A CASE OF ADVANCED BORDERLINE LEPROSY REEVALUATION OF A CASE ORIGINALLY REPORTED AS LEPROMATOUS

H. W. WADE, M.D.

Pathologist Emeritus, Leonard Wood Memorial
Culion, Philippines

and S. R. PERRIN, M.D.

Assistant Professor of Dermatology
University of Pittsburgh Medical School
Pittsburgh, Penna.

In a previous article ([5]) there was reported a case which was regarded as representing the earliest phase of transformation to the borderline form of leprosy from the tuberculoid type by relapse reaction, although it might frequently be taken for reactional tuberculoid. That was to be the first of two articles intended to illustrate extremes in the "spectrum," or, better, *continuum,* of cases which should be classified as borderline, but which commonly are not recognized as such. The present article is the second one.

This article consists of a reevaluation of a case which, having had more vicissitudes than the other, had advanced far enough toward lepromatous to be given that diagnosis when it was reported briefly ([3]), simply to record the third case of the disease known at that time to have been acquired in military service during World War II. The diagnosis of lepromatous leprosy was accepted when the patient was admitted to the Federal Leprosarium at Carville, Louisiana. It illustrates why so few cases are diagnosed as borderline in leprosaria, and so few are registered as such in field surveys, except where the condition is recognized and watched for.

Nothing that it said should be construed as critical of what was originally done in the case. At the time the patient was seen, in 1953, the first report of the WHO Expert Committee on Leprosy ([6]), which group for the first time gave formal recognition to the borderline form, was not yet available; and the Madrid leprosy congress ([1]), which also recognized the borderline group, had not yet been held.

For this reevaluation the available histologic material has been reexamined; information about the patient's record at Carville has been obtained; and his present condition is recorded.

CASE DATA

The patient, a male Negro whose father came from Maryland and mother from North Carolina, was born in Pittsburgh, Penna. in 1917, and he lived there until he entered the Navy in 1943, at the age of 26. He saw service in New Guinea and the Philippines; and in the Philippines, he stated, he assisted medical officers in searching out leprosy patients who had scattered during the Japanese occupation.

Nearly seven years later, in July 1952, the patient noticed a persistent small lesion or "spot" on the flexor surface of the right forearm which at first he took to be an insect bite. Six months later he consulted a private physician, who had a biopsy made which was reported "sarcoidosis." After another two months an eruption of new lesions appeared on the face, trunk, arms, and legs. A month after that a second biopsy was made at the Falk Clinic in Pittsburgh. The histologic picture of that specimen shows that a severe reactional condition had occurred.

On September 28, 1953, the patient then in the 14th month since onset and the 6th month since the eruption of new lesions, was admitted to the Veterans Administration Hospital at Aspinwall, Penna. The only abnormality found was the skin condition; serologic tests for syphilis were negative, as were the tuberculin test and a chest film. The skin lesions (Figs. 1 and 3) were described as follows:

"Over the arms, face, and trunk were numerous lesions of multiform pattern, consisting of raised, corrugated, light-brown, soft spongy lesions, varying in size from 1 to 2 cm. in diameter. The lesions were raised 0.25 cm. above the surface. There was no evidence of ulceration. On the flexor surface of the right [forearm] was an area 10 by 6 cm. denuded of hair. Tactile and pain sensations were absent in this area. An areola of depigmentation demarcated this area from the normal skin, which reacted to tactile and pain sensations." The report goes on to say that, "During the final week of hospitalization a circinate lesion appeared on the patient's lower abdomen, similar in all respects to the lesion on the right forearm." This occurrence is to be emphasized as significant.

Further biopsy specimens were taken at Aspinwall from the large forearm lesion. From the sections one of us (S.R.P.) made a diagnosis of leprosy, and this was confirmed by the pathologist after the demonstration of many acid-fast bacilli. A smear from the nasal mucosa revealed myriads of such bacilli. A month after admission to Aspinwall, the patient was transferred to the Public Health Service Hospital (Federal Leprosarium) at Carville, Louisiana.

Subsequent history.—The patient was admitted to Carville on October 28, 1953, with the diagnosis of lepromatous leprosy. Notes made there tell of numerous discrete lepromas on the face, forearms, abdomen and right thigh, with spotty anesthesia over the right forearm, right thigh and abdomen. Numerous bacilli were present in all scrapings from skin lesions and te nasal mucosa. A lepromin test was negative. Sections supplied by the Aspinwall Hospital were sent to the Public Health Service Hospital in New Orleans, where they were diagnosed as lepromatous leprosy, with "innumerable" acid-fast bacilli.

Less than four months after admission, on February 16, 1954, the patient left Carville "against medical advice," the lesions unchanged.

The following tabulation summarizes the course of the events related.

