

CLASSIFICATION OF LEPROSY. I. APPLICATION OF THE MADRID CLASSIFICATION OF VARIOUS FORMS OF LEPROSY

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According to the scheme of classification of leprosy developed by the international congresses held in Havana in 1948 and Madrid in 1953, the factors to be taken into account in classification are (1) clinical, (2) bacteriologic, (3) immunologic, and (4) histopathologic, in that order of importance in actual practice. The criteria of primary classification are clinical, including the bacteriologic examination. In the study of cases full use should be made of the immunologic criterion (the lepromin test), and of the histopathology of the lesions. The latter should not be depended on for the primary classification, although when that examination is made and shows the original type diagnosis to have been in error that should be corrected. The Madrid congress recommended that two polar types, tuberculoid and lepromatous, and two lesser groups, indeterminate and borderline, should be recognized.

These criteria were adopted in an investigation of leprosy cases at the Westfort Institution at Pretoria. The progress of the disease was followed, particularly the duration of bacillus-positivity of skin smears, to assess the validity of the primary classification. If the subsequent course of a case was not in agreement with the first classification, the case was reclassified. It was the intention in this manner to check our initial appraisal of the clinical signs and to test the applicability of the Madrid classification.

MATERIAL AND METHODS

A total of 182 leprosy patients was included in the study, chiefly Bantus admitted during the years 1954-1957. These were not consecutive cases, but were those in which histologic examinations were made. This was done particularly in the cases which were difficult to classify, so the group as a whole was in fact a selected one. Most of the cases were followed for 1 to 3 years.

Primary classification.—Primary clinical classification was done by two of the authors (A. R. D. and R. K.).

Bacteriology.—At various intervals—so far as possible at intervals of 1 to 2 months—skin smears were made and stained by the routine Ziehl-Neelsen method. The sites of preference were the right and left earlobes; forehead, right and left; cheeks, both sides; nasal mucosa; and occasionally the right and left arms and legs. The number of smears made in each instance varied with circumstances, but usually they were 4 or more. The

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positive smears were assessed by the numbers of bacilli present; 4+, very numerous, hundreds to a field; 3+, numerous, 20-100 to a field; 2+, fairly numerous, 10-20 to a field; 1+, scanty, fewer than 10 to a field; VS, very scanty, fewer than 10 to a *slide*. Smears were declared negative when no bacilli were found in 50 fields.

Immunology.—The lepromin test was carried out on admission and the readings after 28 days (Mitsuda reaction) were recorded. At first a Dharmendra antigen was used, thereafter a Wade-Mitsuda lepromin. This change was made because the Dharmendra preparation appeared to be only weakly antigenic, giving positive reactions in only about 50 per cent of the tuberculoid cases. The 3 mm. lower limit of positivity was adopted. In a number of cases in March 1958 a second lepromin test with the Wade-Mitsuda lepromin was also made.

Histopathology (J. W.).—Skin specimens for biopsy were fixed in 10 per cent formol-saline and embedded in paraffin. Sections were stained by hematoxylin and eosin, and also by Ziehl-Neelsen technique using 5 per cent sulfuric acid as the decolorizing agent and passing the sections rapidly through alcohol. Control sections of known lepromatous tissue were always stained. The number of acid-fast bacilli was assessed from 0 to 3+. In certain cases frozen sections were stained for fat, as reported in the second paper of this series.

RESULTS, PRIMARY VS FINAL CLASSIFICATION

The distribution of the 182 cases by type or form at the time of primary classification, and the changes of type diagnosis made in the final classification during the course of the study, are shown in Table 1. The type symbols used are familiar except perhaps T/R, which signifies tuberculoid in reaction.

TABLE 1.—Distribution of the 182 leprosy cases studied, primary and final classifications.

