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## LEPROSY AND CHILDBIRTH 6

BY DR. ISAMU TAJIRI

*Aisei-en, National Leprosarium, Okayama, Nippon*

It has repeatedly been stated that when women who have leprosy become pregnant or give birth the disease is liable to take a turn for the worse. It is also said that this physiological condition is apt to precipitate the appearance of the disease in women in whom it is latent, with no clinical manifestations. However, few actual figures on the subject are available, and I wish to present those obtained in an investigation of the subject among the inmates of this institution. Though the statistics may to some extent be inaccurate for the reason that they are based chiefly on the patients' own statements, nevertheless they seem definitely significant.

There are, altogether, 240 female patients at Aisei-en, of whom 128 have never had children, leaving 112 who have given birth to one or more. The gross data on these women, showing the number of children born to each, are given in Table 1. From this it is seen

TABLE 1.—*Gross statistics on women at Aisei-en who have had children.*

Number of women:	Number of children born to each								Total
	1	2	3	4	5	6	7	More	
Pregnant or parturient at onset of leprosy .....	13	8	5	3	4	5	1	0	39
Others parous after the onset of leprosy .....	12	16	3	1	3	1	1	0	37
Total parous during or after onset .....	25	24	8	4	7	6	2	0	76
Parous only before onset .....	8	9	3	6	2	4	1	3	36
Total parous .....	33	33	11	10	9	10	3	3	112

that 36 of them, who had in total 124 (or more) children before they developed leprosy (an average of practically 3.5 each), had no more after they became leprous. The remaining 76, with whom this report deals particularly, comprise: (a) the 39 who became leprous during or shortly after pregnancy (that condition presum-

ably having influenced the development of the disease), and (b) 37 others who became parous after the onset of the disease, but in whom there had been no apparent relation between childbirth and onset. The latter group, together with those of the first group that have had subsequent pregnancies, afford the data bearing on the influence that childbearing may have on the course of leprosy.

*Relation between the development of leprosy and pregnancy or childbirth.*—The statistics on this relationship in the 39 women who became leprosy during pregnancy, while in child-bed (i. e., within six weeks after delivery), or during the period of lactation (about six months) are given in Table 2.

TABLE 2.—*Relation of onset of the disease to pregnancy and childbirth in 39 Aisei-en patients.\**

Patient group; number of children	Period during which leprosy developed	Pregnancy in which the disease appeared							Total
		1st	2nd	3rd	4th	5th	6th	7th	
One	Pregnancy ...	2	—	—	—	—	—	—	2
	Child-bed ....	2	—	—	—	—	—	—	2
	Lactation ....	9	—	—	—	—	—	—	9
	Total .....	13	—	—	—	—	—	—	13
Two	Pregnancy ...	2	0	—	—	—	—	—	2
	Child-bed ....	2	2	—	—	—	—	—	4
	Lactation ....	2	0	—	—	—	—	—	2
	Total .....	6	2	—	—	—	—	—	8
Three	Pregnancy ...	0	2	1	—	—	—	—	3
	Child-bed ....	0	0	0	—	—	—	—	0
	Lactation ....	1	0	1	—	—	—	—	2
	Total .....	1	2	2	—	—	—	—	5
Four or more <sup>a</sup>	Pregnancy ...	0	0	0	1	0	0	0	1
	Child-bed ....	0	1	1	2	1	1	0	6
	Lactation ....	1	2	0	2	1	0	0	6
	Total .....	1	3	1	5	2	1	0	13
TOTAL	Pregnancy ...	4	2	1	1	0	0	0	8
	Child-bed ....	4	3	1	2	1	1	0	12
	Lactation ....	13	2	1	2	1	0	0	19
	Total .....	21	7	3	5	2	1	0	39
Percentages		53.8	17.9	7.7	12.8	5.1	2.6	0.0	99.9

<sup>a</sup> The first group of Table 1.

<sup>b</sup> The number of cases in each of the groups here combined are shown in Table 1.

It is interesting to see that of the 25 women who have had but one child (Table 1), the onset of the disease was related to that event in 13 cases (over 50 per cent), while of the 24 who have had two childbirths the onset was related to the first in 6 instances (25 per cent). In the other groups this relationship is so scattering that,

since the numbers of cases are small, the data for those who have four or more children are combined.

