

CLINICAL ASPECTS AND EVOLUTION OF THE EARLY MANIFESTATIONS OF LEPROSY *

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INTRODUCTION

What determined us to start this work was the desire to establish a comparison between this interesting clinical aspect of leprosy, as we observe it in São Paulo and as it is described in other countries.

Certainly it has the same general features everywhere, but it is sure that there are for each endemic area, regional variations, due to various factors, not very well known, but which influence in the determination of the different clinical aspects of leprosy is doubtless.

We cannot expect it to be a complete work, but we believe that this will not diminish its interest; and we hope it will suscite new studies, that will complete it, settling in a clear way the peculiar features of early leprosy in São Paulo.

For the elaboration of our study we had plenty of material, represented by:

- a) dispensary cases, examined sistematically;
- b) those of the special section for diagnosis, where difficult cases are sent to, from every part of the State;
- c) those of the contact section, whose periodical examinations permit the physicians to notice the first manifestations of the disease;
- d) those segregated in the two Preventories of the State, an official one, being in Jacarei, in working-order since 1932, and another, called Santa Terezinha, wonderful "example" of the private cooperation, giving its most valuable help to D. P. L., since 1927, and
- e) to those we add the patients segregated in the "Sick-children Home" of the S. P. B., in which most of them are early cases, that are placed there for social reasons.

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But, which is most important to point out in our abundant material is its special condition: most children, far from the "focus", placed in healthy "surroundings", with hygienic standard of life, some of them adequately treated, and some without any special treatment, in order to verify what influence the lack of "special treatment" may have over the evolution of the infection.

We got the impression from similar studies published in other parts of the world, that the condition of the cases there observed did not present the same characteristics as ours; it must be pointed out that we consider the separation of the cases from the "focus" of contagion as a greatly important influencing factor over the evolution of the disease.

We believe that the different conditions may explain the different conclusions we arrived at, as compared with what is registered in the literature, mostly in what is concerned the evolution of the disease.

Our aim being to describe exclusively the truly early lesions, we left aside those that have been positive by the bacteriological aspect of the manifestations, with the, not always concludent help of histopathology. The substractum of our study is:

- 1) anesthetic areas;
- 2) neuritis and amyotrophies;
- 3) tuberculoid lesions;
- 4) erythemato-hypochromic lesions;
- 5) achromic lesions.

EARLY MANIFESTATIONS

We consider as an early manifestation of leprosy every objective symptom of undoubtfull leptotic nature, generally negative to M. B., (positive in very rare instances) with typical or classical histopathology, sometimes not characteristic.

Under this heading are included the nervous and the cutaneous manifestations.

1.° — ANESTHETIC AREAS

Among the earliest manifestations that we have observed the anesthetic areas are the commonest. It is generally the patient himself, and not the physician, who observes the first sensitive alterations in

his skin. He is acquainted with the premonitory signs of the disease, having a leprosy case in his family, so, he soon observes that there is an area of his skin that is "different". This "difference" consists in the sensation of a "velvety like skin", some times and more frequently, it is the unexpectedly observed sensation of numbness, not being preceded by any other symptom whatsoever; but, it may have a phase of hyperesthesia followed by the anesthesia. However, more frequent is the anesthesia preceded, or, followed by anhidrosis. It is the patient who informs the presence in an area of his skin, generally in his lower limbs, where he does not perspire. Those who work on farms inform us that there is an area in their leg or foot that does not dirty, because dust does not adhere. Hyperesthesia—anesthesia—anhidrosis are, sometimes, the characteristic of the evolution of the initial leprotic process. Frequently together with the "anesthesia", and secondary to same, there is a hypochromic area, that never becomes totally achromic. There is with this hypochromia a concomitant atrophy of the epidermis, where hair is rare or absent.

All these symptoms are dependent upon a peripheral neuritis, that may also cause the thickening of the superficial nerves in connection with anesthetic part, sometimes with tissue-reaction of the tuberculoid structure. When the process reaches the large nerve trunks, they are also found thickened, as a consequence of their infiltration. The anesthetic area may coexist with the nervous form or some other distant lesion.

Finally, it may be found as the last result, the almost always irrecoverable sequela of a spontaneously, or not, cured macular lesion.

