

A typical case, with photophobia and fissuring of the tongue.

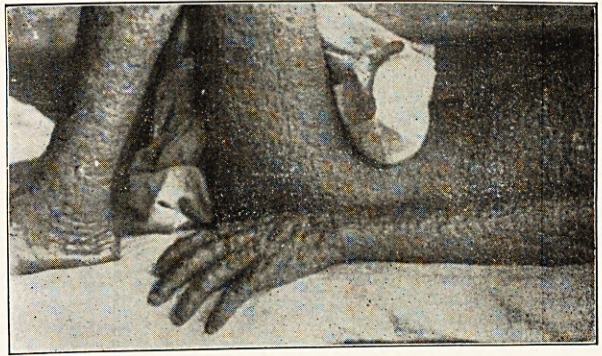


Fig. 1.—Confluent smallpox.

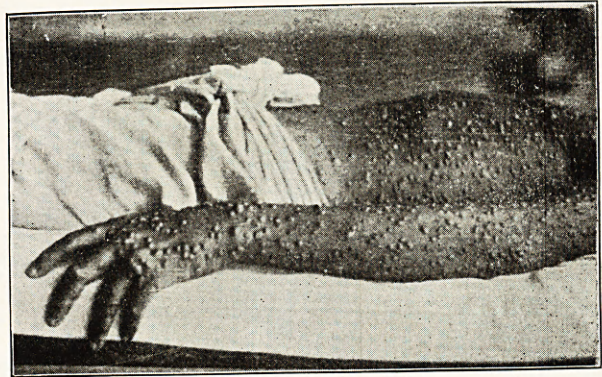


Fig. 2.—Discrete smallpox.

TINEA IMBRICATA IN INDIA : DEY & MAPLESTONE



Fig. 1.—Photograph of a typical case showing concentric rings of scales.



Fig. 2.—Photomicrograph of a primary culture from a scale on Sabouraud's medium.

TINEA IMBRICATA IN INDIA

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and

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This form of dermatomycosis has been recognized as a distinct type for many years, and is known to be widespread in the eastern hemisphere, throughout the area bounded by Ceylon in the west to China in the east, and Burma and Indo-China in the north to the South Pacific Islands. Apart from two cases mentioned by Castellani as coming from South India (a rather vague region) and one case carefully investigated by Acton and Ghosh (1934), which was proved to have originated in the Mymensingh district of Eastern Bengal, there are no other records in Indian medical literature of its existence in this country.

The disease is not so rare in India as these scanty records indicate, because one of us (N. C. D.), who had considerable experience in various parts of Assam some years ago, saw typical cases in many aboriginal tribes in the hill tracts of this province. At the same time he observed that it was rare in the immigrant inhabitants living on the plains and under slightly better conditions than the aborigines, and that when it was found in a plains-dweller there was invariably evidence that he had had frequent and close contact with the aborigines.

Recently the same author, while on leave in the Kamrup district of Assam, took the opportunity of collecting scales from five different

persons from different villages, and this material has been subjected to laboratory investigation. In the primary cultures on Sabouraud's medium it was found that the cultures from two cases resembled *Endodermophyton tropicale* Castellani, and three of them, *E. indicum* Castellani. These differences are slight and on sub-culture on glucose agar under constant oxygen tension the two types became indistinguishable; as our cultural results are almost identical with those of Acton and Ghosh we are not giving them in detail in this paper. We failed to grow the fungus on 'natural' media such as wheat, barley and rice, and Acton and Ghosh failed to grow it on damp wood, leather, coir matting, mud, etc., on all of which the common dermatophytes grow readily. We also had some success in animal inoculation as we obtained a transient infection on the scarified skin of guinea-pigs where the above workers were unsuccessful.

Acton and Ghosh expressed the view that *E. tropicale* and *E. indicum* were probably identical but as they had only a single strain of fungus to study, they could not prove it definitely. Our results, based on the study of material from five different cases, have shown that Acton and Ghosh were correct in their suggestion.

Nomenclature of the causative organism.

Castellani and Chalmers (1913) listed three species of the genus *Endodermophyton*, namely, *E. concentricum* Blanchard, 1896, *E. indicum* Castellani, 1911 and *E. castellanii* Perry, 1907. In the third edition of their book the same workers (1919) added the two species *E. mansonii* Castellani, 1914 and *E. tropicale* Castellani, 1914. Thus at this time it was claimed that there were five species of fungus responsible for supposedly slightly varying types of tinea imbricata in the eastern hemisphere. Dodge (1935) placed *E. castellanii* and *E. mansonii* as synonyms of *E. concentricum* and Ota and Kawatsur  (1931), said they were unable to differentiate *E. concentricum* and *E. indicum* as the result of the study of a culture supplied by Castellani; finally we have proved that *E. indicum* and *E. tropicale* are identical, therefore, four of the above species fall as synonyms of *E. concentricum* which is accordingly the sole cause of tinea imbricata in Asia and the Eastern Archipelago.

