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TREATMENT OF SCABIES

USE OF SULPHUR LATHER TABLETS

BY

DOROTHY L. CARTER, M.B., B.S.

Recently Assistant School Medical Officer in Middlesbrough

The increase in the incidence of scabies, started well before the war, has now become a wartime problem. Among the school population, where information of a non-notifiable disease is easiest to find, scabies increased 90% in Heston and Isleworth, 100% in the North Riding of Yorkshire, and 50% in Coventry, in 1938. These figures are pre-war, but it is legitimate to assume that conditions which caused such an increase then will have caused a still greater increase in wartime, for the war has exaggerated many of those conditions. One of the chief reasons before the war was, as stated by Sir Frederick Menzies, the fact that "children who have been treated return to homes where other members of the family are untreated and reinfection is frequent." This fact is surely the basis for the alarming increase. Scabies is a curable disease; the remedies are varied, but the majority are effective sarcopticides. Given an isolated case of scabies few practitioners will fail to cure it in a week. The cure of the individual case is relatively easy, and yet the disease remains one of the most difficult to control, and is at present assuming the proportions of an epidemic.

Anyone dealing with scabies on a large scale will acknowledge that the more cases we cure the more we find to cure. It seems feasible, therefore, to deduce that the disease is increasing because: (1) supervision of contacts is not given the same importance as the treatment of active cases; (2) 50% of the cases never seek treatment and thus constitute a reservoir from which fresh cases are always arising. The majority of individuals in this reservoir of untreated cases are those who escape medical supervision in schools, factories, and industrial concerns—children below school age who elude the rather infrequent visits of the health visitor, mothers and female relations who do not work outside their homes, and children above school age who do not come under medical supervision at work. Medical supervision would have much reduced the incidence of the disease had it not been for these untreated cases. The importance of control of the contact is increased by the fact that the war has caused a dispersal of the family unit. A family which before the war kept its scabies more or less to its own house now carries it to the Army, the air-raid shelter, and the reception area. The soldier home on leave takes his wife's scabies back to the barracks, the school child returns to the reception area with the baby's scabies, and the "bombed-out" family crowd in with neighbours or in a communal shelter, and the

acarus, if present in clothes or bedding, spreads rapidly. Shelter life and, indeed, all conditions of overcrowding, too often associated with personal uncleanness, fewer baths, fewer washdays, all provide excellent facilities for the increased spread of scabies.

Infection is by contact. This must be close contact with an infected person's lesion or with his infested clothing, and must be long enough to allow the acarus to pass from one person to another and to establish itself by burrowing in the skin. Thus infection will result from sleeping in the same bed as an infected person, using infested blankets—for example, in the Army, the shelter, or the crowded house—or wearing an infested person's clothing; it is possible that in some cases infection passes from clothing to clothing. Infested clothing remains infective for at least eleven days (Gray, 1940).

Importance of Effective Treatment

Scabies, which is frequently venereal (Roxburgh, 1939), is often regarded as a trivial disease; and is put with "nits" into the class of normal affections of some of the poorer people. This is unwise, for the importance of scabies lies in the fact that while it is never a life destroyer it causes much loss of sleep—an important fact nowadays. The cardinal symptom is intense irritation at night-time. The scabietic child, unless inured by months of reinfection, is pale, listless, heavy-eyed, and dull, not, of course, only because of his scabies but because of loss of sleep and his perpetually irritating skin condition. Similarly, we can ill afford to let the war worker spend his days and nights scratching, with a resultant increase in nervous tension, lack of concentration, impairment of efficiency, and eventually loss of working time.

The ideal treatment must be: (1) short and effective to reduce the period of infectivity; (2) palatable to the patient, who often has to be cajoled into continuing with it; and (3) must include all contacts and clothing. The futility of treating the school children and neglecting the contacts is expressed by Macdonald (1941): "The usual means of dealing with scabies by treating the children with clinic baths and instructing the mothers is not only inadequate but in the vast majority of cases is a futile expression of hope." On the other hand, the effectiveness of dealing with case and contacts together has been proved in Canada (Currey, 1939). On the day of diagnosis of a case of scabies the health visitor treated the case and all the contacts of school age in their own homes with benzyl benzoate lotion. All were excluded and followed up in twenty-four hours. Advice was given to the parent and lotion left for the remaining members of the family. In this way the incidence of scabies was, during the first six months of 1939, twelve families out of a school population of 5,569. This is an interesting record, for although only school-age contacts were treated, yet incidence of scabies among the schools fell to a very low figure.