Time	*Interval*	*Event*	*Pre-Aspinwall*
July 1952	—	Lesion noticed ("insect bite")	14 mo.
Jan. 1953	6 mo.	First biopsy; "sarcoid"	8 mo.
Mar. "	2 mo.	Eruption (obviously reactional)	6 mo.
Apr. "	1 mo.	Second biopsy, Falk Clinic	5 mo.
Sept. "	5 mo.	Admission, Aspinwall Hospital; sections diagnosed lepromatous leprosy	—
Oct. "	1 mo.	Admission, Federal Leprosarium; admission diagnosis, lepromatous leprosy	
Feb. 1954	4 mo.	Left Carville, against medical advice	

Present condition.—The patient returned to Pittsburgh and began sulfone (Diasone) treatment as an outpatient at the Veterans Administration. Since then he has become cleared of skin lesions. The face lesions have disappeared (Fig. 2), and the one on the

forearm is now represented only by a scar (Fig. 4). Repeated nasal smears have been negative for bacilli. The lepromin reaction, however, remains negative. A test made on January 10, 1961, caused only a small red papule (5 mm.) on the following day, which had faded completely three days later and remained negative thereafter.

RE-EVALUATION

CLINICAL FEATURES

The clinical photographs shown in the original report of this case (Figs. 1 and 3) led to a reevaluation of the original type diagnosis. The following reconstruction of the course of events in this rapidly-evolving case involves certain assumptions, but they are believed to be valid.

In the first place, the primary lesion on the forearm, which originally the patient had ascribed to an insect bite, must have been relatively small and probably papulonodular. Undoubtedly it was of tuberculoid nature, for a lepromatous lesion would not have arisen that way. Presumably at that time a lepromin test would have evoked a positive reaction, although in view of the rapidity of the subsequent developments it might not have been strongly positive.

The lesion persisted and enlarged, and the patient was led some six months after onset to consult the physician who had the first biopsy made. In the absence of suspicion of the real nature of the condition the diagnosis of "sarcoid" was reasonable for a tuberculoid leprosy lesion.

Two months later—eight months after onset—there appeared an eruption of lesions on the face and elsewhere. That event cannot be explained otherwise than as representing an outbreak of reactional tuberculoid nature.

When the patient appeared at the Aspinwall Hospital six months later, there was extensive involvement, and the clinical photographs taken then show that the condition had progressed, at least in part, to a somewhat advanced "borderline" state.

This was most evident in the "mother" lesion on the forearm. That lesion still retained major tuberculoid characteristics, with its elevated marginal zone and traces of an "immune area" within it; it could not possibly have arisen as a leproma, and to the initiated it would have given pause. Furthermore, it was completely anesthetic, which a leproma would not be. The immune areas inside showed the abrupt margi-

DESCRIPTION OF FIGS. 1-4

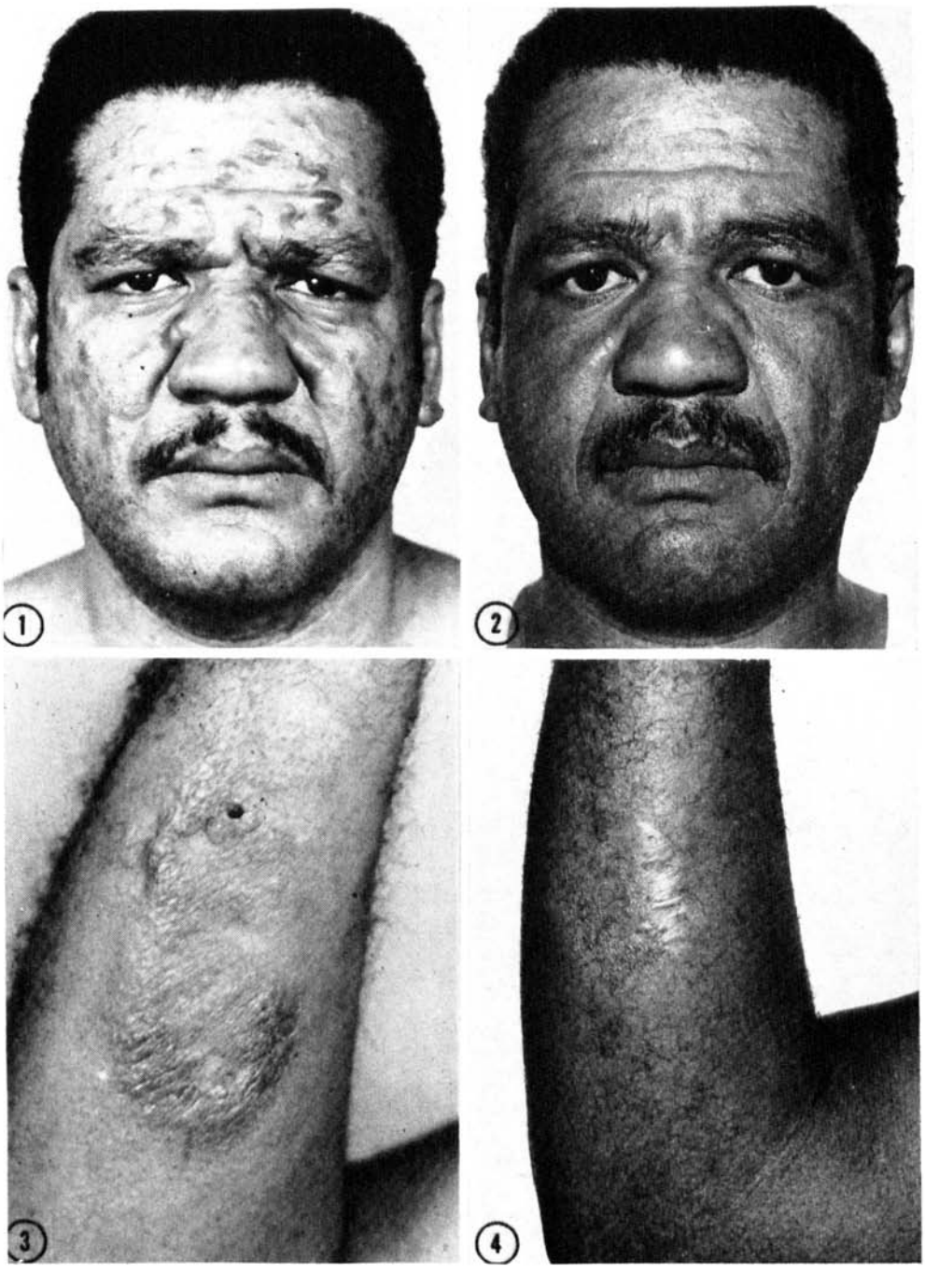
FIG. 1. Face of the patient in 1953. Multiple, asymmetric nodules on the forehead, mostly discrete but some with diffusing limits, with more irregular and less prominent infiltrations on the cheeks. Eyebrows intact.

