Tubercular leprosy in Madagascar / by Andrew Davidson.

TUBERCULAR LEPROSY

IN

MADAGASCAR.

BY

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TUBERCULAR LEPROSY IN MADAGASCAR.

Leprosy, which in Europe and America had become well nigh an historical disease, is again beginning to show itself in various localities in the old and new worlds. This fact will justify me in laying before the public a short account of the disease as I have observed it in the Island of Madagascar. The number of cases treated in the dispensary at Antananarivo during the year 1862 was nearly one hundred, and the following account of the disease is drawn up from the notes of the cases actually observed.

For the sake of clearness of description, the progress of tubercular leprosy may be divided into three stages or periods,—the first, characterized by the appearance of spots; the second, by tubercles; and the third, by ulceration or falling off of the members. These three stages may co-exist simultaneously in different parts of the body: thus, leprous spots may be seen on the trunk, tubercles on the face, and ulceration may be going on at the extremities. Spots of changed skin, however, invariably precede the tubercles, and the latter are in turn succeeded by ulceration.

Tubercular leprosy is singularly uniform in its symptoms, progress, and termination in different parts of the world, nor has it suffered any modification whatever since it was first described by Aretæus. Several varieties indeed have been described by authors, as *Lepra anæsthesiaca*, *Lepra taurica*, and some others; but these varieties are not founded upon any differences of importance, but upon the degree in which a common symptom is present, which really furnishes no sufficient ground for establishing them as distinct varieties.

The disease usually begins so insidiously that the patient is unable to state the precise period of its commencement. Some authors have described it as beginning with the constitutional symptoms proper to fever or inflammation, as hot skin, full pulse, rigors, and muscular pains.

Judging from the many cases which have come under my own observation, this must be a mistake. Fever may occur in a leprous

subject;—it may even be an exciting or, speaking more exactly, *determining* cause; but it must not on this account be supposed that the fever was the beginning of the leprosy, or that there was more than an accidental connexion between the two. Aretæus remarked justly, "the commencement of the disease gives no great indication of it; neither does it appear as if any unusual ailment had come upon the man. . . . In this way the patient's condition is hopeless, because the physician, from inattention and ignorance of the patient's ailment, does not apply his art to the commencement, when the disease is feeble." This could not have been said of leprosy, if it began with the symptoms of fever or inflammation.

The patient probably discovers accidentally a small patch of his skin presenting a tint different from the rest of the body. Such spot may be seated anywhere, very frequently about the back or shoulders. The spot of changed skin may be of any shape, but is generally oval or circular, and varies in size from sixpence to that of the palm of the hand. At first the change is so slight as to be observable only in some reflections of the light. The colour of these patches is almost exactly the same in every case, whatever the original colour of the patient's skin. In all, the first change is to a light brassy tint, which, as the disease advances, becomes more distinct. It is soon observed that the *texture* as well as the *colour* of the skin is affected. It becomes cracked, fissures running across the spots in all directions. The hairs upon the part become yellow and stunted, and after a time fall off, leaving the hair bulbs empty, patent, and enlarged. The affected skin acquires a greasy look, as if it were glazed or varnished, and ceases to be perspirable. From an early period the spots become thickened, but are not at first elevated above the surrounding healthy skin. This thickening depends upon effusion into the subcutaneous cellular tissue. As the disease advances the true skin becomes the seat of effusion, and is felt to be slightly elevated to the touch.

In three or four of the cases which I have noted the disease seemed to be more particularly seated in the *cutis vera*, elevating the skin into large, broad prominences. Sensation is at first heightened, slight wandering pains, formication or itching may be felt over the body or in the affected parts only. After a few months this hyperæsthesia gives place to anæsthesia; thus it not unfrequently happens that one or more of the older spots are decidedly numb and feelingless, while there is excited sensibility in the more recent ones. It has been already remarked that some describe, as a distinct variety, a *Lepra anæsthesiaca*, but anæsthesia is present more or less in every instance. In two cases this symptom was present in a very marked degree. In both the disease had been remarkably slow in its progress; the tubercles dilatory in showing themselves. In neither had the malady reached the stage of suppuration, although the disease had existed in the one patient

