and he was discharged on 4 June 1972. When seen in July 1972, his skin was normal, apart from slight residual brown pigmentation.

Histology

The histopathological changes varied. Some biopsies showed oedema of the dermis and epidermis only; in others there was acanthosis, hyperkeratosis and a dermal infiltrate of polymorphs and lymphocytes, increase in histiocytes and pigmentary incontinence. The more severe cases showed the changes of exfoliative dermatitis, with erosions and ulceration.

Comment

All the patients were farmers and peasants

who had handled the treated seed in planting. Although they had been warned by the authorities distributing the seed, others had made bread from the seed and eaten it.

The incidence of skin involvement was small in relation to the total number of persons affected by toxicity, although we have only examined the patients who presented primarily to the skin department. It is likely that a number of less severely affected patients presenting with skin rashes were misdiagnosed.

The principal changes were those of an exfoliative dermatitis with pigmentation, follicular hyperkeratoses, flexural exudation and fissuring. We think that the changes observed were caused by direct skin contact with the treated seed and percutaneous absorption rather than by oral ingestion. Many other patients had higher blood levels of mercury than our patients, but without any skin lesions. In our patients the primary sites involved were the hands, forearms and face, and only later were the trunk and legs involved. Furthermore, we found that some children were affected after playing with the treated seed or helping with the planting, even though they ate the same meals as their parents who had not developed any cutaneous lesions.

Reference

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