CLINICAL ASPECT

Although the anesthesia is a nervous lesion, mainly characterized by the sensitive alteration, in one or in all of its types, the skin is very rarely absolutely normal. This is due to the anhidrosis that follows it, having as a consequence its peculiar 'dryness' and also to the total, or partial alopecia; these symptoms are easily explained by the histological lesions caused by the invasion of the germ. These nutritional alterations give the skin a small degree of keratosis, with fine scaling, and a characteristic 'wrinkling', and the atrophy of the epidermis completes the clinical aspect.

The size and form of the anesthetic areas may vary according to the site of the nervous lesion, it may be large, band-like, obeying the cutaneous distribution of the nerves, but generally is oval-shape,

with its long diameter parallel to the limb. At the beginning it is frequently perceived in a round shape, with excentric evolution.

In the 26 cases that we observed, 17 were localized in the lower limbs, and 8 in the upper. Here is its topographic distribution:

Foot	{	dorsum	2	Knee and thigh	1
		external part	1	Thigh	1
Ankle			2	Hand and fingers	1
Leg			8	Hand	1
Knee			3	Forearm	4
				Elbow	2

It is interesting to call the attention to the great frequency of the lesions in the inferior limbs in the unprotected parts of the skin. What is the reason of this frequency? Can it be the inoculation of insects, fleas, for instance?

NEURITIS AND AMYOTROPHY

The neuritis is always a sign of the invasion of the nerve by the germ, beginning with its cutaneous branches. Once there, its progression is almost always ascending; sometimes, however, neuritis can be descendent, or both combine in the same patient; the following observation is a typical instance of this case: after an area of anesthesia in the leg appeared a thickened nerve, a tuberculoid macule on the dorsum of the foot, and some time after neuritis of the small sciatic in the posterior surface of the knee (popliteal region), with abscess formation (Plate 1- photos. 1, 2, 3).

The neuritis of the terminal nerves of the skin frequently produces the cutaneous hyperesthesias, one of the most incipient symptoms of leprosy. The degeneration or fibrosis follows the infiltration of the leprotic process, but it seems to us that those of the lower the hyperesthesia.

All the superficial nerves of the body may undergo the attack of the leprotic process, but it seems to us that those of the lower limbs, neck and face are more frequently attained.

Neuritis may be secondary to traumatism. When this is in the nerve trunk or a peripheral branch on an already affected patient, it localizes there the causal agent, as it is seen on the skin, for leprosy as well as for syphilis and other diseases. There is no other explanation for the frequency of neuritis of the ulnar above the epitrochlea with the consequent amyotrophy of the muscles in connection with it; but the formation of the not properly called nerve

abcess, as it was already observed by one of us, may succeed traumatism.

The amyotrophy almost always follows the motor neuritis process. Contrarily to what we always thought amyotrophy may establish itself very rapidly after an acute process. The patient goes to bed well and awakens with strong pains in parts of the nerves territory, functional impotence, camptodactylia of the thumb and the ring-finger; the acute process lasts a few days or a few months and the sequela is almost always the amyotrophy of the muscles supplied by the terminal branches of the affected nerve.

According to the frequency the amyotrophies are observed as early manifestations of leprosy: in the hypothenar, the interosseous — the thenar muscles, in the hand the tibio-tarsal muscles in the legs. This amyotrophy may be confined to a single muscle or to a group of muscles. We have never observed, as an early manifestation, the unilateral paresis of the lower eyelid and of the elevators of the angle of the upper lip, so very well described by WAYSON, that we have sistematically tried to observe in our patients;

CLINICAL ASPECT

The amyotrophies are secondary to a neuritis process; this may be primary (hematogenous) or secondary to a peripheral neuritis process.

They set in either rapidly after an acute process of neuritis, and in this case the pain is the prominent sign and as a consequence the functional impotence of the limb, or part of the limb, and only secondarily to it is the amyotrophy observed; or they set in slowly, beginning on the hand by a slight difficulty of motion of the little finger, that becomes tardy, difficulty of motion that passes on to the ring finger, at the same time that amyotrophy of the hypothenar eminence begins. On the leg, in the distribution of the sciatic nerve, the same process is seen, beginning by an area of slumberness in the first and second toe, that soon reaches the dorsum of the foot. Soon after the patients are not able to flex the toes. We believe that this in one of the most important and most incipient clinical symptoms of the degeneration of the nervous branches of the superficial peroneal. From that comes the 'drop-foot, — by the atrophy of the muscles of the anterior surface of the leg, the tibio-tarsal group, with the salience of the tibial crest (Plate 2- Phots 4-5).