FIG. 2. Face of the patient in 1961, completely cleared of skin lesions.

FIG. 3. Right forearm in 1953, showing "mother" lesion, of major tuberculoid aspect but with outward diffusion to the normal skin. Small, depressed, unaffected "immune" areas in the plaques with elevated lesion abutting abruptly around them.

FIG. 4. Forearm lesion, in 1961, represented only by residual scarring (keloidal?), at least in part due to biopsy surgery.

nation of the elevated lesion, characteristic of the reactional tuberculoid or borderline lesions, but most of the central area had been involved by zones of reactional infiltration where evidently the central healing had been imperfect. Most significant of borderline is the fact that the outer



edge was no longer sharply delimited as in a typical tuberculoid lesion, but diffused outwardly to the normal skin.

The nodular condition of the face might easily be mistaken for lepromatous, especially if the persistence of the eyebrows was not noticed, but in general those lesions were discrete and not diffusing as ordinary lepromatous nodules would be; and they were described as soft and spongy, which would be consistent with the term "succulent" which is often applied to reactional tuberculoid lesions.

The asymmetry of these nodular lesions, besides their individuality, is not consistent with the lepromatous diagnosis; nor is the persistence of the eyebrows—which still remain intact (Fig. 2)—for in lepromatous leprosy there would have been alopecia. On the other hand, there were apparently irregular, low, flattish areas of infiltration on the cheeks, which may perhaps have respresented, or contained, the lepromatous

HISTOLOGIC FEATURES

For this examination stained sections of four biopsy specimens were available, all from the forearm lesion. Three (Falk Clinic No. 922, and Aspinwall Hospital No. 53-1635 consisting of two specimens blocked together) were small skin-punch specimens; one (Aspinwall No. 53-1703) was an excised specimen, adequately large and deep. The Public Health Service Hospital in New Orleans supplied a duplicate set of the Aspinwall sections. Further sections of the very small remaining bit of the paraffin block of No. 53-1635 were cut and stained at Culion. The specimens had evidently been fixed in formalin which is unfortunate because of the shrinkage it causes in such succulent lesions.

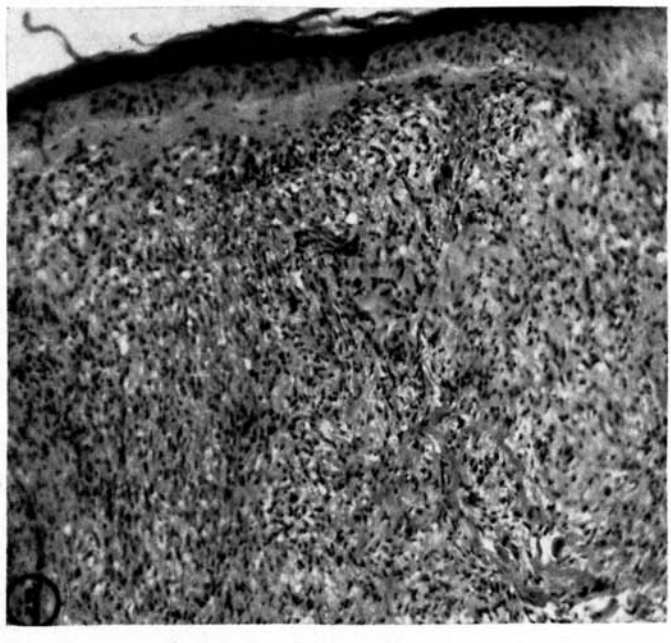


FIG. 5. Low-power photomicrograph of upper zone of a biopsy specimen from the mother lesion on the forearm. A mixed picture of the "streaming" effect taken to represent the basic reactional tuberculoid lesion in the upper dermis, and of irregular lepromatous infiltration. Hematoxylin-eosin.