A New Method of Treatment

I have recently used a new method of treatment on children of all ages in a school treatment centre. In a small series of cases this was agreeably successful, and I think it is justifiable to add yet another to the list of sarcopticides, for this one has certain advantages over others I have used, especially in children. This treatment was first described in America (Nolan, 1937). The active principle is sulphur—the old favourite. This is incorporated in a bland soap—amount of sulphur being 18%—which is applied to the body in the form of a lather. As the lather dries a thin film of sulphur is deposited all over the body. Nolan had noted that on looking at a bubble of the lather

the finely divided granules of sulphur could be seen, and as the bubble burst these granules were deposited on the skin. It was estimated that 4 grammes of the soap were needed to cover the body with a lather, whereas 85 grammes of sulphur ointment were commonly used. Nolan estimated the equivalent of sulphur as 0.72 gramme against 12.8 grammes. This meant not only a saving of material but less likelihood of sulphur dermatitis, as the amount of sulphur used was so much less. Working on Nolan's principles, I used, instead of a soap, a tablet in which the amount of sulphur suggested as adequate—that is, 0.72 gramme—was incorporated with a lathering agent. This was thought advisable for several reasons. Scabies baths are often given by untrained persons, and with a cake of soap it is as possible as with an ointment to use too much and cause a dermatitis. I used these tablets on twenty-nine unselected cases of scabies at a school clinic. In the majority of these the baths were given by V.A.D.s on my instructions.

FIRST SERIES OF NINE CASES

Procedure.—(1) Each child was given a hot bath; five were scrubbed with a nail-brush or harsh flannel and four were bathed clean without friction. (2) Child removed from bath and lathered all over with the tablet, a foam being produced by rubbing the tablet between the nurse's wet hands. (3) Lather allowed to dry; this took about five minutes in a warm bathroom. (4) Clean vest put on. (5) Procedure repeated on two successive

the child from scratching the tags of dead skin. It is notoriously difficult to make children attend regularly for baths, and in this series the longest time taken to give the three applications was five days.

Result.—Out of twenty cases two defaulted. Eighteen were given three applications; all cured seven days after the last bath. One case of dermatitis. This child was seen to have a patch of urticaria on his abdomen at the follow-up inspection. No sign of dermatitis was seen during treatment, and in my opinion this was not a sulphur dermatitis; it cleared with calamine lotion in three days.

Comment.—The lathering method of applying sulphur has been used fairly extensively in America. I have found it in a very small series of cases to be a nearer approach to the ideal for children than either ung. sulph. or benzyl benzoate lotion. It is effective, as sulphur always has been, and the chance of dermatitis seems to be very small; moreover, by giving the patient three tablets treatment can be carried out at home without the fear of an excessive application by the zealous-minded. It dries quicker than a lotion and has none of the "messy" qualities of an ointment. Scrubbing before the application is probably necessary, or at least advisable; I found scrubbing was not necessary for children, in whom a hot bath and rub down with a flannel is generally sufficient to open the burrows. None of the children complained of pain after the lathering, even those with raw or septic areas.

