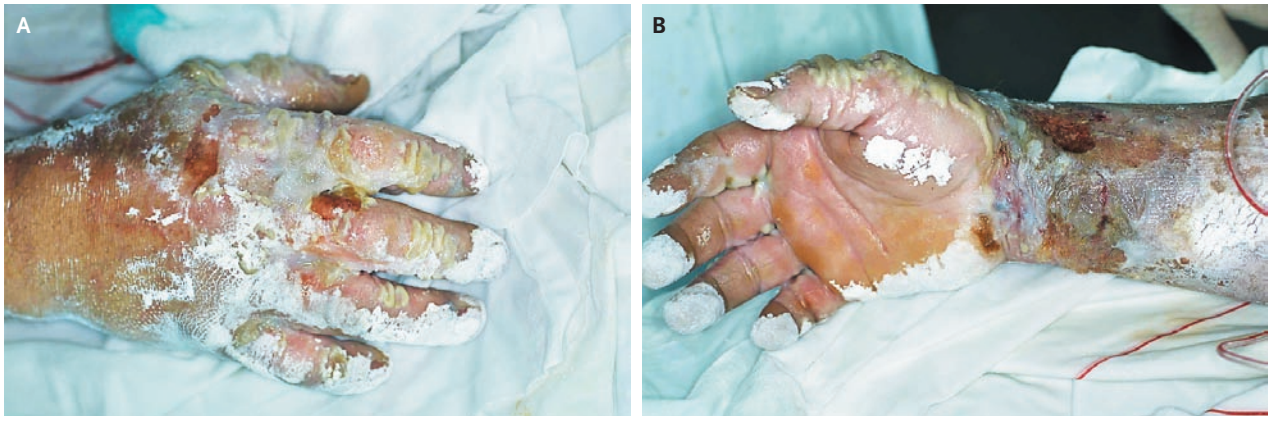
IMAGES IN CLINICAL MEDICINE

# Hydrofluoric Acid Burn




A 45-year-old healthy man was involved in demolishing an industrial plant in which glass had been etched. He was exposed to a reservoir of 70% hydrofluoric acid while repairing a pipeline. He was admitted to the intensive care unit for second-degree and third-degree burns from hydrofluoric acid affecting 30% of his body-surface area, including both hands, both forearms, the chest, back, scalp, and neck. After penetrating tissue, hydrofluoric acid dissociates into hydrogen and fluoride ions, of which particularly fluoride is toxic. Since fluoride ions are inactivated by means of precipitation with calcium and magnesium, the infusion of calcium and magnesium is considered a therapy in patients with hydrofluoric acid burns. In this patient, magnesium was infused intravenously, and calcium was infused intravenously and intraarterially (through the brachial artery) and was applied topically to the burned skin. The blood magnesium level was always within the normal range during substitution therapy. Blood levels of ionized calcium were initially elevated to up to 1.75 mmol per liter but were within the normal range after 36 to 48 hours. As a result of this intense calcium and magnesium therapy, cutaneous calcification developed on the fingertips by 36 to 48 hours, as well as on the dorsal and palmar aspects of the hand (Panels A and B, respectively). Three months later, the patient had regained an almost full range of motion, was free of symptoms, and had a good aesthetic result.



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