The generic name *Endodermophyton* first appeared in Castellani and Chalmers (1910) as '*Endodermophyton* Castellani, 1909' but in the same publication there is '*Endodermophyton castellanii* Perry, 1907'. On this account there is some doubt as to whom the generic name *Endodermophyton* should be ascribed and Dodge (1935) gets over the difficulty by writing *Endodermophyton* Perry, 1907; Castellani and Chalmers, 1910. Castellani defines the genus as characterized by the fact that the fungus grows between the superficial and deep layers of the epidermis, and in discussing the cultural characters he says that Sabouraud

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and Pinoy, to whom he referred his material, drew attention to the similarity of the growth of this fungus to that of the genus *Achorion*. Guiart and Grigorakis (1928) in their system of classification give *Endodermophyton* as a synonym of *Achorion*, but Dodge (1935) does not accept this system because he says that several of the rules of nomenclature have been ignored in drawing it up, so he retains *Endodermophyton* as a valid genus. Before publication of his book, Dodge probably did not see the paper by Acton and Ghosh (1934) who considered the differentiation between *Achorion* and *Endodermophyton* unjustified, and our results agree with theirs so it is probable that eventually the name of this species will be finally agreed upon as *Achorion concentricum* Blanchard, 1896 (Guiart and Grigorakis, 1928).

It should be added that there are two other species in this genus, namely, *Endodermophyton roquettei* Fonesca, 1925, and *E. africanum* Dodge, 1935, which are responsible for similar clinical conditions in South America and Africa, respectively.

Clinical characters of tinea imbricata

As it appears probable that this disease may be commoner in India than is realized and it is possible that, like yaws, it will be found in aborigines in other districts than Assam, if it is looked for by anyone competent to diagnose it, we give the following short description to help the uninitiated to recognize it if they happen to encounter it:—

The disease may begin anywhere on the skin surface as round or oval macules a few millimetres in diameter. The horny layer soon breaks in the centre forming a ring of scales attached by their outer borders; the infection goes on spreading and successive new rings of scales begin in the centre and spread in turn, so that eventually there is a circular lesion composed of concentric rings of scales. Large areas of the body surface are generally involved and the circular lesions run into each other so that a fully-developed case presents a system of parallel wavy lines which at first glance creates the impression that a complicated series of figures has been tattooed on the skin; the appearance of tattooing is enhanced on a dark skin because the lines of scales stand out whitish against the dark background. Irritation is usually severe but inflammation is not a prominent feature; the hairs are not affected.

Diagnosis is usually easy, but in old cases with large scales in which the typical ringed appearance has become indistinct the condition may be mistaken for ichthyosis; a search will usually reveal a newer lesion, however, in which the characteristically concentric rings of scales are still apparent.

Treatment is tedious as the infection yields slowly and it is usually so extensive that only

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SCURVY IN THE FAMINE AREAS OF HISSAR DISTRICT, PUNJAB

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THERE are many records in the past of the occurrence of scurvy when individuals or groups of individuals are so situated that they are unable to obtain fresh food.

The district of Hissar in the south-east of the Punjab has been visited by famine on many occasions during the past 250 years. There are records of famine occurring in this area in 1783, 1860-61, 1869-70, 1896-97 and 1899-1900.

It is surprising that in the records of these visitations there is no definite mention of scurvy as a cause of death, although death-rates were very high indeed and the population was reduced to dire straits. Some idea of the state of affairs may be gathered from extracts from district gazetteers. The following is taken from the gazetteer of 1915 (Fagan and Townsend, 1916):—

‘The first famine of which we have any authentic account is that of A.D. 1783, the “Chalisa Kal” or

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a part can be treated at a time. Castellani recommends his fuchsine paint and a useful alternative application is one composed of one drachm each of resorcin and glacial acetic acid in one ounce of compound tincture of benzoin.

The epidemiology of tinea imbricata is interesting because it has remained relatively localized to certain races and areas, unlike the other dermatophytes which seem to have spread almost over the whole world in the last twenty years, and have involved all races and classes of people. The comparatively limited distribution of this disease is explained by the fact that the fungus does not appear to be capable of maintaining an independent saprophytic existence on leather, wood, mud, etc., as the other species are able to do so that infection can only be acquired by direct contact.

Summary

The identity of all the species of *Endodermophyton* causing tinea imbricata in the eastern hemisphere is confirmed and attention is drawn to the possibility that this disease is commoner in India than is now recognized.

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