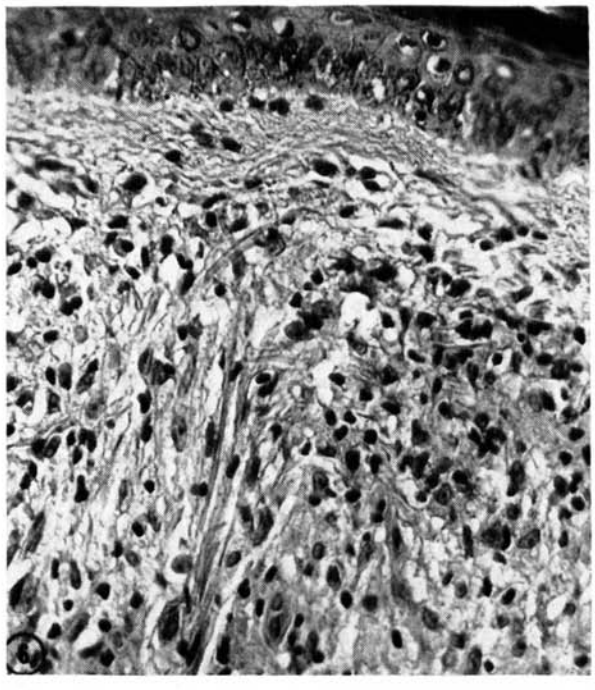


FIG. 6. High-power photomicrograph of the same part of the lesion as Fig. 5. The lepromatous element is more evident. Hematoxylin-eosin.

element of the borderline condition. Whether or not that was actually the case cannot be said, for lack of histologic examination.

All the specimens reveal essentially the same condition, with variations. The upper portion of the dermis consists of a continuous band of considerable breadth which presents a mixed picture, basically of reactional nature (Figs. 5 and 6). In the deeper layers the condition is in general a lepromatous infiltration of more orthodox appearance (Fig. 8), although in some parts the distribution of small lesion-foci resembles that seen in reactional tuberculoid lesions. Nowhere is there any trace of a tuberculoid element in the sense of focalization of epithelioid cells. There are, however, a few nerve branches in deep infiltrates which show a conspicuous laminated proliferation of the perineural sheaths.

A conspicuous feature of the superficial reaction-lesion zone is the characteristic "streaming" from the depth toward the surface. Here there are, besides the capillaries, many elongate cells which have some resemblance to fibrocytes, which they are not, although of course connective-tissue elements are present. Nor, despite their morphology, can these cells be characterized as "epithilioid" in the ordinary sense of that term. In parts of the smaller specimens their directioning is more irregular, with more scattering than in the excised one (Fig. 7).

Along and among these strands of elongate cells are rows and groups of lepra cells of various sizes and degrees of differentiation and of vacuolation up to large multivacuolate ones, the earlier stages of the foamy cells. Despite the predominance of the lepromatous elements, the

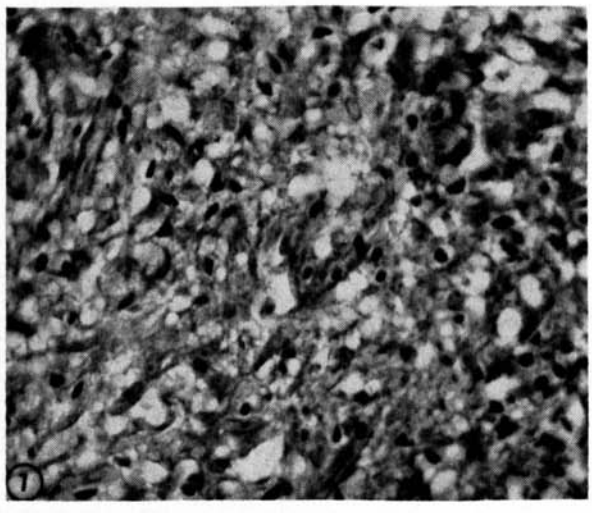


FIG. 7. Less orderly arrangement of the mixed reaction lesion in another area. Hematoxylin-eosin.

lesion is not an ordinary leproma; it is regarded as a reactional lesion of originally tuberculoid nature which has undergone the lepromatous development of the (histologically) advanced borderline condition.