Primary classification		Final classification (Type and number of cases)				
Type	Cases	I	L	T	T/R	B
Indeterminate	12	4	0	8	0	0
Lepromatous	53	0	36	1	7	9
Tuberculoid	35	5	0	30	0	0
T, reaction	33	0	1	0	31	1
Borderline	49	0	7	0	23	19
Total	182	9	44	39	61	29

Reading Table 1 from left to right, take for example the lepromatous line. A total of 53 cases were so classified primarily, but only 36 of them remained lepromatous in the final classification; 1 became tuberculoid, 7 tuberculoid in reaction, and 9 borderline. Or, in the last line, of the 49 primarily classified as borderline 7 were changed to lepromatous in the final classification, 23 became tuberculoid in reaction, while only 19 remained borderline. Reading downward in, for example, the lepromatous column, in total 44 were finally so classified. This number includes 36 of those primarily classified as lepromatous, 7 of those originally classified as borderline, and 1 which was called tuberculoid in reaction.

CLINICAL FEATURES

The numbers of patients in each group are those of the "final classification" section of Table 1.

Indeterminate leprosy.—The lesions of this group of 9 patients consisted of flat macules which were hypopigmented or slightly erythematous and usually well-defined—macules in the dermatologic sense. Many leprologists apply that term to all lesions of tuberculoid leprosy, even plaques and nodules, but in our opinion that is wrong. Neurologic symptoms were observed in 8 of these patients; the only one without anesthesia showed bacilli in the histologic section.

Lepromatous leprosy.—The 44 patients of this type showed diffuse infiltrations or more or less infiltrated skin lesions with a tendency to symmetric distribution. Areas of apparently normal skin were observed in some patients, but it often happened that bacilli were found in smears from such apparently normal areas. Infiltration of the earlobes was not obvious in 10 patients. In 4 patients there were neurologic symptoms (anesthesia); 26 patients showed erythema nodosum leprosum (ENL) during their stay in the Institution.

Tuberculoid leprosy.—The 39 patients of this group presented slightly to moderately elevated lesions, with clear-cut, definite margins; the surface was generally smooth and dry. Redness was not very obvious in dark skin. Earlobes were not swollen. Neurologic symptoms were absent in 3 patients, but the diagnosis of tuberculoid leprosy was accepted in 1 case because the patient showed contracture of the fingers; 2 had relatives with lepromatous leprosy.

Tuberculoid in reaction.—The skin lesions of this large group (61) were often smooth and markedly elevated. Some lesions showed partial central recession or healing of the centers; such lesions were usually broad and erythematous. Other lesions were raised and smooth without recession, having a "spongy" appearance. The distribution of the lesions was usually asymmetrical. Diffuse swelling of the face sometimes occurred. This group consisted chiefly of major tuberculoid cases. Infiltration of the earlobes was recorded 24 times, but it was always slight. Neurologic symptoms were absent in 17 of these patients, but in these cases leprosy bacilli were found. No ENL reactions occurred in this group.

Borderline leprosy.—These 29 patients usually showed macules, infiltrations, plaques and sometimes nodules, often distributed asymmetrically. The margins of the lesions usually were not well-defined, but some seemed to arise out of normal-looking skin. Sometimes, however, the lesions were well-defined, especially in those cases which showed old tuberculoid features such as healing centers. It also happened that well-defined and ill-defined lesions occurred in one and the same patient. Infiltration of the earlobes was not obvious in 10 patients. Neurologic symptoms were absent in 17. ENL occurred in 2 patients.

BACTERIOLOGY

The positive bacteriologic findings in the 182 cases studied, arranged as they were finally classified, in smears from the skin and the nasal

mucosa and in histologic sections are shown in Table 2.

Indeterminate cases.—Skin smears were negative for bacilli in 7 of the 9 cases as finally classified, the other 2 having been weakly positive for 3 and 7 months respectively. In the histologic sections bacilli were found 5 times. This higher incidence of positive findings in sections is due to the occurrence of bacilli in small nerves, bacilli being rare outside the nerves.

TABLE 2.—Positive bacteriologic findings in the 182 cases as finally classified.

Classification, final	No. of cases	Positive findings in:		
		Skin smear	Nasal smear	Histologic section
Indeterminate	9	2	0	5
Lepromatous	44	44	28	40
Tuberculoid	39	3	2	9
T, reaction	61	21	8	24
Borderline	29	29	10	25

Lepromatous cases.—Skin smears and histologic sections were generally strongly positive in these 44 cases, and remained so for at least two years. On an average it took 4 to 5 years for our lepromatous cases to become bacillus-negative. Despite the fact that in 10 patients infiltration of the earlobes was not obvious, smears of these earlobes were always positive, frequently strongly so. Nasal smears were negative in 16 of these patients.

