

CHRONIC PSYCHIATRIC SYMPTOMS AFTER ACUTE DERMAL HYDROFLUORIC ACID EXPOSURE

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SUMMARY: A case is reported of chronic psychiatric symptoms, with depression, anxiety and hallucinations developing after acute dermal exposure to a dilute solution of hydrofluoric acid.

Key words: Hydrofluoric acid; Psychiatric symptoms; Systemic toxicity.

CASE REPORT

A 44-year-old man, Mr A (pseudonym), developed a chronic psychiatric illness with depressive, anxious, and psychotic symptoms after dermal exposure for 4 hours to a dilute solution of hydrofluoric acid. He was still seriously impaired after two years and having treatment with an antipsychotic and a mood stabilizer.

Mr A used an aluminum cleaning solution containing less than 5% hydrofluoric acid for four hours to clean an aluminum store front without protection by rubber gloves as recommended by the manufacturer. Oblivious to the danger, he submerged his hands in the liquid while soaking rags which he used for the cleaning work.

Finger and hand pain developed 1.5 hr later, and, 6 hr after completing the cleaning, he received three topical treatments with calcium gluconate gel without relief. He was admitted to hospital overnight and treated with morphine and given topical calcium gluconate gel to apply for a week. He experienced skin desquamation for 10 days and felt that he was improving for three weeks.

However, three months after the injury he experienced cold and numbness of his hands, instead of pain, and aching of his wrists and arms. He woke frequently at night, at approximately 15–20 min intervals, with hand discomfort. He experienced depression and had hypnogogic hallucinations when falling asleep with hearing a loud bang and seeing a bright flash. He experienced a dream-like state in which he imagined and visualized things that made no sense to him. He did not leave his house for a week, left simple chores undone, became irrational to his family and friends, developed memory difficulties and was unable to work. He developed a chronic left otitis media infection, left-sided headache and diplopia.

He sought counselling and was treated with an antidepressant for one month without improvement. A Computer Assisted Tomography (CAT) scan showed an ear infection. Thyroid function tests were normal. For over a year he continued to have poor sleep with nocturnal hand numbness and spent his mornings “in a psychotic state before fatigue set in.” He received further treatment with an antidepressant, venlafaxine, and an antipsychotic, risperidone. He developed a skin rash and tinnitus. He was then treated with a mood stabilizer, lamotrigine, and another antipsychotic, quetiapine. His sleep and depressive mood improved but he

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had increased anxiety, hard lumps near his fingertips that were painful on pressure, tooth-looseness, and an inability to hold objects, such as a spoon, in his hand without a tremor. After two years he still remained seriously impaired in his ability to function.

DISCUSSION

Dermal exposure to hydrofluoric acid may cause acute systemic toxicity with hypocalcaemia, hyperkalaemia, metabolic acidosis and acute renal failure.¹⁻⁵ This case raises the possibility that chronic psychiatric symptoms may also be a complication.

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