Bacilli are numerous to abundant in all of the sections, according to

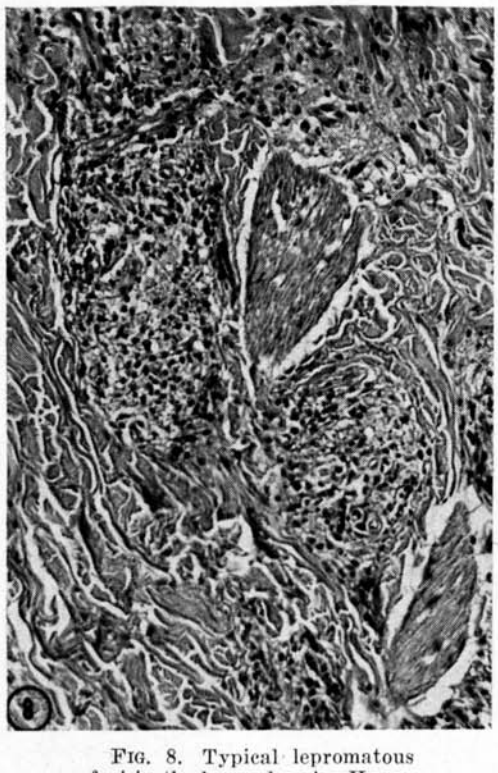


FIG. 8. Typical lepromatous foci in the lower dermis. Hematoxylin-eosin.

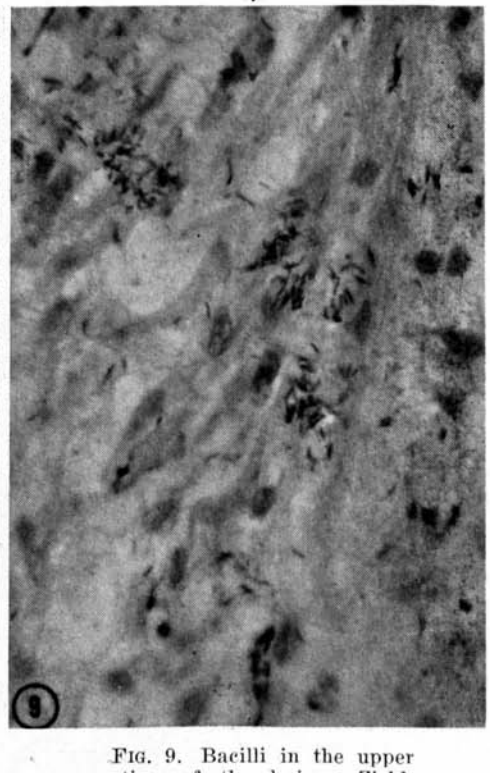


FIG. 9. Bacilli in the upper portion of the lesion. Ziehl-Neelsen.

location and the staining process employed (Fig. 9). They are most numerous in the more frankly lepromatous areas in the deeper levels. In the superficial zone they are most numerous where the histiocytes and their derivatives are concentrated. The relationship of the bacilli and the elongate cells cannot be studied satisfactorily, mostly because of cell shrinkage.[1]

Immune area.—In the No. 1703 sections there is an interesting and significant feature which, because it is not generally recognized, and to our knowledge has never been described, merits particular attention. On gross inspection of the slide it is seen that partway along the section the elevated lesion ends abruptly, the epidermis dropping as a shoulder from its level over the infiltrate band to the normal skin level. If the lesion were an ordinary tuberculoid plaque the low-level part would be from the surrounding normal skin outside. Since the lesion from which the specimen was taken tapers off outwardly, the abrupt ending of the lesion can only have been from the edge of one of the sunken "immune" areas to be seen in Fig. 3.

Under the microscope the granuloma, in all levels, ends equally abruptly at the same point. Perivascular infiltration beyond that point is practically negligible, without the—so to speak—subterranean tapering off that would be expected if the lesion were a tuberculoid plaque against normal skin. The noninfiltrated end is not, however, by any means normal. The epidermis is flattened, with only vestiges of a papilla or two remaining. The dermis itself shows marked fibrosis of moderately coarse-grained nature. The normally areolar subpapillary zone is quite obliterated by the fibrosis; and, deeper, the fibrotic tissue in part has an orderly arrangement suggestive of a keloid tendency. No bacilli are to be found in this area. It is concluded that the pathologic condition that previously had affected this area was the original tuberculoid process, which at this place had healed sufficiently to establish immunity against reinvolvement when the condition was reactivated and transformed to borderline.