Considering only the 39 dealt with in Table 2, 21 of them (53.8 per cent) developed the disease with their first child, which seems significant in connection with the widely held opinion that leprous infection is commonly acquired in childhood and often remains latent until activated by some unusual condition. But it is also of interest that not less than 11 of these women (28.2 per cent) had two or more children before they fell ill in the course of a subsequent experience, and that in 36 other women (Table 1) there was no apparent relation between onset and childbirth.

With regard to the stage of childbearing at which the disease appeared, of the 13 women in whom the onset is related to their only pregnancy 2 developed the disease during pregnancy itself, 2 in child-bed, while 9 developed it afterward, during lactation. In the total group these proportions are modified, but the lactation period predominates; the disease appeared during pregnancy in 8 cases (20 per cent) and in child-bed in 12 (31 per cent), while it occurred during lactation in 19 (49 per cent), practically one-half of the total.

*Relationship between exacerbation of the disease and pregnancy or childbirth.*—The data on this matter are given in Table 3. As stated, the patients involved include the group in which there was no apparent relation between childbirth and onset, and those of the group considered in the preceding section who had more children after the onset. A total of 100 pregnancies is involved. Exacerbations of the disease occurred during or shortly after practically one-half (48) of them.

In this table, as in Table 2, there is a disproportion between the frequency of disturbance in those who have had but one child since developing leprosy and those who have had several. In the first group 10 of the 12 women (83.3 per cent), had exacerbations, and in the second group (two children each) there were 17 exacerbations in 36 pregnancies (47.2 per cent), while in the 20 pregnancies in women having three or four children since becoming leprous there were only 4 exacerbations (20 per cent). However, this apparent tendency to decreased frequency is not sustained, for in the fifth group the proportion of exacerbations is 64 per cent, and in the sixth group 53 per cent. For the total of all groups other than the first the rate is 43 per cent.

TABLE 3.—Relation of exacerbation of the disease to pregnancy and childbirth in women becoming pregnant after onset of the disease, 100 pregnancies.\*

Patient group: number of children after onset	Period during which exacerbation occurred	Pregnancy after onset in which the exacerbation occurred							Totals
		1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	
One	Pregnancy ...	5	—	—	—	—	—	—	5
	Child-bed ....	1	—	—	—	—	—	—	1
	Lactation ....	4	—	—	—	—	—	—	4
	Total .....	10	—	—	—	—	—	—	10
	No change .	2	—	—	—	—	—	—	2/12
Two	Pregnancy ...	1	3	—	—	—	—	—	4
	Child-bed ....	1	4	—	—	—	—	—	5
	Lactation ....	4	4	—	—	—	—	—	8
	Total .....	6	11	—	—	—	—	—	17
	No change .	8	11	—	—	—	—	—	19/36
Three	Pregnancy ...	0	0	1	—	—	—	—	1
	Child-bed ....	0	0	1	—	—	—	—	1
	Lactation ....	1	0	0	—	—	—	—	1
	Total .....	1	0	2	—	—	—	—	3
	No change .	2	4	4	—	—	—	—	10/13
Four	Pregnancy ...	0	0	0	0	—	—	—	0
	Child-bed ....	0	0	0	1	—	—	—	1
	Lactation ....	0	0	0	0	—	—	—	0
	Total .....	0	0	0	1	—	—	—	1
	No change .	1	1	2	2	—	—	—	6/7
Five	Pregnancy ...	0	0	0	0	0	—	—	0
	Child-bed ....	0	0	0	0	2	—	—	2
	Lactation ....	0	2	2	1	2	—	—	7
	Total .....	0	2	2	1	4	—	—	9
	No change .	0	0	1	2	2	—	—	5/14
Six	Pregnancy ...	0	0	0	0	0	0	—	0
	Child-bed ....	0	0	2	0	0	1	—	3
	Lactation ....	0	0	0	1	1	2	—	4
	Total .....	0	0	2	1	1	3	—	7
	No change .	0	0	0	1	3	2	—	6/13
Seven	Pregnancy ...	0	0	0	0	0	0	0	0
	Child-bed ....	0	0	0	0	1	0	0	1
	Lactation ....	0	0	0	0	0	0	0	0
	Total .....	0	0	0	0	1	0	0	1
	No change .	0	0	0	0	0	2	2	4/5
TOTAL	Pregnancy ..	6	3	1	0	0	0	0	10
	Child-bed ....	2	4	3	1	3	1	0	14
	Lactation ....	9	6	2	2	3	2	0	24
	Total .....	17	13	6	3	6	3	0	48
	No change .	13	16	7	5	5	4	2	52/100

\* Figures refer to the number of births, not to the number of patients involved.



