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THE FIRST PHASE OF BORDERLINE TRANSFORMATION THE SO-CALLED "RELAPSED TUBERCULOID" CONDITION

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The borderline form of leprosy is slowly gaining recognition, in spite of some confusion of indirect causation in the application of the name, and in spite of uncertainties among different workers as to just what kinds of cases should be included in the group—i.e., the criteria of type diagnosis. This report is the first of two intended to illustrate the extremes of the spectrum of cases which, in my opinion, should be so classified.

In speaking of borderline leprosy I refer to the condition originally described under that name by Wade and Rodriguez (6) and Wade (7). In the same period Cochrane (1) described cases evidently of this category as "intermediate," although since then he has applied various other names to the condition—and, most confusingly, has applied that name or another supposedly equivalent one to other conditions. In due course certain South American writers gave recognition to borderline—e.g., Lauro de Souza Lima (5), as *limitrofes*—and in 1951 the Third Pan-American Conference (2) noted that it was of importance in connection with tuberculoid reactions. In the following year the First WHO Expert Committee (8) recommended the adoption of "borderline" in classification as a fourth form of leprosy, and in 1953 the Madrid congress (3) did that—although with "dimorphous" parenthetically as an alternative name. The following descriptive definition was given, and that still stands as "congress-official"—as official as anything can be in the leprosy field—since it was not changed by the recent Tokyo congress (4):

BORDERLINE (DIMORPHOUS) GROUP (B)

A malign form, very unstable; almost always strongly positive on bacteriologic examination; the lepromin reaction generally negative. Such cases may arise from the tuberculoid type as a result of repeated reactions, and sometimes they evolve to the lepromatous type. The nasal mucosa often remains bacteriologically negative, even when the skin lesions are strongly positive.

The skin lesions are usually seen as plaques, bands, nodules, etc., with a regional distribution similar to that of lepromatous leprosy, except for conspicuous asymmetry. The ear lobes are likely to present the appearance of lepromatous infiltration. The lesions frequently have a soft or succulent appearance, and peripherally they slope away from the center and do not present the clear-cut, well-defined margins seen in the tuberculoid type; they are therefore liable to be mistaken for lepromas. The surface of the lesions is generally smooth, with a shiny appearance and a violaceous hue, sometimes (in light skins) with a brownish (sepia) background.

The qualification that such cases "may" arise ("frequently" arise, in the WHO Committee definition) from tuberculoid cases as a result of repeated reactions leaves open the possibility that other kinds of cases may also change to borderline. It has been claimed that simple macular cases, or at least a certain variety of such cases, may undergo borderline change directly, but there is not to my knowledge any authenticated report of that occurrence.¹ Until it is proved otherwise it may be held, at least as a hypothesis, that only tuberculoid cases can transform directly to borderline, a process which obviously must involve partial loss of the general "resistance" which is the fundamental basis of the original tuberculoid condition.

Although it is recognized that the transformation usually if not always results from *repeated* reactions—which implies a step-by-step process, be the steps in a given case one or more—the designation of the first stage of the process as "relapsed tuberculoid" (6,7) involves a concept which seems to have been quite ignored by others. There is evidence that that condition is not always distinguished from simple tuberculoid reactions, i.e., that early borderline cases are sometimes called reactional tuberculoid.

The purpose of this brief report is to demonstrate photographically the clinical appearance of a case, originally tuberculoid, considered to be in the first stage of transformation toward borderline. To demonstrate the fact that this transformation does not depend upon severity of reaction in a tuberculoid case (i.e., does not necessarily occur in severe tuberculoid reactions), there are also included for comparison photographs of two severe reactional tuberculoid cases, in which photographs no elements of borderline are seen.

REPORT OF CASE

Findings at time of diagnosis.—The patient, M. N., an 18-year-old girl of light complexion, unmarried, from Cebu Province, presented herself in June 1956 at the Manila Skin and Tumor Clinic in the San Lazaro Hospital compound in Manila, complaining mainly of a conspicuous lesion on the face said to be of one month's duration. This

¹ The possibility that a supposedly lepromatous case may revert to borderline on developing tuberculoid features by "reversal reaction" (8) is an entirely different matter.

lesion, which as shown in Figs. 1 and 2² covered most of the left cheek, extending onto the nose and involving both eyelids, and up over the temple area and back to the ear, was a smooth-surfaced reddish infiltrate obviously of reactional nature.