Tuberculoid cases.—Skin smears and sections were bacillus-negative in 29 of the 39 cases. None of the 10 others was strongly positive, and all became negative within a few months.

Tuberculoid-in-reaction cases.—The skin smears were negative in 18 of the 61 cases, although bacilli were found in sections of 4 of these 18. In the other cases the skin smears and sections were both positive, and sometimes strongly so. Most of those strongly-positive cases, however, became negative within a few months. Smears of the earlobes were positive in 21 cases, 4+ in 8 of them.

Borderline cases.—Skin smears and sections of these 29 cases were strongly positive, and with a few exceptions remained positive for 2 or 3 years. Nasal smears were negative in 19 patients. Of 10 patients without obvious infiltration of the earlobes, 9 gave positive smears from that site.

IMMUNOLOGY

Concerning the immunology we will be brief, because of the use of two different antigens. We found that weakly-positive Mitsuda reactions can occur in lepromatous leprosy, and they are not rare in borderline leprosy. It must be noted that even our stronger lepromin was considerably weaker than one we obtained from Wade personally for comparison. On the other hand, negative Mitsuda reactions were not rare

in tuberculoid cases in reaction. The Mitsuda reaction was positive in 4 of the patients with indeterminate leprosy, and negative in 5. In tuberculoid cases the reaction was usually positive. The need for a standard preparation of lepromin is strongly felt.

HISTOPATHOLOGY

The histopathologic findings in biopsy specimens of the cases under study are shown in Table 3, the cases grouped by the final classification. The main point of interest is the fact that in several cases of each group other than the indeterminates the changes found were non-specific, while the tuberculoid condition was found in one of the indeterminates. The results of fat staining will be dealt with in a separate article.

TABLE 3.—Histopathologic diagnoses of the 182 cases, grouped by first classification.

Classification, final	No. of	Histopathologic diagnosis		
		Lepromatous	Tuberculoid	Nonspecific
Indeterminate	9	0	1	8
Lepromatous	44	40	0	4
Tuberculoid	39	1	21	17
T. reaction	61	15 ^a	28	19
Borderline	29	20	0	9

^aOne case (No. 12484) showed both lepromatous and tuberculoid structures.

DISCUSSION

First we will consider certain features of the various forms in the order in which they appear in the tables.

Our *indeterminate* cases could be easily considered as the macular subtype of tuberculoid leprosy, usually showing a nonspecific histologic structure. They were usually bacillus-negative, or only slightly positive for short periods. The prognosis is the same as that of tuberculoid leprosy.

Regarding the *lepromatous* cases, it was sometimes difficult to distinguish them clinically from borderline cases and tuberculoid cases in reaction. Reclassification to borderline was done when a case became bacillus-negative within two or three years, and to tuberculoid in reaction when the case became bacillus-negative within a few months. It sometimes happened, too, that a few months after admission clinically tuberculoid features became evident, or the tuberculoid structure was found histologically. The occurrence of ENL points strongly to lepromatous leprosy; these cases usually take many years to become bacillus-negative, as was shown by Davison and Kooij (⁴).

There was no difficulty in distinguishing the *tuberculoid* cases from lepromatous or borderline. The differentiation from tuberculoid in reaction is not very important, because it is chiefly a matter of estimating the degree of activity of basically the same process.

About the macular tuberculoid subdivision there is much confusion. Although the Madrid classification does not state it clearly, it is obvious that it refers to macules, the flat type of lesion in the dermatologic sense, because it calls the next subtype minor tuberculoid, which lesions are only slightly elevated. It also follows from the dissenting opinion of Wade, registered as an addendum to the classification resolution. He wrote that "the creation of a 'macular' tuberculoid variety would increase confusion in terminology. All of the skin lesions of tuberculoid leprosy are commonly referred to by many leprologists as 'macules,' and the Japanese leprologists use the term 'lepra maculosa' for the tuberculoid form as a whole."

