PRELIMINARY REPORT ON THE FUNGUS CAUSING EPIDERMOPHYTOSIS OF THE GENERAL SURFACE OF THE SKIN IN PORTO RICO

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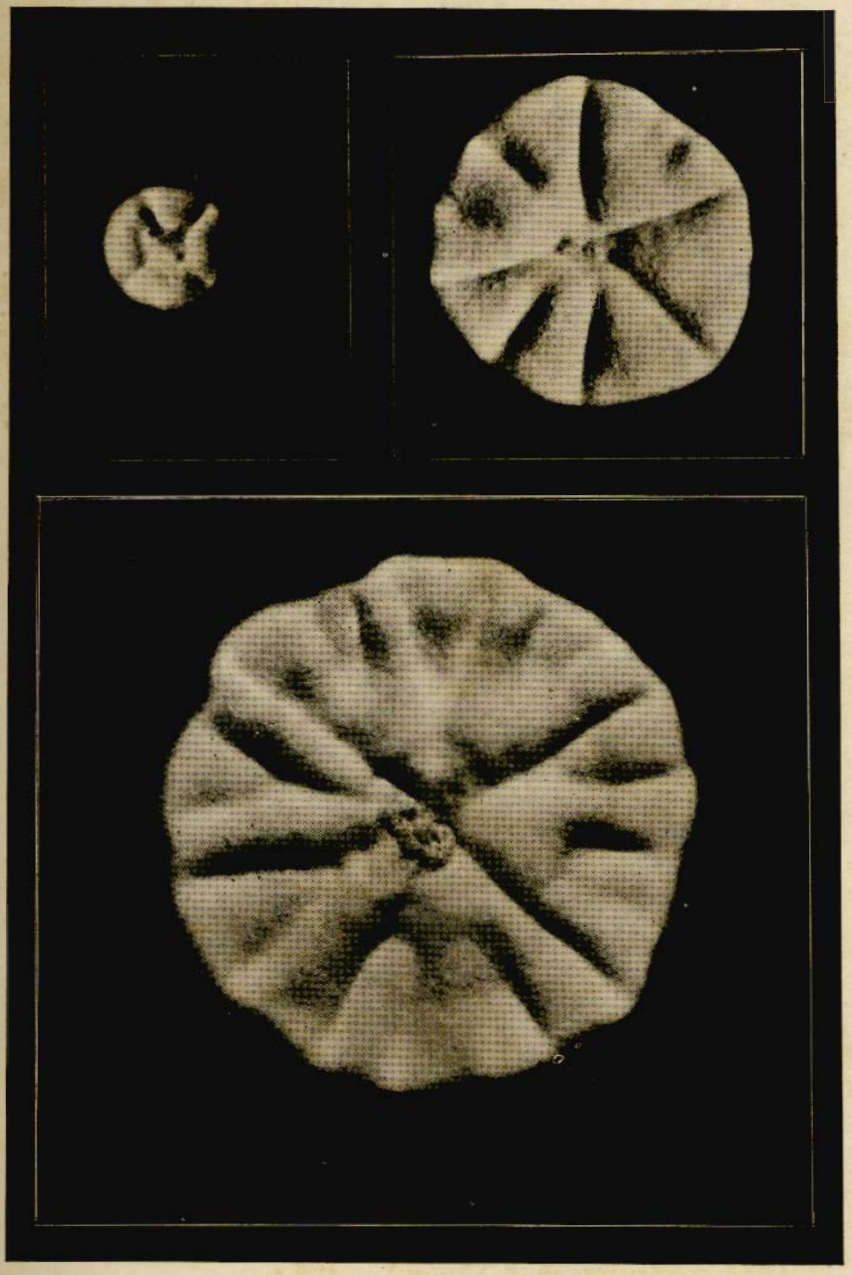
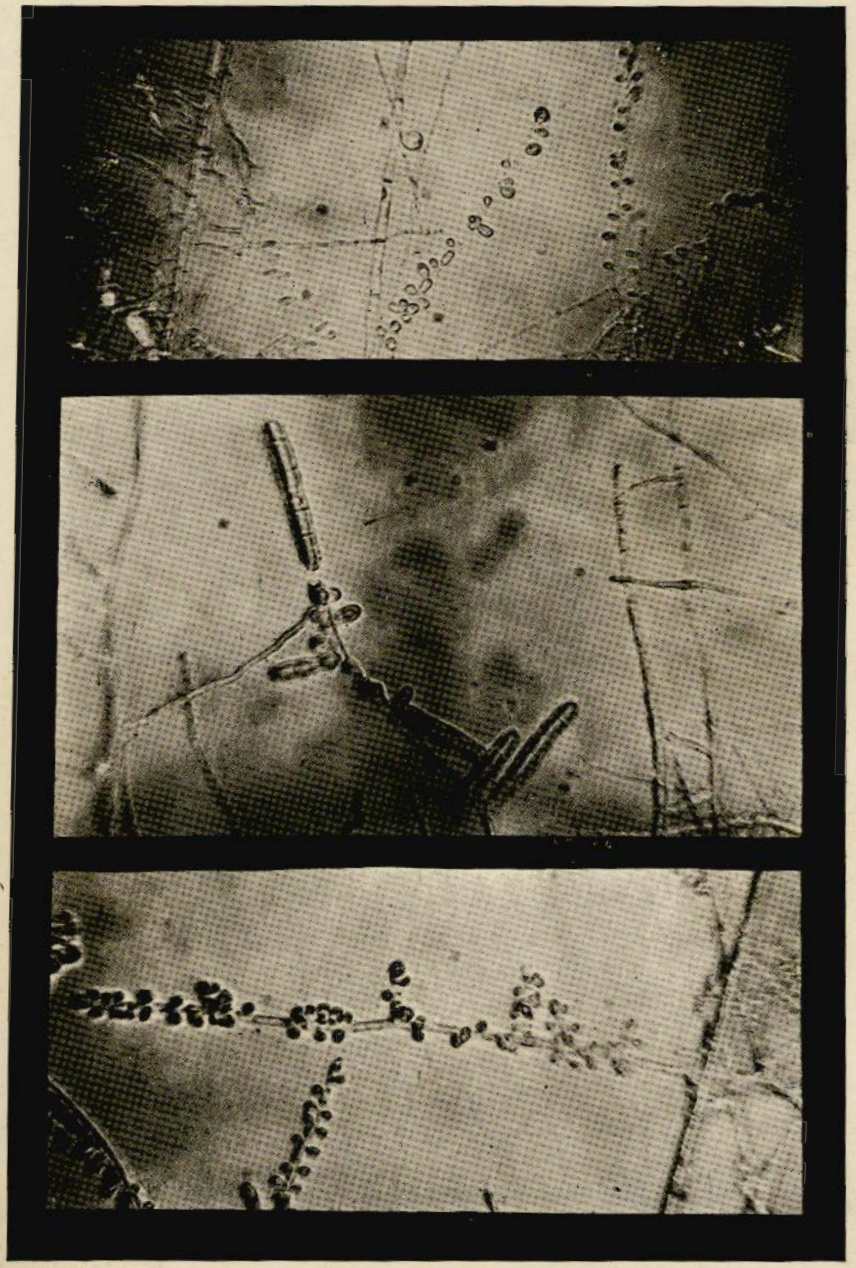
Epidermophytosis of the general surface of the body is a common affection in Porto Rico. Among 1,500 skin patients from different parts of the Island, an incidence of more than six per cent has been observed. The clinical features of the disease have given to it considerable prominence. It is contagious in a high degree. It has a marked tendency to generalize producing considerable disfigurement at times. There is no part of the skin which might be considered invulnerable, not excepting the scalp. The nails are often injured or completely destroyed and the causative organism has been obtained from lesions between the toes, from the soles and from the palms. It is a very pruriginous eruption giving rise to great discomfort and the fact that general practitioners are not always well trained in dermatology often prolongs the sufferings of the patients for considerable periods of time.