FIG. 1. First-phase borderline lesion ("relapsed tuberculoid") of left cheek, with typical outward diffusion of the infiltration, and a frequently-seen immune area (site of the original tuberculoid lesion) around which the infiltration is sharply demarked and most marked.

FIG. 2. Full-face view showing partial paralysis of lids of the left eye, a consequence of nerve invasion by the original tuberculoid process.

The most important distinctive feature of this lesion is that around most of the outer edge the infiltrate thins off to the level of the normal skin, although it still appears to be elevated along the oblique edge from below the nose down past the corner of the mouth. The infiltration inwardly from the edge is definite if of moderate degree, by no means as marked as is often seen in more severe cases.

Also important, although not in itself distinctive of borderline but rather of the basic reactional condition in a tuberculoid case is the fact that there is conspicuous in about the center, a rather large area of normal light color which is completely free from the eruption. This "immune" area obviously represents the previous site of a major tuberculoid lesion which had healed. Typically of reaction lesions when they occur around immune areas, the infiltrate is thickest and most elevated where it abuts against that area. This is best seen, in these flat-lighted pictures, in the edge coursing downward from below the eye.

Significant with respect to the tuberculoid nature of the original lesion now represented by the immune area, which extends up to the corner of the eye, is the paralysis of the eyelids shown in Fig. 2. The original lesion had involved the superficial nerves of the region.

Further examination of the patient at the time of consultation revealed a red area on the posterolateral aspect of the middle third of the left leg, some small nodulations on the arms, and on the upper back a small, recent plaque, well delimited and of major tuberculoid aspect.

²The photographs, taken shortly afterward, were made at a commercial studio by a portrait photographer, there being no facilities for such work at San Lazaro at that time. Consequently, surface irregularities which a clinical photographer would seek to demonstrate were deliberately minimized.

Scraped-incision smears from two points on the left cheek and one point of the lesion on the leg were all negative from acid-fast bacilli. A biopsy specimen from the latter site showed tuberculoid histology of slight degree.

History.—The routine records of the busy outpatient clinic at which the patient registered are unavoidably sketchy. However, for the purposes of this report only a few main points need be noted.

Previous history: The patient stated that ten years previously a macule had appeared on the cheek and had gradually enlarged. It has been ascertained³ that her name is not in the files of either the Cebu Skin Dispensary or the Eversley Childs Sanitarium (leprosarium) at Cebu. Consequently, there is no record of treatment, or of the evolution of the lesion—which, however, must obviously have been tuberculoid of major grade—or of the period of quiescence before the relapse reaction occurred.

Subsequent history: It appears that no particularly noteworthy change occurred for more than two years, except that after some two months several new elevated lesions appeared on the right thigh. A lepromin test made in November 1957 gave a 5 mm. (1±) reaction. In June 1958, after a 4-month lapse in attendance, the patient returned with her left face “again swollen,” which condition subsided in 2 weeks under treatment (Meticortelene). The patient discontinued reporting in September 1958. From information obtained it appears that her condition deteriorated badly in the following year, so that apparently she became an advanced borderline case. She has not reported at the clinic for further examinations.

DISCUSSION

The case here reported, beyond doubt originally tuberculoid, is offered as a contribution to the descriptive literature on borderline leprosy. The principal lesion presented is a relatively uncomplicated and unusually clear-cut example of the “relapsed tuberculoid” condition which is the beginning stage or phase of the borderline condition, at the site of the original or “mother” lesion. It happens in this instance that that site was quite unaffected (“immune”), and as is typical in such cases the infiltration was most marked in the immediate neighborhood of that immune area, with abrupt elevation at the edge of it. The gradual tapering off of the infiltrate to normal skin level in the outer parts of the affected area is characteristic of the reactional borderline lesion.

The diagnosis of borderline in this case is in conflict with the commonly-held idea that, almost necessarily, bacteriologic findings must be positive and the lepromin reaction negative. The fact is that smears taken at the time of first observation were negative for bacilli, and that more than a year later the lepromin reaction was weakly positive, presumably representing persistence—if perhaps in reduced degree—of the original reactivity.