Because it is now generally accepted all over the world that a macule is a flat lesion, it is our opinion that we cannot continue in leprosy to use the term "macule" also for elevated lesions. It must be strongly recommended, therefore, that the term macule be used by all leprologists only in the dermatologic sense, i.e., for a flat circumscribed discoloration. In this connection we refer to an article on this subject by Arnold (¹).

The primary classification of *tuberculoid leprosy in reaction* usually proved to be correct. It only happened once that a case had to be reclassified to borderline and once to lepromatous from the results of the bacteriologic examinations.

As for the *borderline* condition, it was impossible in many cases to distinguish on admission, on clinical grounds, between borderline and tuberculoid in reaction. As has been shown, there are no clear-cut clinical criteria in an individual case for differentiation, and in both groups the skin smears can be strongly positive and the histopathologic picture lepromatous or nonspecific. Only the course of events, especially the matter of how long the patient remains bacillus-positive, is in our opinion decisive. It is often impossible to distinguish on admission between borderline and those cases of tuberculoid in reaction with spongy lesions.

We now discuss the matter of classification more generally. In the first place, we do not think that any system of classification can be evolved which is perfect, particularly not when using four criteria.

Our primary classification on admission was chiefly based on clinical grounds, often aided by the results of the bacteriologic examination. For the final classification the course of the disease was taken into account, based chiefly on the results of bacteriologic examinations reported at intervals until negativity was reached. In our opinion the bacteriologic criterion is the best yardstick for the estimation of the progress of the disease. If the subsequent course of the disease was not in agreement with the primary classification, the case was reclassified.

The agreement between primary and final classification, based on the Madrid criteria, was with regard to tuberculoid leprosy very nearly

correct, and fairly so in lepromatous leprosy. This was not the case with our classification of borderline leprosy. Many cases had to be reclassified as tuberculoid in reaction, probably due to the sulfone therapy. According to the Madrid classification the borderline group is "very unstable," the idea of instability referring to the type, not the severity, of the disease. The disease may evolve either to lepromatous or revert to tuberculoid.

According to the Madrid recommendations all cases are classified as they are at the time of examination, it being obvious that in difficult cases the examiner will use all methods of investigation (criteria of classification) which are available to him. Active leprosy is not a static condition, and cases are liable to change in form (e.g., indeterminate to lepromatous). Type diagnosis is to be changed when the condition changes.

Because of the instability of borderline cases it is advisable that they be observed closely, because it is often possible after a few weeks that the case may turn out to be tuberculoid in reaction. A further difficulty is that the division between borderline and tuberculoid in reaction is taken at different levels by different leprosy workers.

Chaussinand (^{2b}) considers borderline leprosy to be a variety of the tuberculoid type *comme un stade évolutif instable*. On the contrary, Cochrane (³) would place most of our tuberculoid-in-reaction cases in his dimorphous ("borderline") group.

The term "tuberculoid" for the type of leprosy to which it is applied is in our opinion a misnomer. It is not logical, in a classification based on four criteria, to use a term derived from one of them, particularly when the histologic criterion is not the most important one. Besides that, a tuberculoid structure was not always found, as has been shown in our tuberculoid cases, and that was also shown by Kooij (⁸) in a study of reports by several examiners of the same histologic leprosy preparations. For the 18 specimens from tuberculoid leprosy cases, there was a total of 77 reports, 37 of them tuberculoid, 22 nonspecific, and 2 lepromatous. "Mixed" was reported 16 times, and in 4 instances lepromatous and tuberculoid together.

Although Wade (¹⁰) has stated: "The one real essential feature [of tuberculoid leprosy] consists of distinct *epithelioid foci*" which he continues, "are often extremely small, containing only a very few epithelioid cells. . . ." In his study he often made serial sections. We made serial sections of specimens from 4 cases of clinically typical tuberculoid leprosy with nonspecific histologic structure in the routine sections, but they did not reveal any tuberculoid structure. These findings are in agreement with those of Floch (⁷), who also did serial sectioning. He says

. . . à das lésions cliniquement tuberculoïdes ont correspondu quelque fois des structures indifférenciés, malgré l'examen de coupes sériées; ceci surtout dans des lésions tuberculoïdes anciennes vraisemblablement en voie de transformation.