for twenty, and in the other for twelve years. I feel satisfied, from careful observation, that anæsthesia is more decided in the chronic form of the disease in patients who live a sober, prudent life, whose habits seem calculated rather to mitigate than accelerate or intensify the malady. The hair, as I have stated, falls from the diseased spots; but this is not confined to the spots alone, although it usually begins there. The hair of the eyebrows never escapes, and I have noticed that it uniformly begins to fall from the *outer angle inwards.* I am not aware that this singular fact has ever been alluded to by writers on leprosy, although it is quite constant and sufficiently remarkable. The hair of the axilla and pubes, and the eyelashes fall as the disease advances, but the hair of the head *is never affected.* A popular writer on the East, in describing leprosy, has spoken of baldness as a symptom of the disease as observed in Syria.[1] It may indeed happen that a leper, like any other man, may be bald, but it is an error to regard the baldness as a symptom of leprosy. This mistake is not uncommon, and arises from the writers having in their mind the description given by Moses of a perfectly different disease. Wherever the hair falls, the hair follicles become enlarged and patent, especially in the face, so as to present one of the most diagnostic signs of the malady. So characteristic is this of leprosy, either as a latent diathesis or a developed disease, that I have never seen a leper who did not present it;—*more,* I have often been able from this condition of the hair follicles alone to recognise members of a leprous family in whom the disease was yet latent.

The naked eyebrows become thickened, rugous, and projecting, hanging over the hairless eyelids. To render the aspect still more unsightly, the eye assumes a lurid glare impossible to describe. Perhaps the word *ferrety* is the most appropriate that can be applied to a change which no words can express.

The second or tubercular stage of leprosy supervenes upon the first with various degrees of rapidity, sometimes within a few months, at others after the lapse of years, according to the intensity of the disease, the constitutional powers of the patient, and other circumstances to which I shall hereafter refer. The tubercles, usually of a dusky colour, smooth and distinct, begin to show themselves on the face. The lobes of the ears are thickened and irregular, and the whole external ear curved forwards toward the cheeks. The alæ of the nose grow heavy, the nostrils dilating and the nose becoming flattened and studded with tubercles. The lips swell, and are livid, the lower one more so than the upper; and the chin is lengthened and misshapen; the whole face bagged or puffy. The hands are livid as if from cold, the fingers swell, the arch of the foot becomes flattened by leprous effusion beneath the fascia. In fact, tubercles may appear in any part of the body, although they are most common in the situations mentioned. But

[1] Thomson's "The Land and the Book." New Edition.

they are not confined to the skin alone, they affect more or less the mucous surfaces. In the nose they give rise to difficulty of breathing and ozæna, in the larynx and trachea to laboured respiration, husky voice, and occasionally to aphonia. The lining membrane of the external ear is rarely affected. The cutaneous and pulmonary exhalations become fœtid in the last degree. So peculiarly penetrating indeed is the smell of leprosy, that there is no difficulty in detecting, by the sense of smell alone, the presence of a leper in a large company.

As these changes are going on, ulceration begins to take place, commencing generally on the hands or feet. These become livid as if half frozen; the temperature is really lower than that of health. The nails grow dry, shrivelled, and fall without pain. Tubercles burst in succession, discharge a thin watery matter, and after a time dry up. Other ulcers form on the fingers close to the joints, and deepen until the joints already infiltrated by leprous effusion, their vitality all but extinguished, drop off. After the part falls away the ulcer heals over for a time; thus, member after member dies as it were on the yet living body, leaving the sufferer as helpless to himself as he is loathsome to those who have to minister to his wants.

So much for the outward signs of leprosy in its various stages. Its effects upon the functions, vital and natural, are at first by no means so evident or uniform. The earlier stages of the disease may be accompanied by nothing abnormal in the function of any of the organs. Experience alone informs us of the serious nature of the complaint. In some patients there is even from the beginning a remarkable torpidity, physical and mental, and this is observable in the later stages in every case. The patient is unfitted for active work; he is rarely irritable, but sluggish. The appetite is seldom impaired at the commencement, and even towards the end it is rather perverted than lost. The patient eats almost anything set before him, but without a relish. Loss of appetite is a most fatal symptom, and frequently indicates approaching dissolution. The tongue becomes large, flabby, and foul, the gums bluish and spongy, and the bowels irregular or costive. Sooner or later in the malady indigestion manifests itself, the function of the liver being imperfectly or inactively performed. The urine, as regards quantity, specific gravity, constituents and their proportions, does not differ from the healthy standard. Menstruation in the female is seldom affected, for I found in twenty-two patients, between the ages of fifteen and forty, *only one* in which the menstruation was irregular.