Table showing Details of the First Series of Nine Cases

Case	Age	Sex	Degree	Complications of Disease	Duration of Treatment	Scrubbing	Previous Attacks (Recorded)	Complications of Treatment	Remarks
1	10	M	Moderate; abdomen, hands, and feet	None	1.2.3.	Yes	Baths at clinic with ung. sulph. since Nov. 1939	None	Attendance of this boy was very irregular before trial with sulphur lather. He was constantly getting reinfections
2	8	F	Severe; abdomen, back, and wrists	Septic burrows on wrists	1.2.3.	Yes	Several recurrences	None	Cured in 3 days with 3 baths
3	13	M	Moderate; abdomen round umbilicus, fingers	None	1.-2.3.	Yes	None	None	Brother of Case 4. Cured in 4 days with 3 baths
4	11	M	Severe; trunk, thighs, and feet	None	1.-2.3.4.	Yes	None	None	Brother of Case 3. Cured in 5 days with 4 baths
5	10	M	Slight; hands only	None	1.2.	Yes	None	None	Cured with 2 applications
6	8	M	Very severe; numerous burrows all over back, abdomen, thighs, and forearms	Septic burrows	1.-2.3.--4.	No	One recorded attack in Jan., 1939	None	Brother of Case 7. Cured in 7 days with 4 applications
7	5	M	Same as Case 6	Same as Case 6	1.-2.3.--4.	No	None	None	Brother of Case 6. Although this child was not scrubbed he opened most of the burrows by scratching
8	11	F	Severe; abdomen, buttocks, and forearms	Some areas of sulphur dermatitis on abdomen	1.2.3.	No	None	None	Scabies for 4 weeks before seen at clinic. Treated at home with paste of sulphur and lard after hot baths (no scrubbing). This, no doubt, accounts for sulphur dermatitis when first seen
9	12	M	Mild; abdomen and between fingers	None	1.2.	No	April, 1940	None	Cured after 2 applications. Reviewed 7 days later—still clear

Cases grouped into mild, moderate, and severe.

Duration of Treatment.—Each application of sulphur foam is numbered 1.2.3., indicating three applications on three successive days. If a day is missed it is denoted thus: 1.-2.3., indicating that the child did not attend on the second day so had its second application on the third day.

days. (6) Verbal instruction given to the parent about boiling the clothes and sheets.

Result.—Cases seen seven days after last bath; all cured. Average number of applications, three; average duration of treatment, four days. No cases of dermatitis.

SECOND SERIES OF TWENTY CASES

All children were given the treatment as outlined for the first series, but no one received more than three applications, as I thought this should be sufficient. Ten were scrubbed and ten were washed in hot water before lathering, four receiving their treatment at home. The majority were given ung. zinc. B.P. or calamine lotion to apply for the week following the last bath. This I found advantageous, as the skin often showed excoriations and scratch marks, although the scabies was cured. The ointment rubbed well into the skin promoted healing and prevented

Comparison with Other Treatments

Sulphur Ointment: Ung. Sulph. B.P.—This is the traditional treatment for scabies, and I have used it on children for some time. Its effectiveness is indisputable, but it is not my treatment of choice, for three reasons: (1) The use of any ointment spread thickly over the body means that underclothing and bedding become soiled by the grease. This, combined with its rather pungent smell, makes the treatment objectionable to many people; their satisfactory co-operation is difficult to obtain. (2) There is the likelihood of sulphur dermatitis if the ointment is used too thickly or too frequently. Sulphur dermatitis associated with scabies is not only very difficult to cure but also often difficult to diagnose. (3) All the burrows

must be opened by preliminary scrubbing, otherwise the ointment cannot penetrate. Although this is impressed on the patient he often neglects it and so makes the treatment only partially effective.

Benzyl Benzoate Lotion: Equal Quantities of Benzyl Benzoate, Soft Soap, and Methylated Spirits.—This lotion I have used on children at a school clinic. In any case with open sores or septic infection of the burrows the lotion proved too painful. Application of soap and methylated spirits to a raw area was more than most children could bear, and I found that this factor alone nullified its effectiveness as a sarcopticide. Regular attendance at a treatment centre is difficult enough to get with a non-stinging application; it is well-nigh impossible with a "burning lotion"! Reference to the literature shows, too, that erythema of the skin, oedema of the prepuce and scrotum, and conjunctivitis have been noted in adults.

Benzyl Benzoate Cream.—Recently, in order to overcome the stinging effect of the lotion, benzyl benzoate has been incorporated in a cream (Touraine and Leroux, 1938). I have not used this preparation because it is much more expensive than the other sarcopticides. Published reports show, however, that it is an improvement on the lotion from the point of view of the "burning," and is also quick-drying.

