Histoid Leprosy in North India[1]

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Histoid leprosy, originally described by Wade in 1960 ([12]) is generally regarded as a distinct clinico-pathological entity. It presents as cutaneous or subcutaneous nodular and/or plaque-like lesions arising from apparently normal skin. The lesions are characterized, histologically, by tumorous collections of spindle-shaped cells arranged in a crisscross fashion giving them a resemblance to neurofibromata. The cells, unlike those of a neurofibroma, however, contain a large number of acid-fast bacilli. Since Wade's first communication similar cases have been reported from different parts of the world ([2, 4, 6, 7, 8, 9, 10, 11]) confirming most of the features described by him.

In the present communication we report the clinico-pathologic spectrum of 20 cases of histoid leprosy, observed over three years at the All India Institute of Medical Sciences, New Delhi, India.

MATERIALS AND METHODS

The study is comprised of 20 patients with a diagnosis of histoid leprosy based on the clinical features described by Wade ([13]). History of previous treatment with sulfones was elicited and the interval elapsing between the onset of leprosy and the appearance of histoid lesions was recorded as per the patients' description of time of appearance of the lesions. At clinical examination particular note was made of the type, number, size and distribution of lesions. Any associated features of leprosy, apart from histoid lesions, were also noted. Slit and smear bacteriologic examinations were carried out on all patients to determine the Bacteriologic ([1]) and Morphologic ([3]) Indices. Histoid lesions and other lesions of leprosy were biopsied and fixed in 10% neutral buffered formalin. Paraffin sections cut at five microns were routinely stained with hematoxylin and eosin and Ziehl-Neelsen stains.

RESULTS

Of the 20 patients, 14 were male and 6 female, with ages varying from 22 to 84 years. The duration of leprosy as elicited by patients' histories ranged from three months to over fourteen years. Seven cases, had *de novo,* started as histoid lesions of leprosy and in others these lesions were reported to have developed five months to fourteen years after the onset of leprosy (mean three years).[3] All but two patients showed associated features of lepromatous leprosy. The exceptions were a female and a male patient (Case Nos. 8 and 18) having borderline (BB and BL respectively) forms of the disease. Fifteen patients had never received any treatment prior to development of histoid lesions. The duration of treatment in the remaining five had varied from two months to over ten years. The number of lesions varied from three to over fifty, and their size from 0.5 cm to 4 cm. Nine patients showed only cutaneous nodules (Fig. 1), one showed subcutaneous nodules alone (Fig. 2) and the other ten had subcutaneous nodular and cutaneous nodular or plaque-like lesions (Fig. 3). The lesions were mainly distributed on the lower back, buttocks and face and less frequently on the extensor aspects of the extremities.

A representative histoid cutaneous lesion, as seen in this series, consisted either of a sharply circumscribed, shiny, protuberant, skin-colored, dome-shaped nodule with a neck at the base or a succulent well-defined infiltrated plaque (Fig. 1). The overlying skin was stretched and thinned out. The skin immediately around the lesions appeared normal. The subcutaneous lesions, also located under apparently normal skin, were firm, freely mobile over the underlying structures and seemed not unlike neurofibromas.

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[3]Statement apparently based on patients' judgement. —Editor

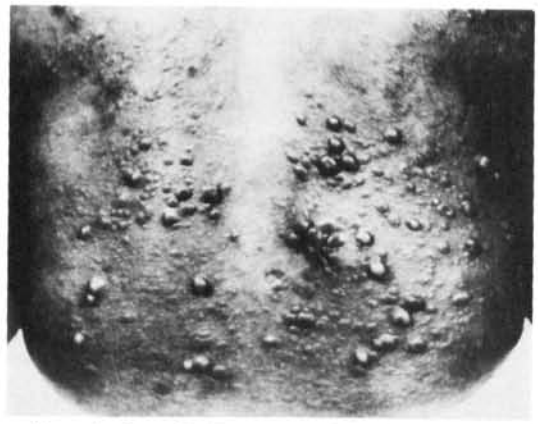

FIG. 1. Case 2. Cutaneous histoid nodules on the back.