The fungus isolated from the scrapings of the lesions has been carefully cultivated on Sabouraud's glucose agar prepared strictly in accordance with the technique described in his work entitled "Les Teignes". Chassaign peptone was obtained directly from Cogit and Co. in Paris. The only point of departure consisted in the use of Pfanstiel dextrose, instead of the French sugar which was not available. But this substitution does not appear to make much difference as noted by Hodges (1) in a recent publication.

The organism develops very actively, growth being noticeable as early as 48 hours after inoculation. One-week cultures are about 5/8 of an inch in diameter. They show an irregular central prominence and 4 or 5 deep radial furrows which give to the surface a folded appearance. The colony as a whole reveals a chamois-like structure. Toward the periphery it is of a white color, while the central area appears yellowish gray. Examined from the back, a dark brown central zone sorrounded by a yellowish halo will be observed, the dark zone corresponding to the yellowish gray area noted above. The pigment production may be best studied by scraping off the more superficial layers of the growth. In this way a rather resistant basal



CULTURES ONE, TWO AND THREE WEEKS OLD IN SABOURAUD'S GLUCOSE AGAR (NATURAL SIZE).



HANGING-DROP CULTURES.

membrane will be found, the central part of which shows a dark brown or chocolate color while the peripheral area appears dull yellow.

At the end of two weeks the cultures measure approximately 1¾ inches, the border becomes more or less irregular, the furrows deeper and the radial folds more prominent. By this time a delicate, short, thin, white, duvetous growth is noticeable over the central area. Between this central area and the border of the culture, which is also white and downy, lies a wide intermediary buff-colored zone which is more powdery in appearance. If the basal membrane be exposed by surface scraping, it will reveal a yellowish pigmentation which is very light in the border, taking a brownish tone toward the center.

These cultural characteristics are most marked after the third week. At this time the cultures reveal three distinct zones: (*a*) the central area which appears covered with a definite duvetous growth; (*b*) the border consisting of a white, more even and velvety down and showing marked irregularity; and (*c*) an intermediary zone having a more powdery or chamois-like structure and revealing a creamy pigmentation. Examinations from the back show a large central brown area bordered by a yellowish rim.

Hanging drop cultures offer a characteristic picture. The bulk of the growth is made up of long, straight or undulant mycelial threads measuring from two to four microns in width and showing septa at variable intervals. Branching takes place mostly at right angles. Short filaments undulating in corkscrew fashion are often met with, but, upon further growth, these filaments straighten out into ordinary hyphal elements. True spirals have not been observed.

Fertile hyphæ, which are present in good numbers in most of the specimens, give rise to exospores both laterally and terminally. These exospores are pyriform in shape, ranging from two to four microns in width to three to eight in length. Branching of the fertile elements often results in characteristic clusters of conidia. Highly refringent protoplasmic condensations (réserves protoplasmiques intramycelinnes) are quite commonly seen.

Characteristic fusiform bodies arising either terminally or laterally from the mother elements occur in variable numbers. Their dimensions range from six or seven microns in width to as many as 66 microns in length, in some instances. They appear divided into various compartments by one or many transverse septa (1 to 9). The ends are regularly rounded and the borders show a slight or marked tendency to festooning, each festoon corresponding to one of the compartments noted above.

Clubs and clamydospores of various types are occasionally encountered.

COMMENT

The disease under consideration is unquestionably identical to that described by Castellani (2) and Bang (3) in 1910. The organism isolated by us shows also a marked resemblance to that described by these authors: "trychophyton purpureum Bang," "epidermophyton rubrum Castellani." That is probably what it is. The parasite does not attack the hair, it does not produce supurative lesions and it becomes duvetous very easily. In our most typical cultures, however, we have not been able to obtain either a red or a definite violet pigmentation; the central duvetous area never develops to the extent shown in the pictures of Bang's original cultures, while the irregularity of the cultural borders seems to be quite a definite feature of the organism cultivated in our laboratory. We hope to give a more complete report on the subject in the near future.

(1) Hodges, R. S.: Cultures of Ringworm Fungi on Sabouraud's Proof Mediums and on Mediums Prepared with American Peptones and Sugars. Arch. Dermat. & Syphil., 18 (6): 852.

(2) Castellani, Aldo.: Observations on a New Species of Epidermophyton Found in Tinea cruris, Brit. J. Dermat. 1910 (May) p. 147.

(3) Bang, Henrik.: Sur une trichophytie cutanée a grands cercles causée par un dermatophyte nouveau (Trichophyton purpureum Bang), Ann. de dermat. et syph., 1910 (May) p. 225.