

INCIDENCE OF FRAMBOESIA TROPICA WITHIN A MONGOLOID TRIBE OF INDO-BHUTAN BORDER

By

S. N. SEN,

Haematology Research Unit, Indian Statistical Institute, Calcutta-35

INTRODUCTION

Since 1905, when Castellani demonstrated *Treponema pertenue* in the exudates of 'yaws' lesions, much light has been thrown from time to time on the pathology, course, treatment and prognosis of this disease which simulates and differs from syphilis in many aspects. Though extensive researches have been carried out at different parts of the world the Totos, a small hill tribe in Totopara, Jalpaiguri district, West Bengal, Indo Bhutan border seems to be relatively unexplored where yaws in our opinion occurs in devastating forms. Totopara is a small village under Madarihat Police station in the Jalpaiguri District of West Bengal and it lies in between 89°20' and 26°50' latitude and longitude respectively about 113 miles north west to Jalpaiguri, West Bengal near Indo Bhutan border.

Yaws is a contagious inoculable chronic disease caused by the *Treponema pertenue*. The organisms of yaws and syphilis are morphologically indistinguishable. At one time it was a common belief that yaws is only a variety of syphilis. The extensive study by Sequeira, Howard Fox and many others in recent years has proved it beyond doubt that yaws is a different disease though it simulates syphilis in many aspects. The disease is neither hereditary nor congenital, *Treponema pertenue*, the causative organism cannot penetrate through the unbroken skin surfaces. The disease is said to be common in South Africa, Ceylon, West Indies, Pacific Islands, Papua, East Indies, Malay. In India it is present in Burma-India border. Abor, Miri, Naga and other hill tribes in the submountaneous regions of Himalayas, in Chittagong hill tract and Lusai hill areas. There are also pockets in Santal Parganas, Hyderabad and West Ghat ranges of India.

In the early part of April 1962, a scientific research workers team was sent from Indian Statistical Institute, Calcutta, under the direct guidance of Prof. Chaudhari, F. R. C. P., M. R. C. P., Head of the Dept. of Haematology for a comprehensive study of this small tribe from Haematological aspects. Haematological study was done along with detailed clinical examination of the Totos,

In course of the haematological and clinical examinations we came across various cases of dermatological lesions of yaws which simulated syphilis. Due to the prevalence of yaws in that area, it was decided to include the survey of yaws along with other investigations.

CLINICAL MATERIAL AND METHOD OF STUDY

Door to door survey was undertaken as in the usual practice in such field work. The workers had to depend fully on the naked eye clinical examinations. Verbal examinations were done by the help of interpreters.

(1) A brief history of present and past illnesses were noted in each case.
(2) The clinical examinations were carried out, as far as possible in field survey.
(3) The sera for serological tests were collected and sent in closed sterile vials contained in icepacked thermoflasks to Calcutta by air for examinations. The physical examinations were carried out in details including the examination of external genitalia of males only. The genitalia of females were not examined. A brief history of past illness was noted in each case.

RESULTS

The present population of Totos is 395 belonging to 85 families. Majority of cases showed secondary and tertiary lesions. There were few primary lesions.

The table (1) shows that in 60 cases out of 116 the lesion of yaws could be detected; the percentage of affected persons being 51.72. The column where percentage has been mentioned shows a gradual increasing rate of suffering people with increase of age group. It is evident from the table (4) that two third of the total population at one time or other suffers from the disease.

HISTORY

Most of the persons gave a past history of fever associated with chill and rigor along with generalised aching of body and malaise. No cardiovascular or neuro-



Primary lesions on the popliteal fossae and back of legs.

logical abnormalities were detected. Liver and spleen were enlarged in some of the cases regardless of the existence of yaws. No genital lesion was noted. Hydrocele of the testes was a common feature in males and enlarged thyroid in both males and females. Lymph glands were not enlarged except a singular case where the inguinal lymph glands were enlarged. Blood pressure, pulse and respiration rate were within the range of normal. Teeth and gums were unhealthy in almost every case. Itching of affected area was a common feature.