With regard to the stage of childbearing in which the exacerbations occurred, the totals are: 10 instances (21 per cent) during pregnancy, 14 instances (29 per cent) in child-bed, and 24 instances (50 per cent) afterward. Examining the detailed figures by groups, it appears that in the 12 women who have had but one child since becoming leprosy the condition is quite the reverse, for in one-half of these cases the change for the worse occurred during pregnancy. This suggests that there may possibly be some relation between this fact and the fact that these women have had no more children. On the other hand it is seen that, of the 18 instances of progression of the disease in women who have had more than three children since becoming leprosy, in no instance did the change for the worse occur during pregnancy; in 11 (61 per cent) it occurred in the lactation period.

A further analysis of the data in Tables 2 and 3, which need not be given in detail, has shown that of the 87 instances of disturbance related to pregnancy and child-birth (39 cases of onset and 48 instances of exacerbation), a total of 43, practically 50 per cent, occurred during lactation, and a large percentage of these within three months after delivery. It is to be added, however, that 13 patients stated that the advancement of the disease after delivery had been so gradual that they could not say just when it began; these cases I have included in the lactation-period group.

#### ILLUSTRATIVE CASES

CASE 1.—S. K., 26 years old, N2. At the age of 12 a red macule appeared on the cheek, but faded after a time. At the age of 20 she gave birth to a child, and a "rash" appeared about six weeks later; the face swelled markedly, with an erysipelas-like appearance (Plate 37, Fig. 1), and large macules appeared on various parts of the body. The patient was admitted to Aisei-en at that time. After treatment for a year and a half, chiefly with chaulmoogra oil injections, she recovered. Leucodermic areas remained at the sites of the red macules (note left breast, Fig. 2), but the contracture of the fingers of the right hand had disappeared and the muscles of both hands, which had been somewhat atrophied, had returned to normal. She was paroled, then 22 years of age.

In the autumn of the following year she had another child and suffered a relapse. She is now in the Oshima leprosarium, with infiltrations of the areas on the face and in other places where the original macules had been. Bacilli cannot be found in smears. The Mitsuda reaction is positive.

CASE 2.—T. A., 26 years old, N2. A small macule having appeared on the inner side of the left leg, the patient entered Aisei-en voluntarily in May,

1934. At that time there were also slight infiltrations on the face, arm, legs and elsewhere (Fig. 3). In January, 1935, artificial abortion was performed in the sixth month of pregnancy. On April 10th a "rash" appeared, the face began to swell, assuming an edematous appearance, and there were erysipelas-like macules on the arms and legs (Fig. 4). Mitsuda reaction positive.

In this case the reaction occurred despite the abortion. Usually when abortion occurs, whether naturally or artificially, there is less advancement of the disease.

#### SUMMARY

1. Of 112 leprous women at Aisei-en who have had children, 39 (34.8 per cent) developed the disease during pregnancy or shortly thereafter.

2. In 100 pregnancies that occurred in women with leprosy, exacerbation of the disease occurred 48 times, the remaining 52 being uneventful in this respect.

3. Though the initial symptom of leprosy is usually a simple macule, or anesthesia, the symptoms that appear in pregnancy or childbirth are usually acute lesions, the so-called "rash," often appearing as numerous active macules and frequently with edematous, erysipelas-like swellings of the face.

4. In the case of abortion there usually is little advance of the disease, though occasionally a case becomes worse in spite of it.

5. It is evident that for women who are in the incubation stage of leprosy, pregnancy and childbirth are liable to precipitate the development of the disease, and for those who have leprosy childbearing is apt to lead to its exacerbation and extension.

#### DESCRIPTION OF PLATE

##### PLATE 37

FIG. 1. Case 1. S. K. Appearance of the eruption which occurred after childbirth. Face swollen, erysipelatos; large reddish macule on left breast.

FIG. 2. Appearance one and a half years later. The hypopigmentation of the breast and neck is conspicuous; that of the face is too general and uniform to be apparent.

FIG. 3. Case 2. T. A. Appearance of patient on admission.

FIG. 4. The same patient at the height of the eruption, which occurred three months after an abortion performed in the sixth month of pregnancy.

