

## Chest Diseases in Korean Cases of Leprosy With Special Reference to Tachycardia

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(*Preliminary Report.*)

**I**N the Christmas vacation a special study of diseases of the chest was made at the leprosy colony, 15 miles from Soonchun. The houses of the inmates are arranged in two large crescents facing the South and are built on an elevation overlooking an inland bay. There are 800 inmates housed in about one hundred houses, larger than the average Korean home. These facts must be remembered when we consider the possible effect of environment on the cases to be studied. Their food consists of rice, meal, barley and beans all mixed and cooked together. They get also quite a variety of vegetables, grown in the colony, and meat or fish once or twice a week. The patients in this preliminary report were especially examined with a view to :—

(1) Determining exactly how much pulmonary tuberculosis could be found in patients in Korea suffering from leprosy.

(2) What possible relation there could be between tuberculosis and leprosy.

(3) Amount of lung leprosy.

(4) The effect of chaulmoogra treatment of leprosy with tuberculosis.

(5) Number of deaths due to tuberculosis.

The patients were all assembled at the large church, and all between the ages of thirty and ten were asked to come to the hospital at the colony in regular turn, and others who were suspicious of chest conditions, not included in this group, were picked out by inspection.

The following notes will give a general idea of our findings :—

*Laryngeal Involvement.*—Some twenty patients, mostly above twenty years of age, were found suffering with leprosy involvement of larynx. The appearance was very much like that of tuberculosis. There was ulceration and erosion of the laryngeal wall and posterior pharynx. Three of the cases were so much involved that tracheotomy was necessary, and this was done at the time, the patients receiving immediate relief. One of these patients was completely deaf and blind, with complete loss of hair all over the body and marked nodules all over the face.

*Breast Changes.*—A number of cases were noted with

abnormal mammary development. These cases invariably showed a tendency to female secondary characteristics, *viz.*, enlarged breasts, female distribution of pubic hair, female fat distribution over pubis. All of this was due to atrophy—more or less marked, of the testicles. Most of these cases are sterile and have lost sexual power. Women were not so affected.

*Scars* of various kinds were seen on the chest due to old abscesses and burns, when the patient could not feel heat due to anæsthesia of skin and to broken down nodules.

*Palpation* of the neck often showed some fibrosis tissue spread from nearby cervical glands, causing an increase of vocal fremitus which was not due to lung changes.

In those examined, definite tuberculosis was found in only seven cases—all of whom were males.

All of these cases probably had tuberculosis when they entered the colony, and only one boy of fourteen, who had been in the colony a year, showed a lung lesion, and his sputum was negative for tuberculosis. He has been having chaulmoogra treatment. The other six cases showed quite definite tuberculosis, two of them in the second stage of the disease with cavitation, and one with probable intestinal involvement. These cases had some lung involvement before entering the colony.

We can therefore say that out of the 800 cases in this colony there are only seven suffering from tuberculosis of the lungs, and of these cases all but one brought the disease with them to the leprosarium. This means that the percentage of tuberculosis is less than 1 per cent. in this colony, which is less than in the average Korean village.

The reasons why there is so little tuberculosis in this colony are :—

- (1) The healthy site of the colony.
- (2) The industrial and farming work which keeps most of the patients out all day in the fresh air and sunshine.
- (3) Good food and the excellent sanitary condition of their houses.
- (4) Practically all of them have had treatment by chaulmoogra oil, which has been proved a benefit in tuberculous cases.

There are three main types of leprosy. In Korea we have not so many of the nodular type, but more of the neural and maculo-neural types. In the Philippines, death due to tuberculosis was as high as 45 per cent.<sup>1</sup>, being marked in the nodular type. The Director of our Pathology department, Dr. I. S. Yun, says that in the post mortem

findings at this and other hospitals, the lungs were not found involved as much as the intestines, mesentery, and lymph glands.

While the main idea of the study was to see how much tuberculosis was present, we were exceedingly surprised to find a very large number of cases of *tachycardia*. At first we thought it was due to nervousness, but these patients with hearts beating at 130-150 per minute, ten minutes to one half hour later—would be almost as fast—120-140 beats per minute. There were four cases of definite mitral stenosis and one of myocarditis.

These thirty rapid pulse cases showed no signs of tuberculosis, exophthalmic goitre, neurasthenia, beri beri, influenza, alcohol or tobacco poisoning. There were no signs of heart failure and only in ten cases were there definite murmurs present. Two showed a marked increase in the mitral second sound. There were a number of cases that had kidney involvement which seems a fairly common complication in leprosy; in these cases heart involvement could be expected. Nearly all of the kidney cases were in the far advanced stages of leprosy. Heart involvement is not unknown in leprosy. The Cullion Leper Colony reports 23 per cent. of their autopsy cases as having died from heart dilatation, etc.<sup>2</sup>

The leprosy involvement of ulnars, frontal and peroneal nerves is well-known—also of optic neuritis and destruction of that nerve, but the possibility of the involvement of the vagus and other nerves of the autonomic or enterofector nervous system has been up to the present not an important question. In my study of heart lesions in 500 beri beri heart cases I have found many cases of vagus nerve pathology causing tachycardia, which, however, is different from that found in leprosy lesions. In lesions of motor and mixed nerves (extrofector nerves) in leprosy we find them greatly thickened, with granulomatous cords and giant cell formation which may break down into caseation,<sup>3</sup> and in other cases we find evidence of vacuole degeneration.

After careful elimination of all causes, we believe that the tachycardia that we are finding in the leprosy cases in Soonchun, Korea, to be due to an inhibition of the vagus or pneumo-gastric nerve. The final proof is by post mortem examination, which has not been done on any of the cases of leprosy in this colony as yet, but at the first opportunity we plan to obtain specimens of these nerves from patients showing this heart condition and report on the same.

NOTE.—March 1st: Within the last two months the

heart rate of these tachycardia cases has not changed.—(S.H.M.).

NOTE.—June 1st: Re-examination shows the heart rate unaltered.—(S.H.M.)

## REFERENCES.

- (1) Report of "Culion" Leper Colony, Philippines. (*Leprosy Survey*).
- (2) The same.
- (3) Muir, E. and Chatterji Sin. "Leprous Nerve Lesions." (*International Journal of Leprosy*), 1933, Vol. 1, No. 2.