DESCRIPTION OF DIFFERENT TYPES NOTED

1. *Primary Lesion*

The primary lesions were papules the diameters being 2 to 5 cm. In every case these were extragenital. The lesions were almost painless. The large lesions were covered with yellowish secretions or scabs. Unlike Jamaikas yaws commissions findings which shows affection of lower extremities in 70% cases our study reveals a bit different picture. The primary lesions were distributed to both extremities in about 97% of the cases the rest being on the trunk and face. Upper and lower extremity shares an equal distribution. The lymph glands of the vicinity were not enlarged. The relation to sex and age group has been given in table (3) and (2).



Primary lesions over the upper and anterior part of the upper lip and symphysis menti.

2. *KeratoJerma plantaris and plamaris.*

(Crab yaws of foot and motheaten type).

The group comprises 50% of the total patients suffering from yaws (Table 2). The lesions were irregular erosion of surface of palm and sole sometimes with deep fissures and cracks. They were slightly painful and tender.



Late secondary lesions with bony change osteo periostitis left leg

3 *Dyschromias*

15 cases of dyschromias were seen which comprise 25% of the total cases. The dyschromias has been classified under two headings. First is the leucodermic type where there is only depigmentation with scaly surface. In the second group there was depigmentation with associated areas of hyperpigmentation giving rise to a marbled appearance (Marmoriform). This group simulates maculo anasthetic leprosy. The affected parts were tested for any sensory loss but no abnormality was detected which confirms the diagnosis of yaws. The relation to sex and age group may be obtained from Table 2 and 3.

4. *Bony changes.*

Two cases were examined where there were bony changes of Tibia. An old lady was noticed with bilateral dupuytren's contracture with other bony changes but she refused any examination.

LABORATORY EXAMINATION

Serological Tests. Venereal disease research laboratory quantitative tests were done with the sera of 74 persons. Out of these yaws was detected in 39 cases. Amongst this group V. D. R. L. quantitative tests were positive upto 4 dils or above in 26 cases, V. D. R. L. quantitative tests positive below 4 dils in 8 cases and V. D. R. L. quantitative tests negative in 5 cases (Table IV & V). The



Kerato derma plantaris with cracks and fissure (Moth Eaten type)

remaining 35 cases were apparently free from any active lesions. In this group, V. D. R. L. quantitative tests were positive upto 4 dils or above in 21 cases, V. D. R. L. quantitative tests positive below 4 dils in 8 cases and V. D. R. L. quantitative tests negative in 6 cases.—(Table VI).

TABLE I—Totals : Jalpaiguri
YAWS : INCIDENCE WITH AGE GROUP

Age group in years	No. of cases examined	Lesions Simulating yaws found in	Percentage	Other Lesion as Tylosis warty growth etc.
1—15	12	5	41.66	1
16—30	55	24	43.63	4
31—45	33	21	63.63	2
46—60	13	8	61.54	2
Above 60	3	2	66.66	1
Total	116	60	51.72	10

TABLE II

Totos : Jalpaiguri

Relation of Age Group with Dominant Type of Lesion Found in Totopara

Age group in years	Primary with ulceration	Moth eaten type	Crab yaws	Leukodermic type	Marmoriform type	Sabre Tibia and other Bony deformity	Total
1—15	2	2	0	0	0	1	5
16—30	4	8	7	3	2	0	24
31—45	6	4	6	3	1	1	21
46—60	1	0	2	3	2	0	1
Above 60	0	0	1	0	1	0	2
Total	13	14	16	9	6	2	60

TABLE III

Totos : Jalpaiguri

Relation of Dominant type of Lesion with Sex

Sex	No. of cases examined	Lesion simulating yaws found in	Percentage	Primary yaws with ulceration	Moth eaten type	Crab yaws	Luecdermic	Marmoriform type	Sabre Tibia with other bony changes
Male	74	44	59.45	10	10	12	6	4	2
Female	42	16	38.09	3	4	4	3	2	0
Total	116	60	51.72	13	14	16	9	6	2

TABLE IV

Total No. of Samples examined	V. D. R. L. Quantitative Tests positive upto 4 dils or above	V. D. R. L. Quantitative Tests positive below 4 dils	V. D. R. L. Quantitative Tests negative
74	47	16	11