Dharmendra, Mukerjee and Chatterjee (⁶), too, in a follow-up study of reacting tuberculoid lesions, did not always find a tuberculoid structure histologically. They state:

"During the state of reaction the histological picture was in general that of a tuberculoid lesion, but in most cases there were present features which are not generally considered typical of tuberculoid histology. . . With the subsidence of the disease there is seen an entire change in the histological picture; gradually the tuberculoid element disappears and ultimately there remains a slight degree of non-specific perivascular infiltration with round cells, a feature found in a 'simple' flat patch of leprosy."

Although it is likely that at a certain stage of the disease the histologic specimens of a patient with tuberculoid leprosy will have shown the tuberculoid picture, this structure cannot always be found in routine examinations. This is confusing, because failure to find the tuberculoid structure might lead to rejection of this classification diagnosis. This could be prevented by dropping the term "tuberculoid leprosy" and by not insisting on the presence of the tuberculoid structure.

We would suggest the term "leprid," in analogy what has been done in certain other diseases, e.g., tuberculosis and fungous infections. The histopathologic picture may be tuberculoid or nonspecific. The use of the term leprid for tuberculoid leprosy would have the advantage also of bringing the indeterminate group into the leprid type. The usually nonspecific histology would be an objection. On the same grounds as we postulated in our cases of tuberculoid leprosy, that at a certain stage they might have shown a tuberculoid structure, this also might apply to our indeterminate cases. All our cases of indeterminate leprosy showed on serial section only the nonspecific structure, with the exception of one case which showed a few tuberculoid features. From the viewpoint of prognosis there is no objection to bringing our indeterminate cases into the leprid type. In all the cases the prognosis was good. That the prognosis of indeterminate leprosy is usually good was shown by Dharmendra, Chatterjee and Mukerjee (⁵) in a follow-up study of 148 leprosy patients with flat hypopigmented lesions. It is to be noted that the only treatment received by most of these cases was with hydnocarpus oil. They also found, after repeated examinations, changes in the histologic picture from nonspecific to tuberculoid and *vice versa*.

Moreover, it must be noted that the term "indeterminate" is used in different ways by various workers. For instance, Chaussinand's definition of *lèpre indéterminée* is the same as that of the indeterminate leprosy of the South American classification, which corresponds with the maculoanesthetic variety of neural leprosy of the Cairo classification [Chaussinand (^{2a})], which differs from the definition adopted by the Madrid congress (⁹). Therefore the classification of leprosy would be simplified if we could bring the indeterminate cases under the leprid type, e.g., as macular leprid. Perhaps the "incipient flat lesions of childhood" could be brought under leprid as a special clinical variety, and if necessary other clinical varieties too. For these proposed changes

of the classification of leprosy it is essential to use the term macule only in dermatologic sense. In our opinion the Madrid classification is a workable one, but it needs improvement and simplification.

SUMMARY

1. The Madrid classification was applied in 182 leprosy cases with various forms of the disease. The patients were closely observed for 1 to 3 years, and if the subsequent course of the disease was not in agreement with the primary classification the case was reclassified.

2. The agreement between the primary and final classifications was good in tuberculoid leprosy and fair in lepromatous leprosy. This was not the case with borderline leprosy. Many cases had to be reclassified as tuberculoid in reaction. Differentiation between macular tuberculoid and indeterminate leprosy was difficult.

3. Areas of normal skin were observed in lepromatous leprosy. Well-defined lesions occurred in borderline leprosy. Earlobes without obvious infiltrations were often positive for bacilli. Tuberculoid structures were often absent in routine histologic sections of cases of tuberculoid leprosy.

4. The Madrid classification is a workable one, but it needs improvement and simplification. It is suggested that the term "tuberculoid" be dropped and the term "leprid" be adopted. For that type a tuberculoid histologic structure would not be essential.

5. A strong plea is made that the term "macule" be used in leprosy only in the dermatologic sense.

RESUMEN

1. Se aplicó la clasificación de Madrid en 182 casos de lepra con varias formas de la enfermedad. Se observó cuidadosamente a los enfermos durante 1 a 3 años, y se reclasificaba el caso siempre que la evolución subsiguiente de la dolencia no conviniera con la clasificación primordial.