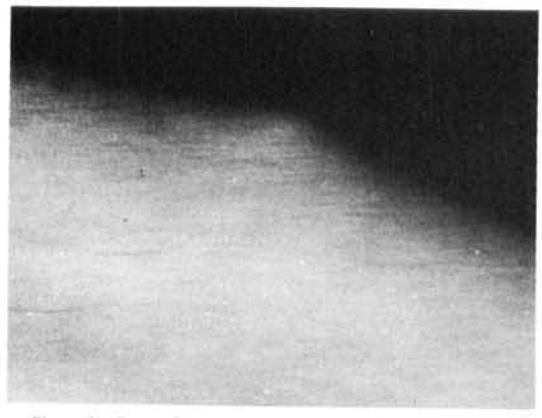

FIG. 2. Case 20. A subcutaneous (histoid) nodule on the arm.

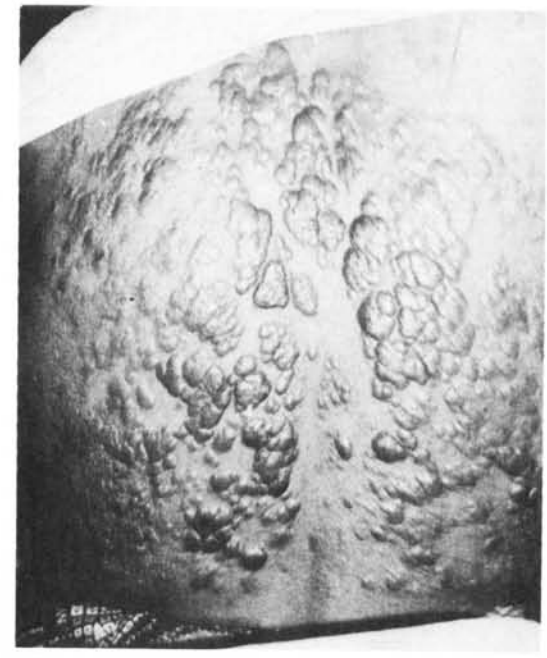

FIG. 3. Case 9. Plaque-like lesions on the back.

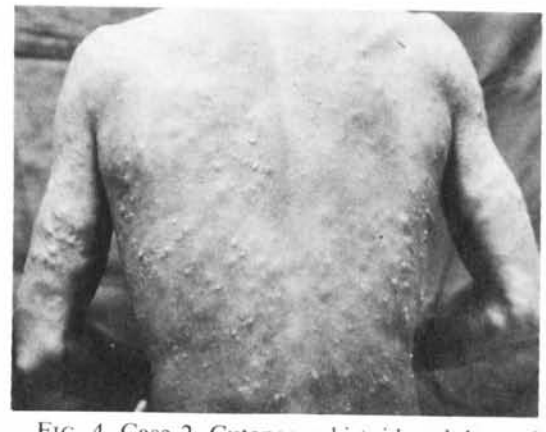

FIG. 4. Case 2. Cutaneous histoid nodules and lesions of *erythema nodosum leprosum.*

Two of these patients had, in fact, been diagnosed as suffering from neurofibromas till the demonstration of acid-fast bacilli in tissue sections revealed the true nature of the lesions. In three patients *erythema nodosum leprosum* reaction occurred during the course of sulfone therapy (Fig. 4). The clinical features have been summarized in Table 1.

Bacteriologic findings. The smears taken by standard slit and smear method from these lesions showed abundance of organisms occurring singly as well as in clusters and globi. Many bacilli were solid staining but fragmented forms were also seen (Table 2).

Histopathologic features. The common histopathologic features in all these patients were the presence of well-circumscribed tumorous collections of histiocytes surrounded and septated by dense collagen fibers. These masses were present deep in the dermis extending even into the subcutis but were not particularly disposed around the appendages. The epidermis was atrophic and in most cases a free subepidermal zone was present. The detailed cytological architecture seemed to form a spectrum that could broadly be classified into three categories. On one end of the spectrum were eight patients in whom the histiocytes present were