We had the opportunity to make very curious observations on patients that only presented as initial and single manifestation of

leprosy the amyotrophy of the thenar eminence. (Plate 2 - Phots. 6-7) In these cases the surest diagnostic sign that we dispose of, is the electrical examination, not only for diagnostic purposes, but to follow its evolution.

NERVOUS LESION EVOLUTION

An initial nervous lesion being perhaps one of the announcing signs of leprotic invasion of the body, its prognosis is generally benign. There are patients that remain with this sign only, without treatment, for a long time, without the appearance of any other symptom. But, there are others, that for some conditions, not always determined, present a progression of the disease, either by the appearance of an achromic, or rose, macule, or by the thickening of the nerve branches supplying the anesthetic area.

But, if treatment is started, the patients improve; this improvement is mostly on the nutrition of the skin. The hair benefits because it stops falling, and new ones appear; the dryness of the skin and the anesthetic area diminishes. However we have never seen the total return of the sensibility. The improvement is clearly related to the intensity and the site of the infection.

CUTANEOUS MANIFESTATIONS

Referring to cutaneous manifestations of early leprosy we describe :

- 1) Tuberculoid lesions;
- 2) Erythemato-hypochromic lesions;
- 3) Achromic lesions.

These initial manifestations often represent evolutive stages, as we will see, its finding being dependant on the more or less precocious occasion in wich the patient is observed. According to natural and logic order the following lesions must be studied:

- a) tuberculoid lesions;
- b) erythemato-hypochromic lesions as in most cases they precede the:
- c) achromic lesions, although these lesions also may represent the initial manifestations of the disease.

We shall speak about them in according order:

TUBERCULOID LESIONS

Among the early cutaneous manifestations of leprosy observed in childhood, the tuberculoid lesions show themselves very frequently and present at that age special characteristics that differs greatly to the adult, not only by its morphology as well as by evolution. Contradicting the classical opinion that children do not possess immunity to leprosy, besides being greatly subjected to infection, on the contrary we see that on one side they are really very susceptible, on the other they possess a very high degree of resistance, showing most of the time a slight form of the disease, easily retrogressive, as long as they are not subjected to superinfection.

On the subject, the experience that we have acquired on the Preventory Services in São Paulo, where more than 400 children are under observation, completely separated from the possibility of the superinfection, shows exuberantly that not only the achromic macules as well as the tuberculoid lesions improve rapidly, or due to a chaulmoogra treatment or by simple strenghtening of the general state of health, very rarely observing their evolution for more advanced stages. This fact we believe is due to the non-existing super-infection, because the appearing of a single negative achromic lesion, or a tuberculoid lesion, confirmed by histology, does not oblige the transference to the general hospitals, but only a separation within the Preventory itself, for a stricter bacteriological following up. The observation of authors who believe children without immunity to infection, is made, we believe, in the surrounding where they are subjected to new infections, or being in hospitals or among "home-focus", not speaking of the poor standard of life.

CLINICAL ASPECT

The tuberculoid lesions in children, as much as the other forms of leprosy presents themselves with great polymorphism. One can clearly see the difference of the adult lesions. Trying to classify them according to clinical aspect, we can divide them in the following:

- | | | |
|--|---|--|
| 1) Lesions characteristic to infancy | } | a) tuberoïd lesions; |
| | | b) papulate lesions; |
| | | c) lichenoid lesions of small papules. |
| 2) Common lesions in children and adults | } | d) Boeck's sarcoid type of lesions; |
| | | e) trychophytoid or annular lesions. |

a) TUBEROID LESIONS

Observed as the most incipient lesions of tuberculoid leprosy in infancy, and the same forms are observed by us in children of under age. They present themselves as nodular formations, well defined, beginning as the small papules of strophulus, growing rapidly to the size of a coffee-grain, always isolated, localized on the thighs, buttocks, arms and abdomen. They are now tumid, with smooth bright velvety surface, hard to the touch, standing above the general skin surface. By the application of vitropression we do not see the classical aspect of the lupoid lesions but only an ischemia of the lesion that becomes pale (Plate 3-Figs. 8-9).