2. El acuerdo entre la clasificación primordial y la final fué bueno en la lepra tuberculoidea y mediano en la lepromatosa. No sucedió así con la lepra limítrofe. Muchos casos tuvieron que ser reclasificados como tuberculoideos en su reacción. La diferenciación entre la lepra tuberculoidea maculosa y la indeterminada resultó difícil.

3. Se observaron zonas de piel normal en la lepra lepromatosa. Hubo lesiones bien definidas en la lepra limítrofe. Lóbulos auriculares sin infiltraciones manifiestas fueron a menudo positivos para bacilos. En los cortes histológicos corrientes de casos de lepra tuberculoidea frecuentemente no había tejidos tuberculoideos.

4. La clasificación de Madrid es práctica, pero necesita perfeccionamiento y simplificación. Se sugiere que se descarte el término "tuberculoideo" y se adopte el de "léprido." Para esta forma no sería indispensable una estructura histológica tuberculoidea.

5. Se aboga ardientemente en pro del uso del término "mácula" o "mancha" únicamente en su acepción dermatológica.

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ANNEX; ILLUSTRATIVE CASES

The following three case reports illustrate some of the difficulties of correct classification, at least at the time of first examinations. All three were typed as lepromatous on admission, and in two instances that diagnosis was supported by the histopathologic reports. The first case was reclassified as tuberculoid in reaction (the biopsy specimen had shown tuberculoid changes), while the other two were reclassified as borderline.

CASE NO. 12023.—Bantu male, aged 70. Onset, 1953. Admitted February 1954.

Condition on admission.—Marked infiltration of face with deep rugae on forehead. Discrete nodules on neck and arms. Blackened and flattened nodules on legs and calves. Density of eyebrows, 1. Infiltration of earlobes, 2. Anesthesia, none. Contractures of hands. Lepromin reaction: 48 hours, 1 mm.; 28 days, 0 mm. Classification: Lepromatous.

Histopathology.—May 1955. Biopsy of a nodule of the neck. Follicular formation with numerous giant cells and diffuse lymphocytic infiltration in upper corium. No clear subepithelial zone. Acid-fast bacilli: Negative.

Course.—In January 1955, infiltration face 2+. The condition in February 1955, a year after admission, is shown in Figs. 1-3. May 1955, acute reaction; infiltration of face 3+. January 1956, spongy (tuberculoid) lesions, arising out of normal-looking skin. May 1956, clinically cured; discharged.

(Note: Patients who have shown positive smears have to stay in the Institution until they are free of bacilli for one year before they can be discharged.)

Bacteriology.—Thirteen examinations (42 smears) from February 1954 to April 1956. Strongly positive at first, and moderately so later that year. All five examinations after June 1955 were completely negative.

Final classification.—Tuberculoid in reaction.

Comment.—This case, classified as lepromatous on admission, was reclassified afterwards as tuberculoid in reaction because of (1) tuberculoid histology, (2) quick disappearance of bacilli, and (3) the appearance of tuberculoid features in the lesions while under observation.



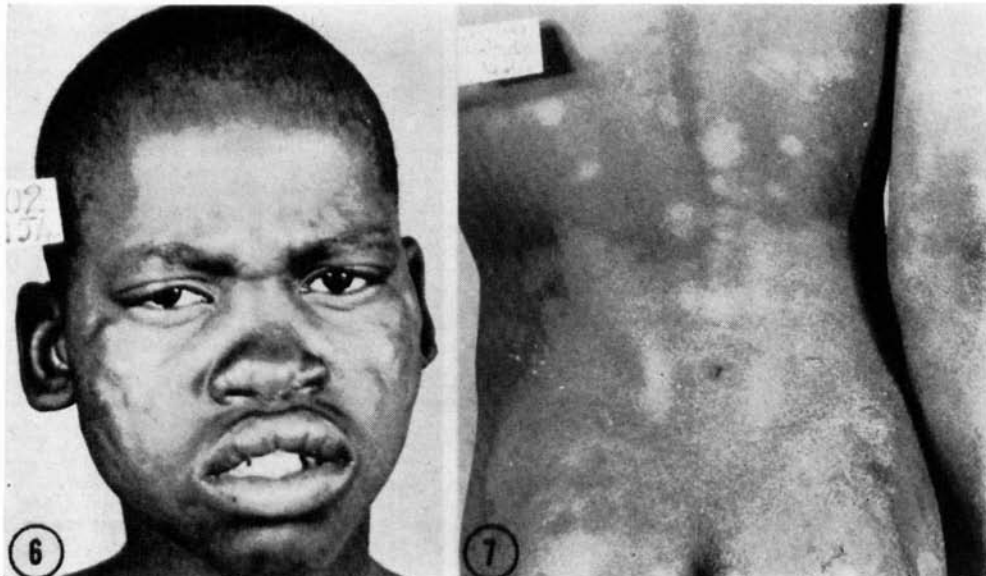
FIGS. 1-3. Case 12023, one year after admission. Full face, showing creasing of forehead characteristic of lepromatous leprosy. Side face, showing on lower cheek and especially the side of neck nodulation not of lepromatous characteristics. Forearms, on which nodular elevations are prominent.