The function of reproduction in the male and female continues unimpaired for a long series of years. The facts bearing upon this point were not recorded in many instances; but I find that I have notes of nine persons in the second stage of leprosy and sick from three to six years, who had young children. This shows that even after the disease has existed several years, and advanced con-

siderably, the function of reproduction may not be affected. It is, however, equally certain that it fails during the last stage of the malady. I believe that the "*libido inexplebilis*," mentioned by some authors, is a mere fancy,—when the *power* ceases, the *desire* is extinguished.

Respiration is impeded in two ways,—by thickening of the laryngeal and tracheal mucous membranes from effusion, and from a similar effusion into the substance of the lung itself and into the minute bronchi. The pulmonary capillaries lose their tone and become congested. The changes which the blood undergoes in the lung are imperfectly carried on; the action of the heart becomes increasingly feeble with the progress of the disease; the pulse is invariably weak and slow. The fatal termination in leprosy is often owing to some affection of the respiratory organs.

In a few instances the blood was examined during the first and second stages of the disease. The coagulum was found occasionally to be loose; but the sensible qualities of the fluid were normal. It is probable that there is some *materies morbi* in the blood, which may hereafter be detected, of which we are yet entirely ignorant.

As bloodletting is evidently contra-indicated when the patient is reduced by the disease, the blood has seldom been examined during the last stage.

Organic disease of the heart was not detected in any of the cases observed. Dr Copland mentions a case in which that organ was found softened: further investigation is required to settle whether this is a *coincidence* or a *result* of leprosy.

That the nervous systems, both organic and cerebro-spinal, are involved, is evident from what has already been said. The itching and flying pains, the heightened sensibility and succeeding anæsthesia, the depressed vital power, enfeebled action of the heart, inactive secretion, depraved appetite,—all evidence the extent to which the nervous system is implicated. These symptoms become more prominent as the disease advances.

In conducting my inquiries, I had special regard to the causes, predisposing and exciting. Several points of great interest and importance were clearly and conclusively established, while others were left where I found them.

Persons suffering from leprosy have a great reluctance to acknowledge an hereditary taint. In regard to a considerable number of the patients I was unable to gain any satisfactory information; but I succeeded in tracing the disease in other members of the patients' family in the following cases:—

Table showing the Hereditary Nature of Leprosy.

FEMALES.

Mamphantana, æt. 45; ten years sick; father and sister leprous; several children alive *not leprous*.

Rafitiæ, æt. 40; mother and brother leprous.

Ramananharivo, æt. 42; mother and sister leprous; married, no children; husband quite well.
Ranavo, æt. 15; father and mother *said* to be healthy; younger brother leprous.
Ifara, æt. 35; mother leprous.
Ramatoa, æt. 40; no account of parents; two daughters, the youngest leprous.
Raketaha, æt. 25; father leprous.
Izafy, æt. 35; brother leprous. No information regarding father and mother.
Renizoma, æt. 46; three years sick; younger daughter five years a leper.
Isindra, æt. 24; brother leprous; father and mother said to be healthy.
Laizoma, æt. 12; father, uncle, and brother leprous; one brother well.
Izala, æt. 15; father and brother leprous.
Rabako, æt. 47; fifteen years sick; brother and sister leprous.
Rafozaehana, æt. 40; father, mother, and one daughter leprous.
Rasoa, æt. 41; several of the family leprous.
Ramavo, æt. 45; husband and child leprous.

MALES.

Samo, æt. 12; father leprous.
Bolo, about 11; mother leprous.
Ramanana, æt. 36; mother leprous.
Kotofotsy, ———; one child leprous.
Ramboamavo, æt. 55; mother, father, and one child leprous.
Andramanana, æt. 35; mother leprous.
Rabeampina; brother and child leprous.
Ratsilainga, æt. 47; son leprous.
Mangalahy, æt. 10; several members of the family leprous.
Manakavana; sister and grandmother leprous; *father and mother healthy.*
Rafara, one daughter leprous; no account of parents.
Javy, æt. 7; father leprous.
Ibolo, father and mother both leprous; elder brother not leprous.