TABLE 1. *Clinical delineation.*

Case no.	Age, sex	Total duration leprosy (years)	Prehistoid leprosy (years)	Type of histoid lesions			Histoid lesion sites	Prehistoid treatment (years)
				Cutaneous	Subcutaneous	Plaque		
1	42 M	2	1	+	+	0	Chin, legs, buttocks, arms, back	0
2[a]	30 M	5	0	++	+	0	"	0
3[b]	32 M	5	4	++	0	0	"	2
4	35 M	1	1	+	+	0	"	0
5	50 M	5	5	++	0	0	Lower back, buttocks	3
6	40 M	8	6	++	+	0	Chin, legs, buttocks, arms, back	6
7	35 M	5	0	+	+	0	"	0
8[c]	36 F	6/12	0	+	0	0	Lower back only	2/12
9	47 F	10	4	+	0	++	Face, arms, back	0
10[a]	24 F	2	0	++	0	0	Chin, legs, buttocks, arms, back	0
11	32 F	5	4	+	0	0	"	0
12[b]	40 M	1	0	++	0	0	Face, neck, arms, back	0
13	84 F	—	—	0	+	0	Arms only	0
14	40 F	8	5	+	0	0	Chin, legs, buttocks, arms, back	0
15	30 M	2	0	++	0	0	Face, arms, neck, back	0
16	36 M	10	9	+	+	0	Arms, legs, buttocks	10
17	39 M	14	13	++	0	0	Arms, neck, face, back	0
18[c]	22 M	3/12	0	++	+	0	Face, trunk, arms, buttocks, legs	0
19	25 M	1	6/12	++	+	0	Arms, pinnae, chin	0
20	48 M	6/12	5/12	++	++	0	Face, arms, buttocks, legs	0

[a] Cases 2 and 10 are blood related (brother and sister relationship).
[b] Cases 2, 3 and 12 showed ENL reaction during the course of sulfone treatment.
[c] Cases 8 and 18 had dimorphous type of leprosy in addition to histoid lesions.

unmodified, nonvacuolated and spindle-shaped, arranged in a crisscross fashion not unlike the picture seen in neurofibroma. The cells, however, showed an abundance of acid-fast bacilli on Ziehl-Neelsen staining, thus revealing the true nature of the lesions.

At the other extreme of the spectrum were two patients in whom the infiltrate was well-circumscribed like a tumorous mass but consisted predominantly of foamy cells which contained a large number of acid-fast bacilli. The cell type seen in biopsies from these cases was indistinguishable from that of lepromatous leprosy and except for the sharply circumscribed tumorous nature of the histologic lesion, these would have been regarded as compatible with lepromatous leprosy.

TABLE 2. *Histopathological findings.*

Case no.	Subepidermal zone	Spindle cells	Foam cells	Giant cells	Bacteriologic Index	Morphologic Index	Histologic diagnosis
1	F[a]	++++	+	0	5+	50-80	HH[b]
2	NF[a]	+	++++	++	4+	10	LL[b]
3	NF	++	+++	+	3+	60	LH[b]
4	F	+++	++	0	4+	50	LH
5	F	++++	++	0	4+	80	HH
6	NF	+++	++	+	4+	20-70	LH
7	F	++++	+	0	4+	30	HH
8	F	+++	0	0	3+	10	HH
9	F	++	+++	0	4+	10-30	LH
10	F	+++	++	0	5+	40	LH
11	F	++++	+	0	4+	50	HH
12	F	+	+++	0	3+	70	LL
13	F	++++	0	0	4+	80	HH
14	F	++++	++	0	5+	40	HH
15	F	++	++	0	5+	70	LH
16	F	++	++	0	4+	20-70	LH
17	F	++	+++	0	4+	30	LH
18	F	+++	++	0	5+	70	LH
19	F	+++	++	0	4+	60	LH
20	F	++++	+	0	6+	60	HH

[a] F = free; NF = not free.
[b] HH = histoid; LL = lepromatous; LH = mixed lepromatous.

