CLINICAL MEMORANDUM ON TINEA INFECTION.

By CAPTAIN P. NOEL-HANSON,
Royal Army Medical Corps.

INTRODUCTION.

*Tinea cruris (inguinale)*, Dhobes Itch, has for some years been endemic in England and in the early part of 1940 a large number of men in these Divisions contracted the disease possibly from contact with troops coming from the East. It has been ascertained that to date at least 40 per cent of the strength of this unit has contracted the condition in some form especially the forms associated with *Ectothrix trichophyta* and *Epidermophyta*.

Total number of cases treated here since December 1, 1940, to January 12, 1941, is 190. Total number of cases showing complications: 21 (11 per cent), (a) dermatitis 15 (7.5 per cent); (b) recurrences 6 (4 per cent).

It was noticed that only about 10 per cent of the total number of men infested complained of irritation and discomfort although in some cases the rash was severe. The men were mostly between the ages of 20 and 30, and the infestation had been present for varying periods of time (three to twenty-eight days). It was confirmed that the incubation period was in the region of five to seven days.

DIAGNOSIS.

Clinically there are apparently two forms of tinea infestation; they seem to be quite distinct and intermediate manifestations were extremely rare. The forms are:

(1) *Acute.*—This occurred often in *tinea cruris* but was mostly observed in cases of *tinea interdigitale*. The area was moist and raw and very inflamed, mostly on the margins on which were many large papules with a tendency to become pustular.

(2) *Subacute.*—Seen most frequently in *tinea inguinale*. The margin was pinkish and exhibited macules of the same colour with very few tending to become papular. Fine desquamation of the epidermis occurred over the entire affected area and closer examination revealed some degree of lichenification.

In some atypical cases careful investigation should be made to differentiate *tinea* from (a) seborrhea corporis; (b) psoriasis; (c) parapsoriasis; (d) pityriasis rosca; (e) discoid eczema; (f) circinate impetigo; (g) tertiary syphilis.

TREATMENT.

After having given up treatment of patients with Whitfield’s ointment, Castellani’s Paint and Pulv. Americana between July and November and
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having found that, although the treatments with the last named were successful, cures were not effected under fourteen to twenty-eight days (Adamson's method of treating with 2 to 4 per cent silver nitrate followed by tincture iodide, a silver iodide being formed and which is said to cure the condition in twenty-four hours, has not yet been tried in this battalion) the effect of treatment was tried with

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<td>Di-oxy-anthranol</td>
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<td>Salicylic Acid</td>
<td>2·5 per cent</td>
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<td>Paraff: Moll: Flav</td>
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Di-oxy-anthranol (Cignolin-Bayer, Derobin-Glaxo Ltd.) has been suggested by Roxburgh in 2 per cent dilution. I found that such a concentration caused an immediate dermatitis and the above prescription was used instead.

Within a few hours after inunction with the above-mentioned prescribed ointment, the effected part becomes dark brown in colour and an erythema is produced in the surrounding and central area, with a sharp almost black line of demarcation showing the outer limits of the advancing mycelium. When the treatment has reached its optimum value, the advancing line becomes clear-cut in appearance and the raised papules, now reddish-brown, become flattened and diminish in size. Should too much or too strong a preparation have been used, a secondary erythema is produced which is the development of macular patches, not only on the edges of the lesion but in the central and surrounding areas. It is stressed that the patient should be examined very frequently during the period of treatment to determine when the treatment should be discontinued and to watch for a developing secondary irritative superficial dermatitis.

In this limited number of cases it was found that between four to five treatments, i.e. a period of between thirty-six to forty-eight hours, is sufficient to effect a cure, any variation of the results depending on the individual (vide infra).

Complications.

A diagnosis of dermatitis is made only when lymph nodes are palpable. It is liable to occur when:

1. too much of the preparation has been used either accidentally or for the reasons stated below.
2. there is present an idiosyncrasy—thin highly vascularized skins, men subject to hyperidrosis.
3. the weather or exertion causes free perspiration.
4. the infestation has been present for a long period of time, e.g. six weeks or more.
5. the treatment has begun after previous attempts to cure with other irritant preparations.