DISCUSSION

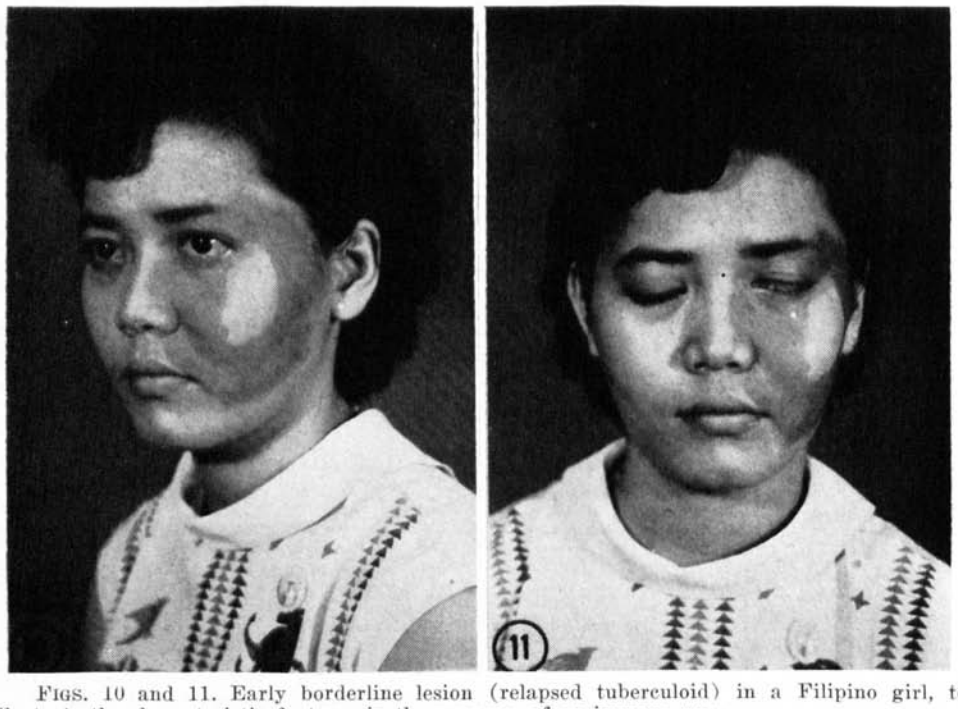
In the reevaluation of this case the clinical features as seen in the original pictures are of primary significance, and especially those of the "mother" lesion on the forearm. That has all the earmarks of a lesion of tuberculoid nature, "major" in degree, modified by reactional changes with merging of the outer edge. Its morphology in no way corresponds to that of a lepromatous infiltration; it could only have arisen as a tuberculoid lesion.

It is to be recalled that ordinary tuberculoid lesions of major grade,

[1]Of interest only with respect to staining technique, the sections done by the Ziehl-Neelsen method in Pittsburgh show the fewest bacilli, but there is little evidence of fading. The sections stained in New Orleans, evidently by Fite's second method (2), show many more bacilli but considerable fading. The newly-cut sections stained at Culion by Wade's modification of Fite's original method (4) show by far the most bacilli.

whether chronic and torpid or acute reactional, are abruptly limited outwardly, and that when central healing occurs the thickness more or less gradually tapers off in that direction. Healed central areas of major tuberculoid lesion are prone to become "immune" to reinvolvement by the lesion process in case of reactional reactivation. This is never seen in macules or plaques of lepromatous leprosy. When there is an immune central area, which is by no means always the case, when the peripheral portion of the lesion becomes thickened by reaction elevation will abut abruptly upon its edge.

If the reaction is of uncomplicated tuberculoid nature ("reactional tuberculoid leprosy"), the outer edge of the lesion will continue to be sharply limited. If, however, there is a lepromatous element in the re-



FIGS. 10 and 11. Early borderline lesion (relapsed tuberculoid) in a Filipino girl, to illustrate the characteristic features in the presence of an immune area.

action—a deterioration of immunologic resistance marking the borderline development—the outer edge will be seen more or less to taper off, as in the present case.[2]

[2]In the report of an early borderline case referred to ([5]), one picture of a reactional tuberculoid case used for comparison (Fig. 5 of that report) shows well a large immune area in the mother lesion on the back of the right arm, with abrupt margination of the elevated lesion around it; but, as that case was without borderline deterioration, the outer margin was equally abruptly marginated against the normal skin. Another picture (Fig. 4) shows a "mother plaque" with no immune area. Of the early borderline case itself, the original photographs—reproduced here again (Figs. 10 and 11)—show the typical abrupt margination around a central immune area but diffusion of most of the outer edge in the manner characteristic of borderline. In the absence of an immune area, it is the latter feature upon which the clinical diagnosis of borderline may largely depend.

Furthermore, if there is a central healed area the "immunity" of which is not uniformly strong, parts of that area may be involved by the reactional change. Thus is explained why in the present case the original immune area had been affected and broken up into to four or five small ones—one of which fortunately, is represented in the single adequate biopsy specimen.

The picture of the face, also, has features of significance against the diagnosis of lepromatous leprosy. The asymmetric distribution of the numerous nodular lesions, most of them discrete, suggest that they arose by eruption in an episode of reactional tuberculoid nature. The eyebrows did not then, and still do not seven years later, show the alopecia characteristic of lepromatous leprosy. Persistence of eyebrows is a frequent sign of borderline in a supposedly lepromatous case.

One final point of importance is the record of later abrupt development on the abdomen of a circinate lesion, similar to the one on the forearm. This is taken to signify the persistence of a basic tuberculoid influence, for a lepromatous lesion—if it could erupt so quickly—would not have had any such morphology.

Bacteriologic positivity and lepromin negativity are quite in keeping with the diagnosis of advanced borderline. Such findings undoubtedly lead frequently to the diagnosis of lepromatous in such cases when the clinical features are not critically evaluated.