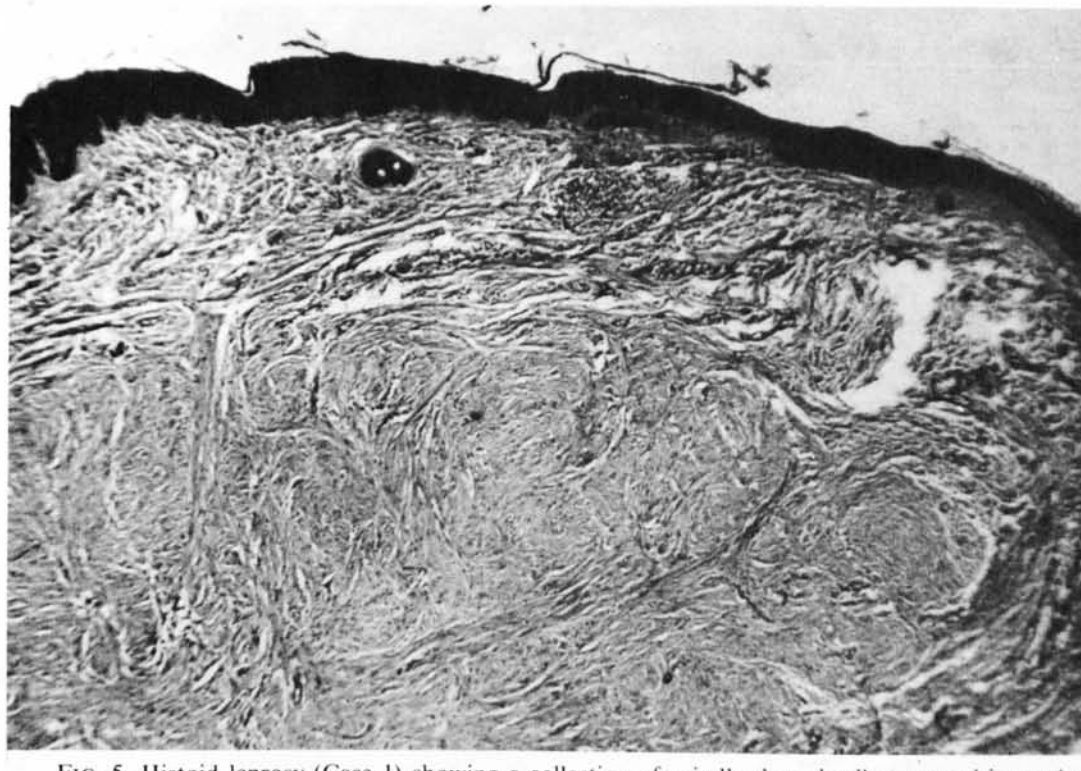

FIG. 5. Histoid leprosy (Case 1) showing a collection of spindle-shaped cells arranged in a criss-cross fashion. H & E X 35.

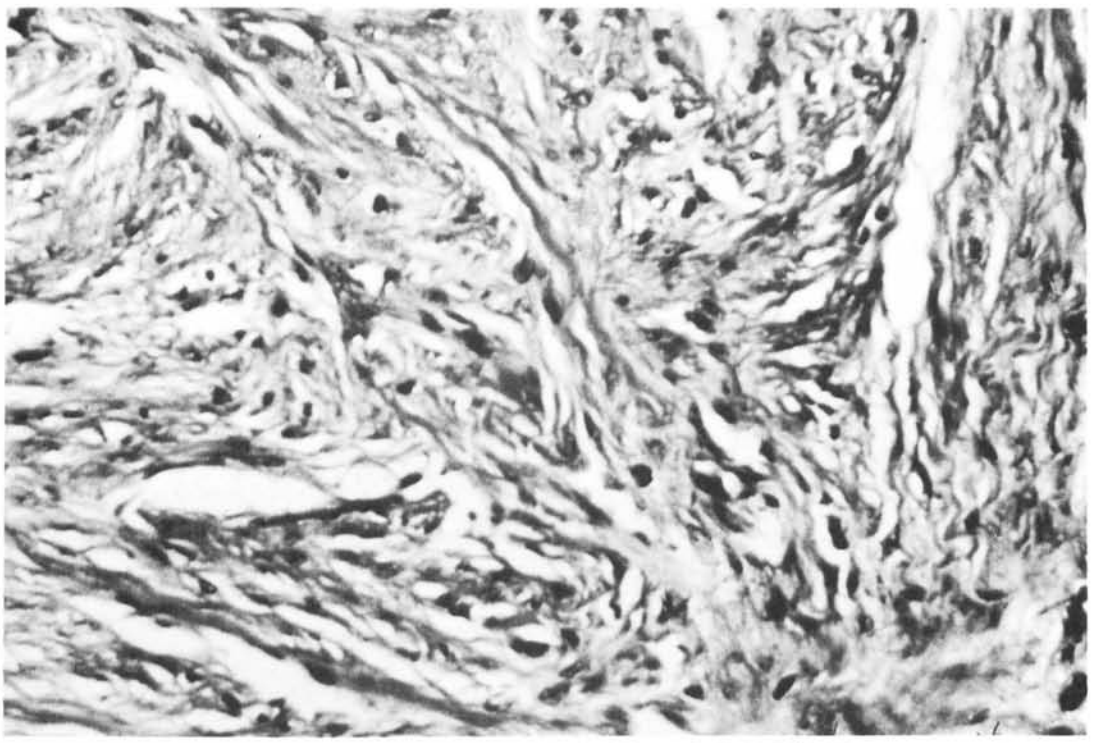

FIG. 6. Same section as depicted in Figure 5. H & E X 250.

