

TWO FORMS OF DERMATITIS DUE TO THE USE OF METHYLATED SPIRIT EXTERNALLY.

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THE increasing restrictions imposed by the excise authorities on the use of alcohol have led to the occurrence of various irritations of the skin in persons who are compelled to use commercial alcohol. Amongst those hitherto unaffected are surgeons, who use spirit for the purpose of disinfection, and also hairdressers employing spirit lotions and spirit soaps. Prosser White¹ notes that pyridine and methyl alcohol used in polishing trades may give rise to chronic dermatitis of the hands.

During the last twelve months an outbreak of severe dermatitis occurred amongst the surgeons at the Manchester Royal Infirmary, and more recently a closely comparable eczema has been produced amongst the employees of a certain firm of barbers in the same town.

The dermatitis occurring in the hospital was produced on the hands and arms of five members of the surgical staff and several theatre nurses. The condition was proved to be due to the alcohol by a process of exclusion of all other factors—the soaps, the disinfectants, and the process of laundering being changed without effect. When the use of spirit ceased, the dermatitis ceased also. The lesions were of a dry eczematous type and affected particularly the webs of the fingers, the wrists, and the fore-arms. The lesions were intensely irritable and commenced within twelve hours of exposure; in certain cases fissuring of the skin and superficial bleeding occurred when the trouble became severe. Only one of the persons affected was predisposed to eczema. The exact chemical irritant concerned in these cases was not isolated, but a change of source of supply checked the appearance of lesions.

The outbreak among the barbers was more extensive and more severe in its results, although two of the cases occurred in men who had had general eczema (from unrecognized causes) elsewhere on the body. Ten definite cases were found within a few months, and in all these the men had been in the same occupation for many years—periods varying from three to twenty years. Several of the other employees complained of itching, burning, and tingling of the hands after using certain of the preparations. The ten cases examined showed the following characteristics:

Case 1.—Aged 46. Complained of irritation of the hands and wrists for two weeks. Suddenly developed a very severe dermatitis with oedema, fissuring, pain, and general desquamation of palms, anterior surface of wrists, and between the fingers. The condition settled rapidly on cessation from work and application of sedative lotions. In the employ of the firm four years.

Case 2.—Aged 28. Complained of burning of the hands during the last six weeks. Developed blisters on contiguous surfaces of fingers and on palms after using "friction" lotions. Condition almost disappeared during the forty hours' rest provided by the week-end. Stated that he has produced a dermatitis of the face by the application of "friction" lotion to his chin. A dotted vesicular condition of the palms with patchy erythema was produced by the giving of three scalp applications during one day. In the employ of the firm five years.

Case 3.—Aged 33. A very severe case with intense oedema and serous exudation of both hands and wrists. This was the first case affected and was the most severe. He now appears to be sensitized to any form of methylated spirit, and can only work with rubber gloves when compelled to use spirit shampoos or frictions. Was employed for five years.

Case 4.—Aged 35. Irritation commenced in July, 1925; he persisted in his work for ten days in spite of mild desquamation. Suddenly the hands became inflamed, oedematous, and discharged freely. The fingers were so inflamed as to prevent flexion. Fissuring and bleeding followed. The wrists also were affected. The condition disappeared entirely with two weeks' rest. He resumed work, but after giving two applications of lotions the entire dermatitis recurred in an even more severe form. Has been in the employ of the firm for fifteen years.

Case 5.—Aged 35. Has had recurrent mild dermatitis of hands on several occasions. It always disappeared after a week's rest from work. After using the applications he feels a "biting" sensation all over the hands—if this is repeated the skin peels off and the hand swells up, reddens, and becomes very irritable. He states that attacks can be prevented by oiling the hands before employing lotions or frictions, though several applications will penetrate through this and give rise to trouble. At present he has a mild squamous dermatitis which is almost entirely interdigital. This is a patient who has had dermatitis elsewhere on the body previously. Has been in the employ of the firm three years.

Case 6.—Aged 35. Has a moderately severe dermatitis on the right wrist and on the webs of the fingers. States that he has a marked "burning" sensation after the use of any of the spirit lotions.

Case 7.—Aged 20. Has some dermatitis of the backs of the hands and wrist with dry scaling and fissuring. This disappears when he is away from work for a few days. Complains of irritation after the use of friction. Has been in the employ of the firm twelve months.

Case 8.—A milder case showing dry, slightly erythematous fissuring and scaling on the skin on the webs of the fingers of the left hand. There is some slight dermatitis also on the right hand which is very irritable at night. Has been in the employ of the firm for three years.

Case 9.—Exactly similar to Case 8. Duration in both cases one month. Has been in the employ of the firm six years.

Case 10.—Shows a chronic and scaled patch of dermatitis about three inches in diameter over the first interphalangeal space of the right hand. Has been in the employ of the firm for six years.

The firm concerned gave the writer every assistance in investigating the cause of the outbreak, and a full analysis

of all possible irritants was made, with the following findings:

The "dry shampoo" contained approximately 50 per cent. water and 48 per cent. alcohol. There was a heavy deposit of a gritty nature present which proved to be almost entirely potassium carbonate. Small quantities of colouring matter and scent were present also. It is to be noted that no pyridine was present. The bottles are of necessity shaken before use, and it may be concluded that the deposit is evenly shaken throughout the mixture and would therefore be inoculated into the hands were any fissuring present. It is worthy of note that the relative concentration of alcohol and water is such as to precipitate crystals of potassium carbonate. These are palpable in the lotion for a few seconds when rubbed on the hand until the evaporation of alcohol allows them to redissolve in the water. Under the microscope they are seen to be sharp and needle-shaped. Experimental inoculation of these crystals into the hand of a non-sensitized person did not give rise to any irritation except such as is to be expected after the application of alcohol to injured skin.

An analysis of the various "frictions" used showed that one of them contained the following irritants: Pyridine, 0.49 per cent. of the total mixture, and 25 per cent. of the residue after evaporation on the water-bath. Also traces of arsenic and aniline colouring matter.

It appears that the use of pyridine is very common in Continental spirit, and it is likely that the cause of the trouble lay in the use of spirit containing this denaturant by the manufacturers. Evaporation of the particular "friction" referred to above left a residue which was largely composed of pyridine and gave rise to irritation of the skin when rubbed in. It is realized also that when the friction is applied to the scalp the evaporation of the alcohol will result in a further concentration of the irritant material.

I am indebted to Dr. Savatard and Dr. Gibson of the Manchester and Salford Skin Hospital for permission to report on three of the cases which came under their notice, and to Mr. H. C. Taylor for the analysis of the materials employed.

REFERENCE.

¹ Prosser White: *Occupational Affections of the Skin* (Lewis, London).