TABLE V

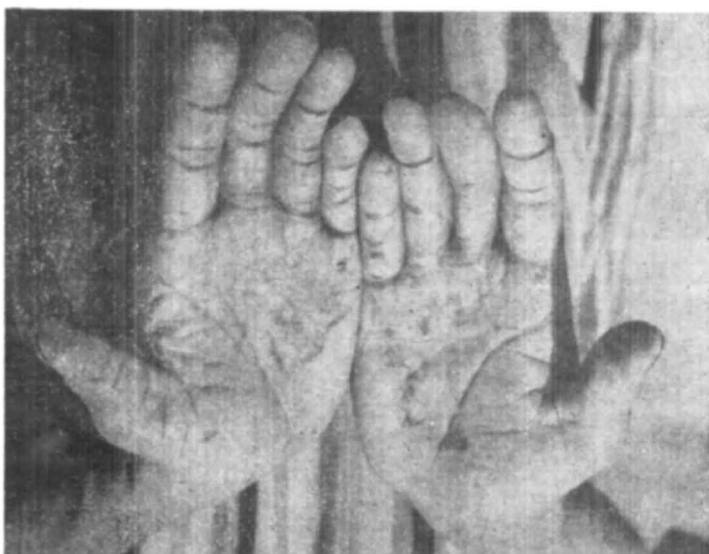
Total No of Samples of patients suffering from yaws lesions	V. D. R. L. Quantitative Tests positive upto 4 dils or above	V. D. R. L. Quantitative Tests positive below 4 dils	V. D. R. L. Quantitative Tests negative
39	26	8	5

TABLE VI

Total No. of Samples of patients suffering from yaws lesions	V. D. R. L. Quantitative Tests positive upto 4 dils or above	V. D. R. L. Quantitative tests positive below 4 dils	V. D. R. L. Quantitative Tests negative
35	21	8	6



Keratoderma palmaris (moth eaten type)



Kerato derma palmaris (Crabpaws)

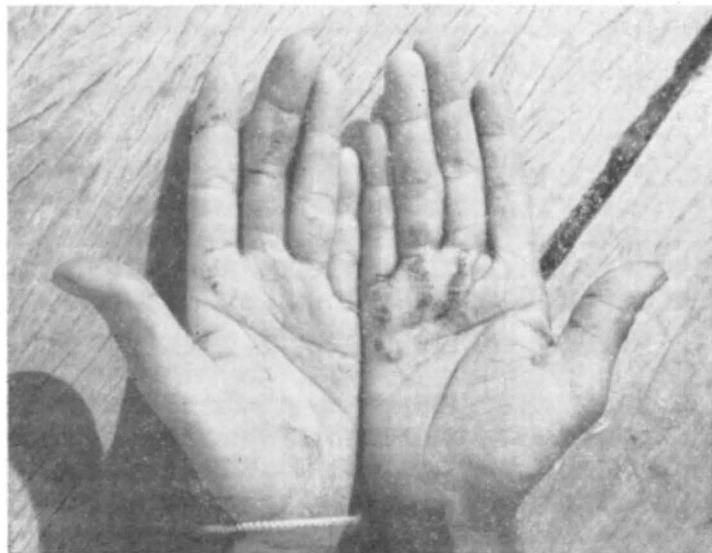
Discussion. Though actual demonstration of *treponema pertenu* was not possible the diagnosis has been made on the following basis. The V. D. R. L. and Q. T. test results shows it beyond doubt that the lesions are due to the treponemal infections. Most of the lesions described here may be seen in syphilitic lesions also. The following points exclude syphilis—

- (1) All the skin lesions were extragenital.
- (2) Itching was a common feature.
- (3) Alopecia was not noticed.
- (4) Eyes were not affected.
- (5) Nervous system was not affected.
- (6) No cardiovascular lesion noticed.
- (7) Not a single case of congenital syphilis noted.

Acknowledgements. I am grateful to Prof. S. Chaudhuri, F. R. C. P., M. R. C. P., Head of the Dept. of Haematology, Indian Statistical Institute, who arranged this scientific examination and kindly permitted me to write papers on those data. I am also grateful to Dr. S. Ghosh, F. R. C. S., Director Blood Bank, Medical College Hospitals, Calcutta, who had kindly done the Serological tests for the samples from his Serology Dept.