CASE No. 12300.—Bantu male, aged 17. Onset 1954. Admitted November 1954.

Condition on admission.—Diffuse infiltration of the face, with small subcutaneous nodules on forehead and malars. Plaques on back, elbows, thighs and calves. Density of eyebrows, 1. Infiltration of earlobes, 1. Many lesions are ill-defined; the distribution is somewhat asymmetrical (see Figs. 4 and 5). Lepromin reaction: 48 hours, 1 mm.; 28 days, 0 mm. Classification: Lepromatous.



FIGS. 4 and 5. Case 12300. Face, showing diffuse infiltration and several small, deep nodules. Lower back, with one large lesion area and several small lesions of variegated appearance.



FIGS. 6 and 7. Case 12302. Face, showing ill-defined nodular infiltrations. Lower back, showing predominantly macular lesions, mostly well-defined.

Histopathology.—November 1954. Biopsy of a discrete pea-sized nodule, arising in a plaque on left flank. Report: Lepromatous. Acid-fast bacilli, 1+.

Course.—In May 1955, no generalized infiltration; most of the lesions flat, some still infiltrated. September 1955, lesion on left flank slightly infiltrated, other lesions flat; marked improvement.

Bacteriology.—A total of 20 examinations (89 smears) were made between November 1954 and January 1958. The findings continued usually strongly positive through July 1955, after which they tapered off markedly to become, when positive, usually very scanty (vs) until late 1957, after which the results were entirely negative (2 examinations).

Final classification.—Borderline.

Comment.—The general clinical picture and the fairly rapid disappearance of bacilli takes this case out of the lepromatous group.

CASE NO. 12302.—Bantu male, aged 23. Onset, 1954. Admitted November 1954.

Condition on admission.—Slight diffuse infiltration of face with superimposed plaques. Small and large brownish-red plaques on trunk and limbs, suggesting a lepromatous condition in some parts, chiefly on back. Distribution of lesions asymmetrical; those on the face are not very well-defined, in contrast to those on the trunk (see Figs. 6 and 7). Density of eyebrows, 1. Infiltration of earlobes, 1. Anesthesia, none. Lepromin reaction: 48 hours, 0 mm.; 28 days, 0 mm. Classification: Lepromatous.

Histopathology.—November 1954. Biopsy of the margin of a plaque on right buttock. Report: Lepromatous. Acid-fast bacilli, 1+. December 1956. Second biopsy, of a nodule of right thigh. Report: Lepromatous. Acid-fast bacilli, 2+.

Second lepromin reaction (April 1956).—48 hours, 5 mm.; 28 days, 2 mm.

Course.—In May 1955, slight attack of erythema nodosum leprosum. August 1955, plaques subsiding. May 1957, marked improvement. Attacks of neuritis of right ulnar.

Bacteriology.—In a total of 19 examinations (87 smears) between November 1955 and January 1958, only the first gave 4+ results. The gradings, when positive, rather rapidly diminished; nothing more than very scanty (vs) was recorded in 1957, and the last two examinations were entirely negative.

Final classification.—Borderline.

Comment.—The clinical picture and the rather quick disappearance of the bacilli takes this case out of the lepromatous group. The attack of ENL was only slight, and it was the only one.