Nothing was said of reaction in the original report, but no thought was given the matter. The appearance of a crop of many new, widely-distributed lesions in the eighth month of the disease could only have been a reactional event, and so was the sudden appearance of a new lesion on the abdomen during the period of hospitalization. There is nothing improbable, therefore, about the assumption that there must have been a persistent reaction, or perhaps multiple reactions, to produce the condition that existed.

Histologically, the cellular elements of the leproma predominate in the specimens taken; and, if seen alone, the infiltrates in the deeper levels of the dermis (Fig. 8) would be diagnosed as lepromatous without qualification. However, the features of the superficial reactional zone, especially the "streaming" effect, do not constitute the picture of an ordinary lepromatous lesion. The histology of the forearm lesion simply indicates that the case, as represented by that lesion, had gone well to the left in the continuum between tuberculoid and lepromatous through borderline, but it does not take the case out of the borderline range.

Another significant feature of one of the specimens is, as said, the inclusion of what is evidently a part of an immune area. It is remarkable, and perhaps unique, in the complete absence of lesion elements in that part of the section. In one of a study collection of such marginal lesions involving parts of immune areas accumulated by one of us

(H.W.W.) from Filipino patients is the immunity effect so abrupt or complete, nor is there any such fibrosis, which is taken to result from the tendency to excessive scarring of the Negro skin. The phenomenon of local immunity does not depend upon scarring.

Information about the subsequent course of the disease in this case is too scanty to dwell upon. Had it been an actual lepromatous case of such rapid development it would have taken the patient several years of regular treatment at Carville to have cleared up as he has, but that would have been unlikely under outpatient treatment, which is usually irregular. It is, however, a recognized fact that the borderline case often retains in abeyance, latent, some potentiality of resistance which makes treatment more effective than in a regular lepromatous case. As stated by de Souza Lima, and also by Leiker (personal communications), when a supposed lepromatous case responds to treatment more rapidly or better than usual, review of his history usually shows that in actuality the previous condition had been borderline.[3]

This feature of prognosis alone—apart from any question of accuracy of classification—makes it desirable that borderline cases be recognized and distinguished from established lepromatous cases. This is especially important where attempts are being made to evaluate the effects of new drugs in lepromatous leprosy, for if different test-groups of patients comprise different proportions of borderline cases the validity of the comparisons will be affected thereby.

It is unfortunate that in many leprosy centers there are still misunderstandings as to what borderline cases are. One probable reason is that there have been too few detailed reports of illustrative cases. That is the reason for the present article.

SUMMARY

This article concerns the reevaluation of the classification diagnosis of a Negro patient who had been diagnosed in Pittsburgh, Penna., in 1953 as lepromatous leprosy, which diagnosis had been accepted when he was admitted to the Federal Leprosarium at Carville, La. Actually, the condition was rather advanced borderline leprosy.

The primary lesion on the right forearm had at first been thought by the patient to be an insect bite, but it progressed and when biopsied six months later was reported to be "sarcoid" in nature, which presumably signifies "tuberculoid." When seen at the Aspinwall Veterans Administration Hospital after another eight months, it presented as a mother lesion of the aspect of a major tuberculoid lesion which had undergone borderline deterioration. On the face were many asymmetric small nodular and other lesions which evidently had arisen as an erup-

[3]With respect to the present case Dr. William H. Meyer, then clinical director at Carville, has said (personal communication): "This has been a very interesting case to review, and I am in complete agreement with your decision that it is a nice case of borderline leprosy going towards lepromatous histologically more than clinically."

tion in a tuberculoid reaction, but which had not—and never did—cause loss of the eyebrows. During the month of his first hospitalization there appeared a circinate lesion on the abdomen, described as similar to the one on the forearm.

Histologically, the forearm lesion showed a complex picture with a predominance of lepromatous elements, containing an abundance of bacilli in most parts. In the deeper levels of the dermis the picture was definitely lepromatous, but in the main lesion mass in the upper levels the picture indicated that the basis had been a reactional tuberculoid condition, although no distinct tuberculoid features remained.

A significant feature of the principal biopsy specimen was the presence, in one end of the section, of a part of an "immune" area against which the active lesion ended abruptly. Such areas arise only by central healing of tuberculoid plaques, and never in lepromas.

Although the patient left Carville against advice after only four months, to return to the Veterans Administration for outpatient treatment, his condition has cleared up. This favorable outcome is in accord with the relatively good prognosis of borderline cases generally.

RESUMEN

Versa este trabajo sobre la revaluación del diagnóstico de clasificación de un sujeto de raza negra, cuyo caso había sido diagnosticado en Pittsburgo, Pa., en 1953 como de lepra lepromatosa, diagnóstico este aceptado al ingreso del enfermo en el Leprosario Federal de Carville, La. En realidad, la dolencia era lepra limítrofe algo avanzada.