b) PAPULATE LESIONS

These are perhaps a more advanced stage of the nodular lesions; they are dermo-hypodermic, but no more modular, but papuloid, a reddish-purplish colour, the surface being irregular and bright, well defined, isolated, oval or round in shape, the central zone depressed. The edge of the lesions, above the general surface of the skin, are formed by the confluence of small elevated follicular papules, that by vitropression show the aspect of the lupoid nodules (Plate 3 Figs. 10-11-12).

c) LICHENOID LESIONS

These lesions are constituted by small papuloid elements, sometimes, confluent, other times figurated, regular or irregular and often dispersed (Plate 4 — Figs. 13-14-15). In the first case the lesions are constituted by small papules that perhaps would be better called small tubercles, of the size of a pin's head, the largest of the size of a pea, bright, rose or reddish-purplish being the size of cm cm.

d) BOECK'S SARCOID TYPE OF LESIONS

These lesions are those that show themselves as elevated plaques, tumid and irregular in surface, purplish in color, round, oval or irregular in shape, with disturbances of sensibility (Plate 5 — Fig. 16).

e) ANNULAR LESIONS

These are the classical type of tuberculoid leprosy: annular macule with elevated and thick edges, constituted by the confluence of small papules, with flat hypopigmented (achromic) center, with or without erythema; these lesions may present furfuraceous desquamation (Plate 5 — Fig. 17).

ERYTHEMATO-HYPOCHROMIC LESIONS

This type of lesion is unquestionably a transitional stage between the above mentioned, the erythematous lesions, tuberculoid or non-tuberculoid, and the achromic, by the progressive disappearance of the erythematous pigmentation and of the infiltration; so, it is clear that its morphological characteristics are in a general way, the same as those of the lesions from which they originate. They are lesions that vary in size within very extensive limits, from the small macules of 1 to 1,5cms. to the large lesions of 9,10 or more cms, in diameter. Their outline is not well defined, because they are bleeding lesions; they often gradually merge on one side in the surrounding skin; this is clearly seen in the lesions that have the tendency for the total disappearance. In those that have the evolutive tendency towards a residual achromia, or towards an atrophic macule, the outline is well-defined, and they show a very constant feature that is an outer hypoachromic ring around the lesion. However, what defines this lesion from the clinical point of view, and gives it its denomination is the hypochromia, with slight erythema, more or less marked according to the evolutive stage in which it is observed; in such a way that of these two colors, in several lesions often in the same patient, sometimes one or the other predominates. It must be pointed out that besides this transitional erythematohypochromic lesions there are mostly in dark-skinned patients lesions that show themselves with this aspect, but they are, however, achromic lesions, that by the absence of the pigmentation of the skin show up its normal erythema.

HYPOCHROMIC AND ACHROMIC LESIONS

In this type we differentiate two groups:

- a) the hypochromic or achromic lesions that result from the above lesions that we call residual achromia or residual hypochromia;
- b) the primary achromic or hypochromic lesions, that is, lesions that from the beginning show themselves as such, not resulting from an evolutive process.

a) *Residual hypochromic or achromic lesions:* These lesions do not present any special characteristic feature, being the result of of the normal evolutive process of the two first lesions, by the progressive subsidance of the erythematous color and of the infiltration; so, they have the general morphologic features (form, size, etc.) of the initial lesions. They may continue the retrogression and progressively come back to the normal pigmentation of the skin, and completely disappear without leaving any visible sign.

b) *Primary achromic and hypochromic lesions:* These are the commonest incipient manifestation of leprosy. They are found in all ages, and their aspect is *polymorph*. No subjective symptoms accompany them from the beginning; posteriorly comes the anesthesia, that is their most characteristic sign and that individualize them as leprotic manifestation.

The diagnosis is not always easy, as they may be confused with various cutaneous dyschromias; as a reliable sign they present only the anesthesia, that in children and in adults of lower classes is difficult to research and interpret. The histamine test is a good help in these case as it permits the verification of the presence or absence of degeneration of the peripheric nervous branches, always absent in non leprotic dyschromias (Plate 6 — Figs. 18-19-20).

CLINICAL ASPECT

The hypochromic or achromic lesions show various morphologic aspects, often depending on the evolutive stage in which they are observed; so we see from the tiniest lesions of 1cm. and less to the large lesions of several cms, geometrical in shape, with precise outline, the lesion showing up very clearly from the surrounding skin. Others have irregular, indefinite outlines with central zones of normal aspect, and gradually diffuses off to the surrounding skin.