The condition is one of tinea interdigitale and acutely inflamed tinea corporis (circinata).

Where the above conditions exist, special attention must be paid in order
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to prevent the complication. Generally no more than one treatment each day with the ointment may be given and all excess removed. It has been found better, even at the risk of recurrence, to stop the treatment earlier than the third occasion, keep the patient under observation, and to continue later if necessary. Should any signs of dermatitis in the central area develop, this should be treated with lotio calaminæ co. (It has been found very good policy to do this in all cases where there are any signs of strong reaction to the drug.)

Treatment of Dermatitis.—After having tried several preparations for the dermatitis following the treatment of *tinea inguinale* it has been found that daily application of crude coal tar 1 drachm to Lassar's Paste 1 ounce clears up the condition in two to four days; olive oil is used for cleaning up the area. This method can also be used in such complications following *tinea axillaris*.

Alternatively the area is painted with a solution of 0.5 to 1.0 per cent gentian violet or alcoholic picric acid 2.5 per cent.

*Tinea interdigitale* should not be treated with di-oxy-anthranol as it has been found that every case so far treated with this preparation has developed a dermatitis. In this battalion it has been found to respond best to frequent bathing in strong warm solution of potassium permanganate, 0.5 per cent, drying thoroughly with methylated spirits and keeping the toes well apart by inserting pads of cotton-wool (powdered with talc and boracic—lamb's wool has been unobtainable so far). Good results are said to have been obtained with metaphen (Abbott) in collodion.

Disinfestation.

The ideal procedure would be:

(a) complete disinfestation of all clothing, bedding and personal belongings.

(b) complete isolation (rest in bed is only necessary in very acute cases) accompanied by active treatment as set out above. In the Sick Bay at this unit, immediately a man is discovered to be suffering from *tinea* he is detained and all his clothing, bedding and other property is removed and sent to the disinfestor. He is then issued with a clean pair of pyjamas, hospital blues, socks, shoes and blankets for use when under treatment. His disinfested property is kept until he is to be discharged. On discharge those articles issued to him whilst in the Sick Bay are removed and sent to the disinfestor at our own convenience; the main advantage being that the discharge of the soldier from the Sick Bay is not dependent upon the irregular functioning or the vagaries of the disinfestation plant. The soldier is then instructed to present himself for observation at two to four days' intervals until finally discharged.

During the period of observation it is advisable to recommend that the patient is kept on light duties and everything must be done to avoid macera-
tion of the recently treated part by perspiration, etc. After discharge he is advised to keep the area dry and clean.

**Difficulties and Errors in the Eradication of the Infestation are:**

(1) Incomplete and perfunctory examination by the Medical Officer to exclude possible autoinfestation from an undiscovered area in the same individual.

(2) Technical errors in disinfestation in that some small quantities of the mycelium and/or spores remain viable.

(3) Transfer of spores from infested clothing during laundering.

(4) Difficulties in organizing inspections of a unit during the limited period of one or two days. Sometimes as much as a week or more elapses before a company is inspected and hence men not examined, suffering from *tinea*, in the meantime infect others who were free on inspection. Added to this there are some men whose duties make it almost impossible for them to attend some of the inspections.

(5) Absence of men on inspections who find some excuse on principle or consider that they are personally excluded for some reason of their own.

(6) Men who develop the condition between inspections but do not report.

(7) Men in whose mind *tinea* is associated with lack of personal hygiene or venereal disease. These men do not report immediately and infect numbers of other men until they themselves are discovered during the routine inspections.

In view of the difficulties mentioned above lectures on the subject were given separately to officers and men, and instructions given in battalion orders stressing among other things—(a) the effect on efficiency of personnel infected with this disease and (b) its non-relationship with venereal disease.

**Summary.**

(1) To diminish the length of time of treatment a preparation has been made with apparently useful results.

(2) Methods of treatments have been outlined and reference has been made to the treatment of complications.

(3) Reference is made to treatment of *tinea* infestation under conditions simulating active service and having regard to such difficulties as exist in an infantry battalion.

(4) Some stress is laid on the manner of dealing with the attitude of the average soldier to the infestation.

There is no mention of other means of treatment which are impracticable in an infantry battalion on active service.