

SHORT REPORT Occupational skin ulceration in chrome platers

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Key words: Chrome; chromium; plating; ulceration.

Occup. Med. Vol. 47, 309–310, 1997

Received 27 November 1996; accepted in final form 24 February 1997.

INTRODUCTION

Ulceration of the skin due to contact with hexavalent chromium was first described by Cummings in 1827.¹ One hundred years later, in 1928, Blair published a study of 12 cases of skin and nasal ulceration at a time when chrome plating had become commercially successful.² Formal regulations to protect workers health were introduced for the first time in the UK in 1931,⁴ when the risks of occupational exposure to chromium had become well established.

A review was undertaken of 13 cases of skin ulceration which had been identified from an earlier study of ill health in chrome platers.⁵

Data were collected on 55 platers from 17 companies. Fifty-one were right-handed, three were ambidextrous and one was left-handed. There was evidence of previous skin ulceration in 11 platers (20%) from four of the 17 companies (23%). Two platers were found to have active chrome ulcers at the time of the study (4%).

Of the 11 platers with previous ulcers, six had a single ulcer scar, two had two scars, one had three scars and two had more than three. All ulcers occurred on the hands, the most common site being around the proximal interphalangeal joint and on the lateral aspects of the terminal and middle pharynx of the middle and index fingers.

The development of a chrome ulcer or 'chrome hole' follows a prescribed course yet there is little in the literature which discusses the healing and scarring process.

Contact of hexavalent chrome with the skin only results in an ulcer if there is a cut, abrasion or any other defect in the protective epidermis.

There may be intense itching at the site — particu-

Table 1. Site of chrome ulcers in right-handed platers*

Finger	Ulcer site (both hands)	Ulcer site (right hand only)
Thumb	2	0
Index	6	5
Middle	5	3
Ring	2	0
Little	1	0

* More than one ulcer was found in five cases.

larly at night. Over a period of days, the lesion develops into a central crater with an intense inflammatory reaction at the margins. The lesion is usually less than 1cm in diameter but can look dramatic although pain is not a strong feature at this stage. Over a few weeks the ulcer heals producing a permanent scar that looks as if a hole punch has been applied to the skin.

Chrome platers are often familiar with the clinical course of these ulcers and do not seek medical treatment or advice from their GPs unless healing is delayed.

If chrome ulcers are to be prevented then platers need to be educated on the importance of avoiding cuts — particularly when placing components onto jigs — and of covering any cuts and grazes that do occur with waterproof dressings. Particular attention needs to be paid to protecting the areas where the ulcers are most frequently found and to providing adequate personal protective equipment so that chromic acid does not come into contact with the skin. Where ulcers do develop, they need to be monitored to ensure that healing is taking place. Whilst the majority of ulcers heal spontaneously, surgical intervention has been necessary on rare occasions when ulcers have failed to heal.

Occupational physicians have a valuable role to play in the prevention and management of this occupational skin disease through employer and employee education and via effective health surveillance.

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