

# Cement burn

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Sir,

A 22-year-old Japanese man was admitted to our emergency department with sharp pain to both his hands and wrists due to chemical burns sustained while working at a construction site. Cement had accidentally dripped down his gloves and made contact with his hands and wrists. Five hours later, he felt a burning sensation and noticed blisters at the affected regions. The symptoms progressively worsened and became increasingly painful and swollen. Physical examination revealed erythematous, edematous lesions and ulcers with minimal necrosis (Fig. 1a and b). His vital signs were within normal range, and no abnormality was detected on the rest of his physical examination. Except for highly elevated creatinine kinase (631 U/L; normal range 62-287 U/L), laboratory findings, including complete blood count, liver and renal function test, and serum electrolytes, were normal. Initial treatment consisted of debridement and analgesia and the ulcers were epithelized by conservational therapy within 2 weeks. Four weeks later, he visited our department and presented with only mild contracture on the surface of his wrists. A patch test, which was performed to investigate whether underlying contact allergies to cement existed, was uniformly negative.

Cement is widely used in the construction sector, and contact with the substance occasionally induces several types of cutaneous reactions. The most common cement-related rash is allergic contact dermatitis, especially that due to chromate and cobalt. Irritant reactions are also common and usually mild. By contrast, cement burns lead to severe symptoms that require intensive therapy [1].



**Figure 1:** Clinical appearance of hands (a) and wrists (b) several hours after contact with wet cement.

Cement burns are caused by alkaline calcium hydroxide, which is formed when water is added to cement. Cement burns are thought to be developed by direct contact of cement to skin. Several etiological factors, such as prolonged contact with wet, strongly alkaline cement, the abrasive effect of prolonged rubbing of clothing, boots or gloves impregnated with alkali, as well as aggregates of cement, may be harmful. The pH range of wet cement is 10-12 but can reach 12-14 during the process stage [1,2].

Chemical burns from cement cause erythema, bullae, and pain within a few hours after contact, and result in acute ulcerative dermatitis. Such burns are insidious in onset, and patients may therefore only initially be aware of minor irritation. However, this progressive tendency of cement burns often leads to full-thickness burns that require skin grafting [3].

Because of the progressive nature and severity of the tissue destruction caused by cement, prompt removal of contaminated clothing and thorough washing of the skin with water is advised [3]. Adequate hazard notifications and information are especially important in avoiding such accidents [4].

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## CONSENT

The examination of the patient was conducted according to the Declaration of Helsinki principles.

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