These facts leave no room for doubt as to the hereditary nature of leprosy. It often happens that children who have been born before the disease has manifested itself in their parents, either escape the disease altogether, or at least much longer than the children born after the leprosy has developed itself in one or other of the parents. They also suffer from a milder and slower form of the malady. It is thus frequently noticed, and there are one or two instances of it in the above table, that the disease first attacks the *younger children*, and then the others *inversely according to their age*, —proving that the more advanced the disease is in the parents, the sooner will it affect the offspring. We also observe now and again the disease to break out in the children before it shows itself in the parent from whom they inherited it. Thus, in the table I have given, Renizoma, a patient aged 46, had suffered from leprosy for three years, while her daughter had actually been ill for five years. The disease thus appearing two years earlier in the child who inherited it, than in the mother who transmitted it.

Leprosy will occasionally remain latent for at least one generation, and re-appear in the next,—as in the case of *Manakavana*, whose own parents were healthy, but whose grandmother and sister were lepers. In all such instances, however, the leprous diathesis may be recognised in those who escape the fully developed disease.

The signs of this diathesis are, 1*st*, Falling of the hair of the cheeks, and a patent condition of the hair follicles; 2*d*, Loss of hair from the outer angle of the eyebrows; 3*d*, Enlargement of the lobes of the ears; 4*th*, Mental and physical torpitude. The persons presenting these features often die from diseases of the respiratory organs.

Where a liability to the disease exists, exposure, overwork, grief, poor or bad diet, cold and damp, imprudence and debauchery, form determining causes; and when it has taken hold of the system, these circumstances powerfully tend to aggravate it. As men are more exposed to the operation of these causes than women, we may account for the fact that women are less liable to the disease than men; and the well-to-do members of society than the poverty-stricken; while sobriety and care will tend to prevent its development or render its progress slower and milder.

In a very considerable number of the patients, I could not obtain any reliable information respecting their family history. I several times found that patients altogether denied the existence of leprosy in their families, although private inquiries afterwards satisfied me that one or more of their relations were at the time suffering from the disease. It is looked upon as a disgrace, and few will admit that it is *real leprosy* from which they suffer. Then we all know how readily such circumstances as are thought to be discreditable are allowed to pass into oblivion. No trouble is taken to record the fact that an ancestor was a leper. Making allowances, then, for these considerations, I am inclined to believe that in the vast majority—nay, *in almost every case*—careful inquiry would establish the existence of a hereditary taint.

Yet there is no doubt a very small per-centage where no such taint can be discovered. In sixteen of the cases observed, the most careful examination and inquiry failed to make out any history of leprosy in the patient's family. This leads to the important question—Does leprosy originate *de novo* at the present day, or is it spread by contagion? We have in the hundred recorded cases, three instances of husband and wife being both at once affected. There was one patient, too, in whom there was no history of leprosy in the family, but who had lived in the house with a leper. The question may be asked, are these coincidences, or are they something more? At present we have not a sufficient number of facts to decide this question. It cannot be highly contagious in the ordinary sense of the word, for we constantly see husbands suffering from the disease living for years with their wives, without communicating it, and *vice versa*. It certainly deserves notice, that while the laws of Madagascar excluded leprous persons from society, the disease was kept within bounds; but after this salutary law was permitted to fall into disuse, leprosy has spread to an almost incredible extent. There is no doubt that this result is partly owing to lepers being allowed to marry without any hindrance, but

the natives are also strongly impressed with the conviction that the disease is inoculable. Upon this point my cases cast no light. It is highly probable that the same originating causes, which at first gave rise to leprosy, are still in existence and endemic in certain localities. It may spring up now and then under certain circumstances, *de novo*, without contagion or hereditary taint. What the originating causes are is a profound mystery. In the island of Madagascar there are a number of different races—of all shades of colour, from the pure Negro to the Hovah, whose complexion is not darker than a native of Spain. These occupy widely varying climates. The central provinces, from their great elevation, possess a temperate climate, similar to that of the south of France. The climate of the plains, on the other hand, is tropical, and towards the north excessively warm. The circumstances and modes of life of these races are as varied as their origins, and the nature of the localities in which they reside. Yet leprosy affects all alike. The Hovah who lives in European fashion, and in a temperate climate, is no less exempt from this scourge than the African slave. It is found amongst the Betsemasarahas who eat pork, and amongst the Betanmenas who abhor it. It occurs where fish is an article of food; but it is also to be seen where no fish is to be had, and where rice and vegetables satisfy the simple wants of the population. It exists in town and country,—at the elevation of 7000 feet above the level of the sea, along the coast line, and through all intermediate elevations. Race, geographical situation, and diet,—all seem absolutely unimportant elements in relation to its presence or its spread. Probably the dirty habits so prevalent in many half-civilized nations must tend to aggravate it; eating from a common dish with the fingers; the custom, very common in Madagascar, of interchanging garments, and of all lying huddled promiscuously together at night, cannot fail to render it more inveterate, even if they do nothing in the way of originating it.

