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Caustic Ulcers Caused by Cement Aqua: Report of a Case

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Abstract: Chromium is widely used in various industries including construction sector. Skin contact with cement has been associated with allergic or irritant contact dermatitis. Contact dermatitis is one of the most frequently reported health problems among construction workers. Irritant contact dermatitis from cement ranges from cement burns to cumulative irritant contact dermatitis. Cement burns are rarely reported and are considered a severe form of acute irritant contact dermatitis. They are associated with amateur user working in a short ready-mix timeframe with poor protective measures. They usually result in significant morbidity and initially are associated with minimal discomfort. We report a typical case.

Key words: Caustic ulcers, Cement aqua, Occupational injury

Cement is the leading cause of occupational skin disease in the construction industry[1)], mostly due to contact allergy. Cement burns were previously reported, mostly 20 yr ago[2–8)]. We report another case.

A 48-yr-old man presented to our department with necrotic lesions on feet, ankles and shanks. Five days ago, he had been in prolonged contact with cement aqua during cleaning transport tank. He admitted spilling of cement aqua over the top of Wellington boots but he continued to wear them for 5 h until finishing work. In the evening, he noticed pain, burning sensations and blisters on described locations. The features progressively worsened; necrosis had appeared two days after contact. The legs became swollen, painful and the patient was not able to walk.

Examination showed erythema around ulcers covered with black necrosis (Fig. 1). His vital signs were in the normal range, the physical examination showed no abnormality. Hematological, biochemical finding and results of urinalysis were normal. Sed rate was 80 mm in the first hour. The treatment consisted of mechanical debridement of necrosis, applications of antiseptics, hydrocolloid dressing and analgesics. No skin grafting was necessary. After 2 wk, he had few small types of erosion on both legs, but most skin was healed with scars and hyperpigmentation on the affected area (Fig. 2).

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Cement burns are an acute ulceration[2–9)]. They may lead to severe illness needing intensive therapy, as well as significant loss of working time[2)]. Cement burns are insidious in onset[2, 8, 9)].

Most cement-related skin effects are due to allergy[1, 10)]. Cement burns are caused due to strong irritation and alkalinity of cement (pH 10–12); other relevant factor is abrasion by abrasive properties of sand, lime, etc.[11)] This effect is increased by occlusion due to wet clothes or shoes. A few hours after exposure, burning sensations, pain, erythema and vesicles occur as the initial symptoms.

Fig. 1. Caustic ulcers involving both feet before treatment.

Fig. 2. Appearance of feet after treatment.

After 12 to 48 h, partial to full-thickness burns characterize the clinical picture[2]. It was identical in our patient. Our patient was aware of small irritation. After prolonged contact with cement aqua caustic burns were appeared. Fortunately, his lesions were healed without surgical excision or skin grafting, which is sometimes necessary.

In our case, occupational injury occurred because the patient has lacked proper knowledge about safe work with cement. The man worked as a concrete-lorry driver in a small-scale enterprise. Cleaning the tank did not belong to his duties. However, on one occasion, due to the lack of other labour, he voluntarily performed the cleaning himself. Unfortunately, he was not sufficiently trained in using safety equipment for this task and he did not use proper protective clothes. He went beyond his job description and consequently developed toxic dermatitis.

In the Czech Republic, before starting a new job each employee must be examined by a trained occupational physician. Depending on the work risk, the examination is repeated every 1, 3 or 5 yr. These examinations are paid for by the employer. Small-scale enterprises sometimes have problems with fulfilling the legal requirements for the control of occupational health and safety; however it was not the case this time.

To prevent similar injury, it is important to accept adequate safety use of work practices and use of personal protective equipment.

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