There are three forms by which we observe their appearance: it can be a small lesion that spreads out centrifugally, or by the appearance of a limited follicular-reaction, to which hypochromia follows, that afterwards becomes marked till it reaches achromia, or, finally, by the appearance of a large achromic macule with irregular edges.

EVOLUTION OF THE SKIN MANIFESTATIONS

Whatever is its clinical aspect the tuberculoid leprosy is benign. The 'Leprolin test' is positive 100%. Due to treatment, either with the chaulmoogra-group or the golden salts or even spontaneously, the lesion loses the infiltration, flatten, and a hypochromic ring appears round the edges, and in variable time, of 6 months, one year, or a little more, the lesions disappear, leaving in their places a scar, that in the nodular and papulate forms is very characteristics, because, on account of the dermo-hypodermic site of the lesion, there is intense atrophy of the epidermis and destruction of the elastic tissues, with depression, that gives, to the touch the sensation of 'vacuum'. The others are always well defined, small, very much like the scar left by the leprolin test, when ulcerated.

In a general way these three types of initial lesions, that we have just mentioned, present a similar retrogressive process, that we can represent as follows:

SCHEME

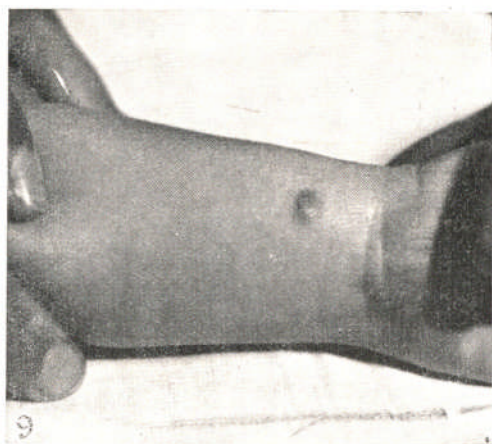
Initial lesion. Erythemato-hypochromic and achromic	{	total disappearance
		residual hypochromic
		atrophic macule

This retrogressive course processes itself by the progressive loss of the color and by the subsidence of the infiltration of the lesion; so, the initial lesion passes to erythemato-hypochromic lesion, with less marked infiltration and various colors, that may disappear completely, without leaving any objective sign, or then there remains the hypochromia, as an irrecoverable sequella, or they set in with the characteristics of an atrophic-macule. It seems to us that of these three results of the active initial lesions it is the atrophic macule that offers the greatest certainty of lasting result.

It is clear from this scheme that to us, the progressive hypopigmentation is one of the indicating signs of the transformation of the active lesion to inactive.



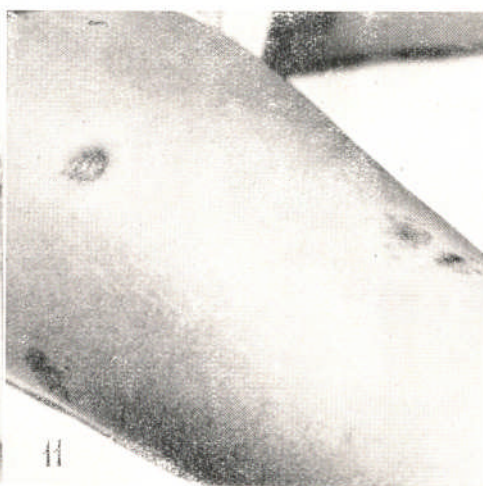




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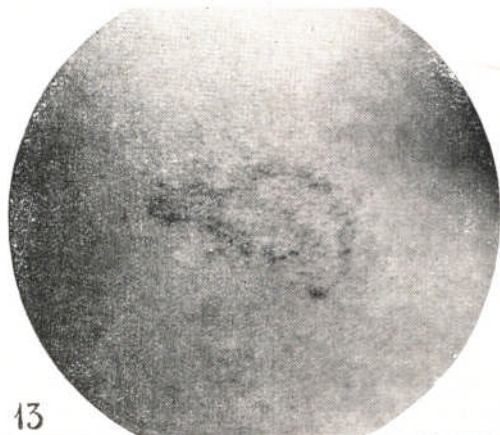
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