Summary and conclusion. It is nearly impossible to distinguish between *Treponema Fallidum* and *Treponema pertenu*, differentiation between the histopathology is a relative one. Unfortunately these were not available during the present survey

The clinical features, absence of evidence of the transplacental transmission, non involvement of the Central Nervous System and Cardiovascular system with



Dyschromias—marmoriform type depigmentation and Ichthyotic condition of hand,

positive serology suggest yaws in this tribe. However detailed epidemiological investigations, clinical examination and laboratory examination including biology of the isolated strains of treponeme may throw some further light regarding the total incidence and percentage of yaws in that total population of that particular tribe in Jalpaiguri district, West Bengal, Indo Bhutan border.

REFERENCES

1. Tropical Disease by Sir Philip Manson Bahr.
2. First International Symposium of Yaws' Control W. H. O., monograph no-15.
3. A Castellani—Framboesia Tropica, Journal of Cutaneous diseases, 1908, 26, No. 4 and 5.
4. Atlas of Framboesia, Hill, K. R. Kodijat R and Sardadi M., W. H. O., monograph no-5.
5. J. L. Gilks—Trans Roy. Soc. Trop. Medi. and Hyg. 1923, No. 15, P. 277.
6. Barry, C. Indian Med. Gaz 36 : 18, 1901.
7. Chopra, R. N. Gupta, J. C. and Mullick, M. N. Ibid., 63 : 316, 1928
8. Dey, N. C. Ibid, 65 : 421, 1930. Idem—Indian Med. J., 35 : 349, 1931.
9. Dykes, C. Indian Med. Gaz, 41 : 422, 1906.
10. Fitzgerald, G. H. and Dey, N. C. Indian Med. Gaz. 66 : 425, 1931—Idem—Ibid, 67 : 82, 1932
11. Knowles, R., Chopra, R. N., Gupta, J. C. and Das Gupta, B. M., Ibid., 58 : 470, 1923.
12. McCarthy, P. A. Indian Med. Gaz., 41 : 53, 1906.
13. Mukherji, B. C., Indian Med. Gaz., 65 : 10, 1933.
14. Powell, A Indian Med. Gaz., 29 : 326, 1894—Idem—Proc. Roy. Soc. Med. (Section of Tropical Diseases and Parasitology), 16 : 15, 1923.
15. Ramsay, G. C. J Trop. Med. & Hyg, 28 : 85, 1925.
16. Wilson, P. W. & Mathis, M. S. J. Amer. Med. Assoc, 94 : 1289, 1930.
17. Dey, N. C. Indian Journal of Dermatology, Vol. VI, October 1960.

sulfa therapy suited
to young tastes
and tempers ...

LEDERKYN *

N¹ Acetyl Sulfamethoxy-pyridazine LEDERLE

**ACETYL PEDIATRIC
SUSPENSION**

DAILY DOSAGE:
ADMINISTERED AFTER A MEAL

Weight	Initial Dose	Following Doses
9 kg.	250 mg. (1 teaspoonful)	125 mg. (½ teaspoonful)
18 kg.	500 mg. (2 teaspoonfuls)	250 mg. (1 teaspoonful)
37 kg. and above (incl. adults)	1 Gm. (4 teaspoonfuls)	500 mg. (2 teaspoonfuls)

Packages

LEDERKYN Tablets, 0.5 Gm. (quarter-scored), bottle of 6.

LEDERKYN Acetyl Pediatric Suspension (deliciously-flavored), 250 mg. sulfamethoxy-pyridazine activity per 5 ml. teaspoonful, bottle of 28.5 ml. (1 fluid oz.)

Employs the N¹ acetyl form of LEDERKYN to impart high palatability yet retains single-daily-dose effectiveness and rapid, high sustained action against sulfa-susceptible infections.

Usual sulfonamide precautions apply.



LEDERLE LABORATORIES DIVISION
CYANAMID INDIA LIMITED

P.O.B. 1994

BOMBAY 1



* Trademark