It is to be emphasized that in the diagnosis of the borderline condition the clinical features are determinative, and must be given priority. The findings in this “relapsed tuberculoid” case exemplify the fact that the earlier distinctive clinical changes in a borderline case may occur before the transformation progresses far enough for the familiar unfavorable bacteriologic and immunologic developments to occur. On clinical grounds the principal lesion in this case cannot be dismissed as

³ Through the kindness of Dr. José G. Tolentino, research leprologist of the Leonard Wood Memorial at Cebu.

one of ordinary tuberculoid reaction. The question of the histologic examination in the diagnosis of borderline cases will be reverted to later.

There is evidently a fundamental difference in the underlying condition of the organism in a tuberculoid case, active or resolved, when a reaction which develops is of the ordinary tuberculoid kind and when it is of the borderline kind. As said, the latter condition does not necessarily depend on severity of the reaction. To illustrate this point pictures are introduced here of two severe reactional tuberculoid cases—cases which, incidentally, show an interesting difference with respect to the “mother lesion.”

The first case, a Filipino patient,⁴ had a great many small nodular lesions on the face (Fig. 3) and elsewhere, and on the right forearm (Fig. 4) a large mother lesion encircling about two-thirds of the circumference. This consisted of a thick, solid plaque without—in this case—any central immune area. Biopsies of a nodule of the chest and of the margin of the arm plaque showed tuberculoid changes, more or less reactional but otherwise unmixt. The condition subsided in a few months under treatment.



FIG. 3. Face of Filipino patient with reactional tuberculoid leprosy, with multitudinous metastatic nodular lesions (case of Dr. Ricardo S. Guinto, Cebu).

FIG. 4. Plaque (“mother lesion”) on right forearm of the same patient. Solid, without any unaffected (immune) central area. The entire surface is involved as far to the left as the arrow which marks the abrupt margin of the plaque.

The second case, in an African patient in Uganda,⁵ is even more spectacular. That the diagnosis from the pictures is reactional tuberculoid has been agreed by several consultants, in spite of the irregularity of certain lesions on the forehead (Fig. 5). Even they, as well as the multitudinous nodular metastatic lesions (Fig. 6), are clearly de-

⁴ From the clinic of Dr. Ricardo S. Guinto, Cebu. These photographs, also, are flat-lighted, the photographer having used a set-up intended for color photography.

⁵ Photographs made and supplied by Dr. J. A. Kinnear Brown, Entebbe, Uganda.

marked, not diffusing. Of particular interest is the mother lesion on the back of the forearm (Fig. 5), a plaque surrounding a large immune area as undisturbed as the one on the face of the case here reported. The abrupt elevation around the immune area is well demonstrated. Elevation is quite as distinct and marked at the outer edge of the plaque—where it would be thin and diffusing off if the condition were borderline.

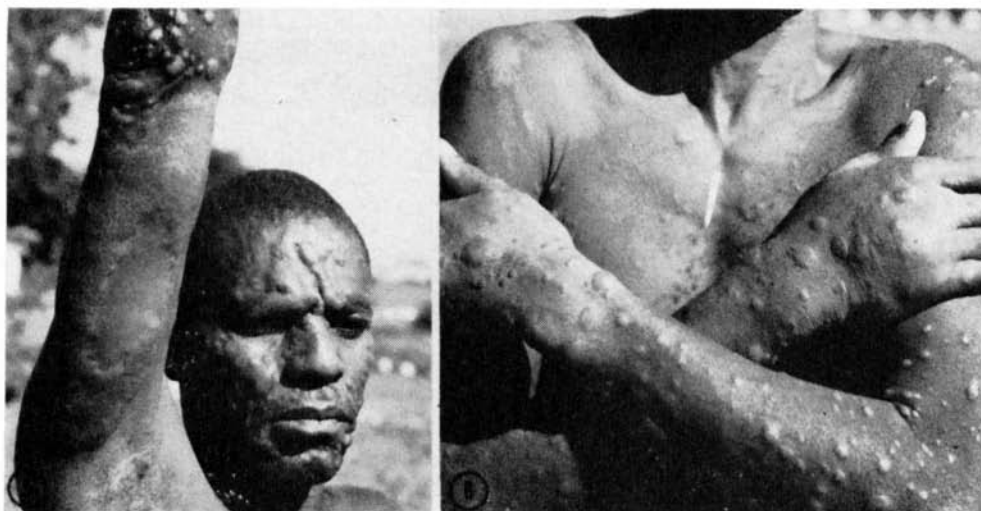


FIG. 5. Face and posterior surface of right forearm of a particularly spectacular reactional tuberculoid case in an African patient (case of Dr. J. A. Kinnear Brown, Uganda). Sharp demarcation even of plaque on the arms.