It has been a favourite theory with many that leprosy is related to syphilis or to yaws. But what proof is there to substantiate this theory? Syphilis has suffered marked modification in different ages and amongst different races. Leprosy has remained unchanged through seventy generations and longer, even in the same country. We do not see leprosy result from syphilis in England. The spread of syphilis in the fifteenth and sixteenth centuries was not followed by an increase of leprosy, but the reverse.

Leprosy seems to be a disease *sui generis* distinct altogether from syphilis and yaws; propagating itself by hereditary transmission and *possibly by inoculation*. It is probably seldom produced *immediately* and at once in any constitution from the causes originating it, but *gradually* by the persistence of the causes operating through successive generations.

In the treatment of this most formidable disease we are still in the dark. Everything has been tried, and in vain. The utmost

that can be accomplished in the present state of our knowledge is to palliate, *not cure*, the disease. In a considerable number of the cases, iodide of potassium in various combinations, according to the peculiarities of the case, was given, and often with marked effect in producing absorption of the tubercles, accompanied, however, by loss of appetite and weakness in the patient. I will give two cases.

Andriamanana, a blacksmith, seven years unwell. The whole skin is altered in texture, thickened and glazed. The nose and lips thickened and tuberculated, the ears irregular and curved forwards. The hair of the eyebrows and eyelids fallen. Hands and feet livid, cold, and insensible. Voice rough and husky, with pain in larynx. This patient was put upon iodide of potassium in combination with warm tonics. After *a week's* treatment some of the tubercles burst, others were being absorbed, and after a longer time the skin became much more natural, a few tubercles only remaining.

Ravao, æt. 40. Two years leprous; tubercles scattered over the greater part of the body; was ordered iodide of potassium in small doses three times a-day, with tepid bath, and generous diet. A manifest improvement took place, most of the tubercles having disappeared. The patient's appetite, however, began to fail, and after three months the iodide had to be suspended. In these, and in several other instances, the iodide of potassium really seemed to produce absorption, to cause the tubercles to disappear, and to render the skin thinner and softer. The patient Ravao was permanently improved, but in the case of Andriamanana, the weakness increased, ulceration of the cornea ensued, and death speedily took place. I cannot help thinking that the fatal result in this instance was hastened by the treatment.

Arsenic, with attention to the general health, was perseveringly tried for months in eleven cases. The usual constitutional symptoms of arsenic, when administered in medicinal doses, were manifested in several of the patients without any mitigation of the disease. I noticed, also, in more than one case, an inflammatory condition of the skin, especially in the face, to result.

Where ulceration existed great temporary benefit was obtained from the use of quassia in large, frequently repeated, doses. I am indebted to Dr Powell, of Mauritius, for a knowledge of the value of this remedy in the ulceration of leprosy. Under its use ulcers heal for a time more readily than under any other treatment.

When a venereal taint was known or suspected, mercury was tried. The preparation used was the bichloride in small doses. No good was observed to result.

A treatment directed to the improvement of the general health, and the due performance of the various functions, with the use of tonics and occasionally of cholagogue purgatives, if the liver is inactive, will be of service. Should the ulceration be troublesome,

quassia, alone or in suitable combinations, will promote the healing process. Iodide of potassium given at intervals and in small doses, will help to promote the absorption of the effusion, care being taken to suspend it if the appetite fail or the health suffer. The tepid bath will always be useful in promoting the action of the skin and the comfort of the patient. Experience is also in favour of inunction as an adjunct to other treatment. It is probably more serviceable than any single remedy. The oil used by me was the best olive oil, and it was thoroughly rubbed into the skin twice a-day, after the patient came out of the warm bath.

By the persevering use of these simple means, many of the patients experienced benefit, although none were entirely cured. Yet, I am convinced that in the present state of our knowledge, more good may be hoped from such general treatment than from any single medicine used empirically.

Now that the attention of the profession has been directed to this disease, may we not hope that our knowledge of the therapeutics and pathology of this fearful scourge of our race may be speedily advanced.

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