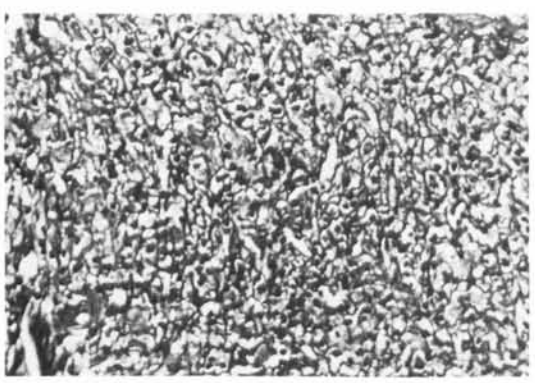

FIG. 7. Histoid leprosy showing a collection of foam cells. H & E X 250.

In half of the patients (10/20), the infiltrate was of mixed nature containing varying proportions of spindle and foamy histiocytes (Fig. 8). In some sections, this transition from spindle to foamy histiocytes was abrupt, while in others there was an admixture of these cells in one and the same area. No definite tuberculoid lesions were observed in any of the sections. In three cases, Langhans type giant cells containing numerous acid-fast bacilli were seen (Fig. 9) and in these cases a free subepidermal zone was not present.

The biopsies taken from other adjacent lesions, clinically classifiable as conventional lepromatous (in 18) and borderline (in 2) showed histopathologic features consistent with typical lepromas.

Biopsies from lesions other than the histoid ones showed histopathologic features of lepromatous leprosy in all the 18 patients clinically so diagnosed and of borderline (BB and BL) in the other 2 patients.

DISCUSSION

The present communication is a report of 20 clinically diagnosed patients with histoid leprosy seen over the past three years, from a total of 280 leprosy patients who presented themselves in the outpatient department. Thus, it appears that this form of the disease may not be as uncommon as has been suggested in some reports.

The clinical picture of our patients did not present any distinctive features that have not been described by earlier workers. The histoid lesions in this series, however, in