FIG. 6. Multitudinous metastatic lesions of arms and hands, mostly flattened nodules (small plaques), all sharply demarked.

There is reason to believe that in the earliest stage of borderline leprosy the tuberculoid histology may be unchanged, without the development of any "mixed" structure to make it "diphasic" or "dualistic." It cannot be so stated as a fact in the case here reported because the specimen examined and found simple tuberculoid was taken from another lesion. However, from experience with other cases I venture to say that a specimen from the cheek lesion would also have been straight tuberculoid, doubtless with more or less reactional disturbance. The histology of a borderline lesion may be expected to indicate how far along the spectrum zone or continuum a case has advanced, but it is my conviction that for the diagnosis of the borderline state itself to be made dependent upon a mixed or biphasic histology would be erroneous. Furthermore, that would be impractical, limiting the recognition of borderline cases to institutions where the histopathologic examination can be made.

SUMMARY

The observation of an exceptionally clear-cut and demonstrative lesion of the first stage of the borderline phase of leprosy, a "relapsed tuberculoid" reaction, is reported, for distinction from ordinary reactional tuberculoid.

Ten years previously the patient, an 18-year old girl, had had on the left cheek an obviously tuberculoid macule which had healed, leaving partial paralysis of the lids of the left eye. Relapse occurred, with the rapid development of a large plaque covering most of the same cheek. Central in this lesion was an unaffected area of considerable size—an "immune" area, the site of the original lesion—as is often, although far from invariably, seen in such cases. The infiltration and elevation were most marked in the immediate neighborhood of that area and abutted abruptly upon it. The lesion tapered off gradually in the outer parts of the level of the normal skin, in the manner basically characteristic of borderline lesions. This feature distinguishes the condition clearly from any ordinary reactional episode of tuberculoid leprosy.

So moderate was the severity of the reaction in this case, so early was it in the spectral zone of the borderline phase, that smears from the cheek and elsewhere were negative for bacilli; and the lepromin reaction was still positive, although weakly so, more than a year later. It is not correct that borderline cases must be bacteriologically positive and lepromin negative, although that may be so in most such cases recognized. A biopsy specimen from another, lesser lesion showed simple tuberculoid changes—which finding, it is contended, does not affect the type diagnosis of borderline.

RESUMEN

Preséntase la observación de una lesión excepcionalmente neta y demostrativa de la primera etapa de la fase limítrofe de la lepra, una reacción "tuberculoidea recidivada," para distinguirla de la tuberculoidea reaccional ordinaria.

Diez años antes, la enferma, doncella de 18 años, había tenido en la mejilla izquierda una mancha manifiestamente tuberculoidea que había sanado, dejando tras sí una parálisis parcial de los párpados del ojo izquierdo. Sobrevino una recidiva, con la rápida aparición de una placa grande que encubrió la mayor parte de la misma mejilla. En el centro de esta lesión quedaba una zona indemne de tamaño considerable—una zona "inmune," el asiento de la lesión primitiva—como sucede a menudo en estos casos, aunque no siempre ni mucho menos. La infiltración y la elevación eran más destacadas en la inmediata vecindad de dicha zona, con la cual chocaban bruscamente. La lesión se disipaba gradualmente en las porciones externas hasta alcanzar el nivel de la piel normal, en la forma que es fundamentalmente típica de las lesiones limítrofes. Esta característica diferencia netamente el estado del episodio reaccional de la lepra tuberculoidea.

Tan moderada fué la intensidad de la reacción en este caso, tan tempranamente pasó a la zona espectral de la fase limítrofe, que los frotos de la mejilla y de otras partes resultaron negativos para bacilos; y la reacción de la lepromina era todavía positiva, aunque débilmente, más de un año después. No es cierto que los casos limítrofes tienen que ser positivos bacteriológicamente y negativos a la lepromina, aunque puede suceder esto en la mayoría de los casos reconocidos. Un ejemplar biopsico, procedente de otra lesión, menor, reveló sencillas alteraciones tuberculoideas, lo cual, se arguye, no afecta el diagnóstico del tipo tuberculoideo.

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