La lesión primaria en el antebrazo derecho había sido considerada al principio por el enfermo como picadura de un insecto, pero avanzó, y al hacerse la biopsia seis meses después fué declarada de naturaleza sarcoidea, lo cual presuntamente significaba "tuberculoidea." Al ser observada en el Hospital Aspinwall de la Administración de Veteranos, parecía una lesión madre con el aspecto de una lesión tuberculoidea de primer orden que había experimentado deterioro limítrofe. En la cara había muchas pequeñas lesiones nodulares asimétricas y otras que evidentemente habían surgido como una erupción en una reacción tuberculoidea, pero que no habían ocasionado—ni nunca ocasionaron—la pérdida de las cejas. Durante el mes de la primera hospitalización del enfermo, apareció una lesión circinada en el abdomen, que fué descrita como semejante a la del antebrazo.

Histológicamente, la lesión del antebrazo revelaba un cuadro complejo con predominio de elementos lepromatosos, que contenían una abundancia de bacilos en la mayoría de sus partes. En las capas más profundas del a dermis, el cuadro era positivamente lepromatoso, pero en la masa de la lesión principal en las capas superiores el cuadro indicaba que la base había sido un estado tuberculoideo reactivo, aunque no restaban características tuberculoideas precisas.

Una importante característica del principal ejemplar biópsico consistió en la presencia, en un extremo del corte, de parte de una zona "inmune," ante la qual se detenía bruscamente la lesión activa. Zonas de ese género surgen solamente por la cicatrización central de las placas tuberculoideas, y nunca en los lepromas.

Aunque el enfermo abandonó a Carville en contra del consejo recibido al cabo de no más de cuatro meses, para volver a la Administración de Veteranos a solicitar tratamiento ambulante, el estado se ha despejado. Este desenlace favorable conviene con l prognóstico relativamente bueno de los casos limítrofes en general.

SOMMAIRE

Cette communication a trait à la révision du classement d'un malade de race noire diagnostiqué comme lépromateux à Pittsburg, Pennsylvanie, en 1953, diagnostic ayant été accepté lors de l'admission de ce malade à la léproserie Fédérale de Carville, en Louisiane. En fait, il s'agissait plutôt de lèpre borderline avancée.

La lésion primaire, située sur l'avant-bras droit, avait d'abord été prise par le malade pour une piqûre d'insecte. Mais elle s'était étendue et six mois plus tard une biopsie la faisait considérer comme de nature "sarcoïde," ce qu'il faut semble-t-il entendre comme "tuberculoïde." Huit mois plus tard, examinée à l'Aspinwall Veterans Administration Hospital, l'aspect était celui d'une lésion originale présentant l'aspect d'une lésion tuberculoïde majeure ayant dégénéré en border-line. Sur le visage on notait de nombreuses petites lésions nodulaires ou autres qui avaient manifestement éclos sous forme d'éruption à l'occasion d'une réaction tuberculoïde. Celle-ci cependant n'avait pas causé, et ne causa jamais, la perte des sourcils. Pendant la première hospitalisation, d'une durée d'un mois, apparut une lésion circinée sur l'abdomen, qui fut décrite comme étant semblable à celle d l'avant-bras.

Histologiquement, la lésion de l'avant-bras montrait un aspect complexe avec une prédominance d'éléments lépromateux, contenant dans la plupart des endroits des bacilles en abondance. Dans les niveaux plus profonds du derme, l'aspect était nettement lépromateux, mais dans les niveaux supérieurs l'aspect de la lésion principale indiquait a la base une réaction tuberculoïde, encore qu'aucune structure tuberculoïde n'y persistât.

Une caractéristique significative de la biopsie principale était la présence, à une extrémité de la coupe, d'un fragment d'une "zone d'immunité" au niveau de laquelle la lésion active se terminait brusquement. De telles zones surviennent uniquement suite à la guérison centrale d'une plaque tuberculoïde, et jamais dans des lépromes.

Quoique la malade ait quitté Carville après quatre mois, malgré un avis défavorable, pour se faire traiter ambulatoirement à la Veterans Administration, sa condition s'est améliorée. Cette évolution favorable est en accord avec le prognostic relativement bon en général des cas border-line.

REFERENCES

1. [Congress, Madrid] VI International Congress of Leprology. Technical resolutions. Classification of Leprosy. Internat. J. Leprosy **21** (1953) 504-516.
2. Fite, G. L., Cambre, P. J. and Turner, M. H. Procedure for demonstrating lepra bacilli in paraffin sections. Arch. Path. **43** (1947) 624-625.
3. Perrin, S. R. and Caplin, I. Leprosy acquired during World War II. A.M.A. Arch. acid-fast bacilli in paraffin sections. Stain Tech. **32** (1957) 287-292. Dermat. **71** (1955) 742-744.
4. Wade, H. W. A modification of the Fite formaldehyde (Fite I) method for staining
5. Wade, H. W. The first phase of borderline transformation. The so-called "relapsed tuberculoid" condition. Internat. J. Leprosy **28** (1960) 105-112.
6. [World Health Organization] Expert Committee on Leprosy; First Report. Wld. Hlth. Org. Tech. Rep. Ser. **71**, 1953, p. 21.