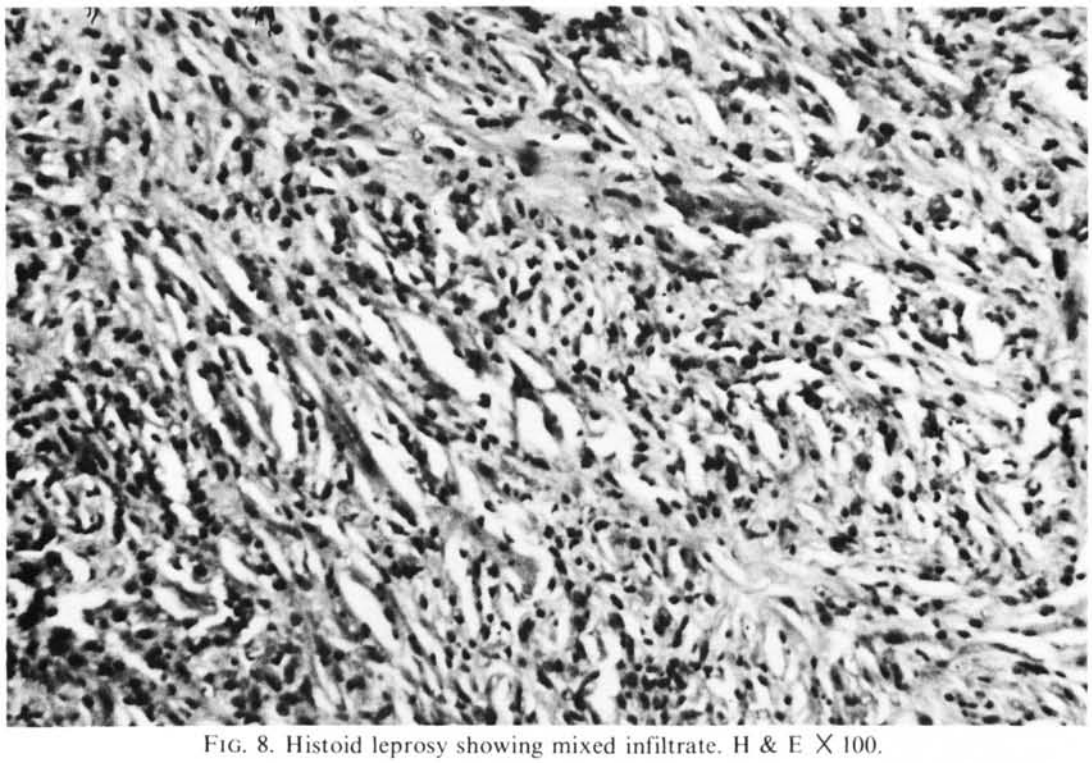

FIG. 8. Histoid leprosy showing mixed infiltrate. H & E X 100.

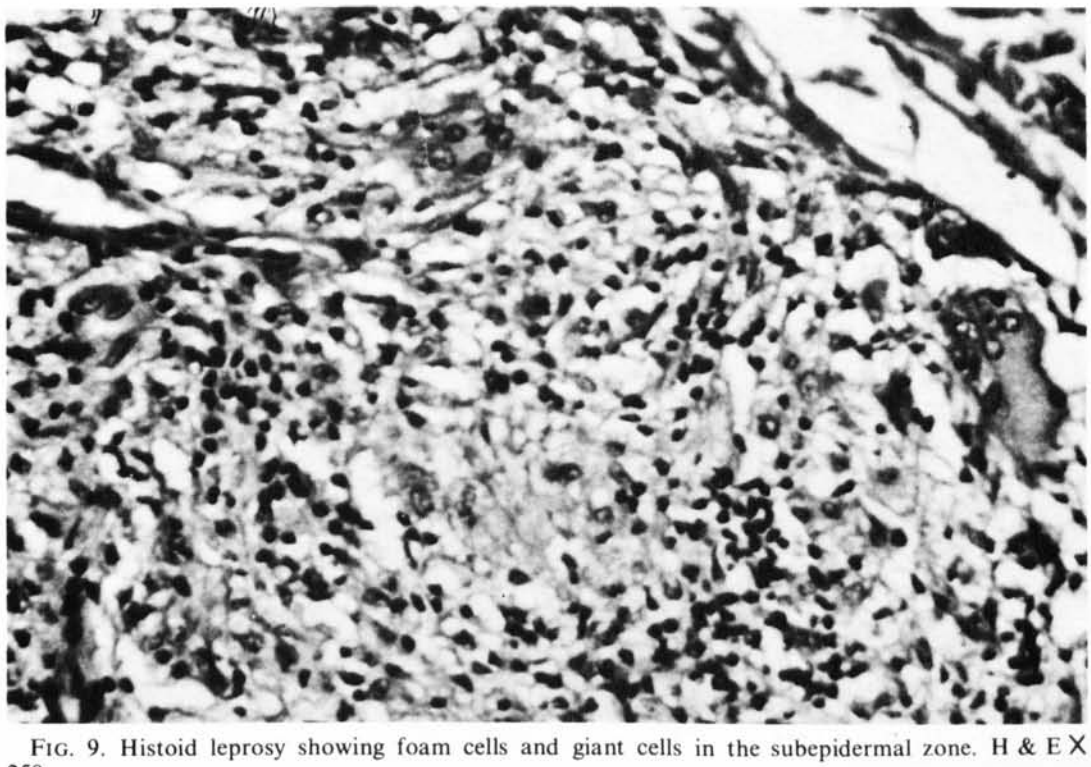

FIG. 9. Histoid leprosy showing foam cells and giant cells in the subepidermal zone. H & E X 250.

contrast to those observed by Wade ([13]), Price and Fitzherbert ([8]), and Petit *et al* ([7]), were not confined only to patients who failed to respond to sulfones. Also, the clinical course of the disease following sulfone therapy was no different from that of the lepromatous form of leprosy (Fig. 10). Similar views have also been expressed by Rodriguez ([9]).