Marcussen's Ointment: Ung. Pot. Polysulph. B.P.C., or Kathiolan.—I used this preparation on evacuated school children. It is said to be effective in twenty-four hours; also that the incidence of sulphur dermatitis is small. Among my cases three applications were usually necessary; I had no cases of dermatitis. But this treatment has, like ung. sulph., the disadvantages of being an ointment and therefore "messy" to use.

Sodium Thiosulphate 25% with Hydrochloric Acid 5%; Rotenone Lotion.—I have not used either of these preparations, but as they are present-day remedies I have appended references to them.

Conclusion

A new method of applying sulphur is outlined and compared with other modern methods of treatment. In my experience a really satisfactory treatment for scabies is a step on the way to control of the disease, in that it makes cure of the active case more certain. But the basic problem lies not in finding a cure for the active cases but in preventing the rapid spread of the disease, and this means control and treatment of contacts and control of the reservoir of the untreated. This is no easy matter, for it involves inspection of every member of a family in which a case of scabies has occurred; the efficient treatment or supervision of them as soon as the case has been diagnosed; and immediate disinfection of all clothing and bedding. Even if applied only to children of school age this plan would be effective in reducing materially the incidence of scabies.

I should like to express my thanks to Dr. C. Metcalfe Brown, medical officer of health for Middlesbrough, for permission to publish this investigation, and to the Glaxo Laboratories for supplying me with the sulphur lather tablets.

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SCABIES TREATED BY A BENZYL BENZOATE EMULSION

BY

I. F. MACKENZIE, M.B., D.P.H., D.T.M.&H.

(From the Department of Health, Blyth)

The increase in the numbers of cases of scabies which has been reported from widely separated parts of the country (Gray, 1941; Corfield, 1941; Harris, 1941) presents us with a problem of considerable complexity and of no little importance to the maintenance of the sustained national effort demanded at the present time. Prolonged loss of sleep or the disturbed sleep produced by the almost intolerable pruritus in many cases cannot fail to have a deleterious action on the capacity of the worker, the efficiency of the soldier, and the morale of all, civilian and soldier alike. As Percival (1939) has said: "Under war conditions the consequences of the disease may be serious from a military point of view."

That this parasitic disease may become rampant throughout the country is obvious when one remembers the nucleus of infection known to exist in almost every industrial area, and considers the movements of population that are taking place now and which will increase as industrial mobilization gains momentum. Control of sufferers and adequate supervision of billets, with particular attention to those known to have been occupied by infected persons, are imperative, since "transmission takes place by sleeping with an infected subject or in an infected bed or by the wearing of infected clothes" (Parsons and Barling, 1933). In view of special acquaintance with scabies in children I would add the handling of infected articles, such as books or towels, by the school child and the conveying of the infection by him to an as yet scabies-free household. This is perhaps the most frequent means of spread under peacetime conditions, and it is not without significance now. A feature of the group of cases recently treated by us, with results summarized below, is the relatively high proportion of families with no history of previous infection.

This communication is an account of the results obtained from the first 100 cases treated with a benzyl benzoate emulsion ("proscabin," Bayer), and for comparison there is included a short survey of the last 100 cases of scabies treated by the sulphur inunction method. We feel that the urgency of the question and the undoubted advantages of this latest form of treatment justify the publication of the results of even such a limited group of cases. All cases were treated as notified and diagnosed and without any selection. The classification adopted was based on the distribution and extent of the disease and not on its character, whether burrows or vesicles or a follicular papular eruption predominated. Slight or early cases were marked such, and particular attention was paid to those having severe secondary infection—a relatively small number.

Outline of Treatment

Each patient received a hot bath and the body was well lathered with soap and scrubbed. The skin was dried and proscabin was brushed on to the whole body surface from the neck to the toes; parts badly affected received a second painting immediately after the first had dried. The previously worn clothing was then put on. Bath and painting were repeated on the second day and clean underwear used. Parents were advised to have bedclothes changed and disinfected. Two days later the child was examined, and when treatment had been successful it was usual to find that