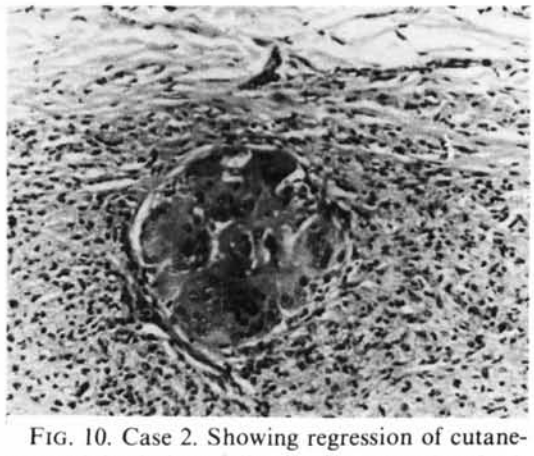

FIG. 10. Case 2. Showing regression of cutaneous nodular lesions following four months of sulfone therapy.

Ever since the first report by Wade, histoid leprosy has been regarded by most workers as a distinct clinico-pathologic entity. The characteristic histopathologic feature is considered to be a tumorous collection of spindle-shaped histiocytes containing acid-fast bacilli with little or no cell vacuolation. In a recent report, Mansfield ([5]) also stressed the value of these cells in making a diagnosis of histoid leprosy. In the present series, a fairly large number of patients, clinically diagnosed as histoid, did not show this picture in its pure form but a picture of a variant of the histoid type which Wade had regarded as rare and designated as "mixed lepromatous." The vacuolated cells, unlike those reported by Mansfield ([5]), were not necessarily confined to the periphery. A few sections, in fact, had such a predominance of vacuolated cells, that but for their localization in tumorous form it would not have been possible to differentiate these from lepromatous leprosy (LL). Again a few sections showed isolated foci containing Langhans type of giant cells. On Ziehl-Neelsen staining these cells were seen to contain solid acid-fast bacilli. Whether the collection of giant cells represents an abortive attempt on the part of the host to form tuberculoid foci as suggested by Mansfield ([5]) or whether this is an evidence of a desperate bid by the macrophages to contain the bacilli is a matter of speculation.

One thing that does stand out quite clearly from this study is that while the clinical presentation in these patients is more or less indistinguishable from one another, the histopathologic picture despite certain distinctive features, is variable. Again, as stated already, these patients responded to sulfone treatment like any other lepromatous patient, i.e., the lesions improved clinically and histologically and the Morphologic Index did come down. Three of the patients did, in fact, also develop ENL after institution of therapy, which is contrary to Wade's ([13]) observation that "ENL seems not to occur in histoid cases." Moreover, the observation of typical histology of lepromatous as well as borderline type in lesions other than histoid lesions in the same patients would tend to suggest that the formation of a histoid lesion may be a reaction pattern dependent on the local factors in the host. It is possible that during the course of the disease, there appear "some" alterations in the macrophages at certain sites and these cells start multiplying rapidly in response to an increasing load of lepra bacilli, in a bid to overcome the infection.

From the foregoing evidence, it would hardly seem justified to make "histoid leprosy" a separate clinico-pathologic entity. The variable histopathologic picture, the therapeutic response to sulfones being similar to other forms of lepromatous leprosy, and the occasional presence even of ENL only suggest that histoid leprosy is possibly a variant of lepromatous leprosy. The exact etiopathogenesis of histoid lesion, however, still remains obscure and further investigations are needed to study the macrophage function and/or biological behavior of *Mycobacterium leprae.*

SUMMARY

Twenty cases of histoid leprosy were studied for their clinical and histopathological features. Unusual features included numerical predominance of histologically mixed lepromatous picture, presence of giant cells containing acid-fast bacilli, occurrence of

erythema nodosum leprosum in three, and adequate response to sulfone therapy in most patients.

RESUMEN

Se estudiaron veinte casos de lepra histoide de acuerdo con sus caracteristícas clínicas e histológicas. Las caracteristícas fuera de lo corriente incluían predominancia número ica de un cuadro lepromatoso mixto, presencia de células gigantes con bacilos ácido-resistentes en su interior, aparición de *erythema nodosum leprosum* en tres pacientes y respuesta adecuada a la terapia con sulfona en la mayor parte de los pacientes.

RÉSUMÉ

On a étudié les caractéristiques cliniques et histologiques de 20 cas de lèpre histoïde. Parmi les particularités inhabituelles qui ont été relevées, on note un plus grand nombre d'images lépromateuses mixtes sur le plan histologique, la présence de cellules géantes contenant des bacilles acido-résistants, l'apparition d'érythème noueux lépreux chez 3 sujets, ainsi qu'une réponse adéquate à la thérapeutique par les sulfones chez la plupart des malades.

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