III

MARRIAGE AND SYPHILIS *

By REGINALD C. JEWESBURY, M.D.Oxon., F.R.C.P.Lond.

IN the first place I wish to state that I am particularly indebted to my Chief Clinical Assistant, Dr. C. K. J. Hamilton, for his help in this work and the drawing up of this report. I also wish to thank my former Chief Clinical Assistant, Dr. J. Forest Smith, for much kind help.

SOME NOTES ON CONGENITAL SYPHILIS

This paper records the results of the investigation of the first 200 cases of congenital syphilis seen in the special venereal clinic of the Children's Department at St. Thomas's Hospital, and also the records of 200 children born to known syphilitic women who had received treatment in the ante-natal period. The ages ranged up to fourteen years.

One morning a week was set aside for this clinic, and cases were drawn from the rest of the children's department and from other special departments, including that for venereal disease, under the direction of Colonel L. W. Harrison, D.S.O. Where a parent attended the adult clinic, every effort was made to persuade the patient to bring her children for examination and, if necessary, for treatment. The eye department provided the majority of those cases of congenital syphilis who showed any symptoms of the disease when first seen.

CONGENITAL SYPHILIS (200 CASES)

In this series there were 957 pregnancies, giving an average of 4·8 per family ; 178, or 18·6 per cent., of these pregnancies terminated in miscarriages. Of 779 children born, 84, or 10·8 per cent., were shown to be free from syphilis, and there were 274 children, or 35·2 per cent., supposed healthy who gave no sign of syphilis ; 151 children, or 19·4 per cent., were suspected of having syphilis,

* Based upon an Address delivered before the Medical Society for the Study of Venereal Diseases on April 30th, 1926.

BRITISH JOURNAL OF VENEREAL DISEASES

and 270 children, or 34·6 per cent., were proved to be congenital syphilitics. Thus some 54 per cent. of the children were affected by the disease.

FATHERS' HISTORIES

The history of the father was difficult to obtain in many cases. The date of infection could be ascertained in only thirteen instances; of these, two fathers were infected eleven years before the birth of the patient, the average date of infection being five years before. In six cases the father was known to have a negative Wassermann reaction, and in thirty-five cases the father was known to be syphilitic.

In one case, a tabetic, the father had had extensive treatment for some years before the birth of the child, and six fathers were stated to have started treatment, but this was discontinued before it could possibly have controlled the disease. In 193 cases there was no evidence of the father having undergone any treatment at all. The most striking point in the histories of the fathers was the fact that they had had no treatment, or if such had been started, that it was never continued.

MOTHERS' HISTORIES

In the majority of cases, again, no definite date of infection could be determined, but it was known in twenty-four instances. The longest period between the date of infection and the birth of the child was nine years, whilst the average of twenty-four cases was three and a half years. In 120 of the mothers there was documentary evidence of the mother having syphilis. In three of our cases the mother was infected after the birth of the child. These three cases are discussed later in this paper.

In all the cases where a congenital syphilitic was born the mother, when tested, gave a positive Wassermann reaction during her pregnancy. The mother had had no treatment prior to the birth of the child in 171 cases. In three cases the treatment was such that a healthy child might have been expected. Nineteen mothers had started but had not continued treatment, whilst in seven cases intensive treatment had been given in the second half of pregnancy. Four of these had been treated in the

MARRIAGE AND SYPHILIS

last three months and three in the last two months of pregnancy.

As in the histories of the fathers, the figures are striking as showing what a small proportion of the mothers of congenital syphilitics have received any adequate treatment.

PREDOMINATING SIGN

The reasons for which these 200 children came under observation were as follows :—

Conditions demanding treatment.	No. of children.
Eye trouble	42
Rashes	19
Wasting	5
Pains in limbs	5
Mental defect	3
Swollen joints	3
Chorea	1
Influenza	1
Nephritis	1
Anæmia	1
Paralysis	1
Deafness	1
Rhinitis	1

84

In addition to these, seventy-two cases were sent from the adult V.D. department as children of known syphilitic parents. Eighteen were detected when the brothers and sisters of a known congenital syphilitic were investigated, and one case was referred from the Infant Welfare Department. The remaining twenty-five cases were brought to the children's out-patient department for indefinite malaise and there found to have stigmata or a positive serological reaction.

It will be observed that the largest proportion of our cases with definite signs were sent from the ophthalmic department. Nearly all these children were suffering from interstitial keratitis, and their ages varied from three to thirteen years. It seems that many congenital syphilitics can escape diagnosis during their earlier years and only apply for treatment when this sign develops.

The complaint of "pains in the limbs" was given in

BRITISH JOURNAL OF VENEREAL DISEASES

five cases and was due to slight tibial periostitis. In view of the readiness with which such a symptom may be diagnosed as rheumatism (and in these cases had been treated as such), it must be recognised that pains in the legs may result from syphilis and the diagnosis only confirmed by means of the X-ray and the Wassermann reaction.

French authors have often stressed the relationship between this disease and nephritis in childhood. One case only of nephritis was seen in this series, and this appeared to follow an attack of follicular tonsillitis. We have over a period of three years tested the sera of all the nephritics admitted to the children's ward and investigated the history of the parents. In seventeen cases of nephritis there has been no history suggestive of parental syphilis and no evidence of such disease in the patient.

INCIDENCE OF SIGNS

Our 200 cases of congenital syphilis have been divided into three age groups, from birth to one year, from one to six years, and from six to fourteen years. The symptoms and signs found on examination are given in the table on p. 327.

It will be seen that eleven of these children had no signs whatever of syphilis when examined. The incidence of jaundice is about 1 per cent.—less than one had expected to find. The liver was found definitely enlarged in 19 per cent. of the cases. Enlargement of the spleen, rhinitis and rash were much the most common manifestations in the first year of life. Interstitial keratitis was the predominating symptom in the age-group six to fourteen years, teeth and bone changes were also marked, and 5 per cent. of cases in this group showed definite malnutrition.

ACQUIRED SYPHILIS

The case histories of three children who were thought to have acquired syphilis are as follows:—

Case No. 1.—F. D., born March, 1914. Father had treatment in September of that year. Mother infected about September, 1914, the patient being six months old and on the breast. The Wassermann reaction of the mother in August, 1920, was ++++. The patient

MARRIAGE AND SYPHILIS

Conditions found.	Age.		
	Birth to one year.	One to six years.	Six to fourteen years.
Papulosquamous rash	30	—	—
Buttock rash	19	—	—
Condylomata	17	7	—
Pemphigus	9	—	—
<i>Café au lait</i> colour	5	—	—
Rhagades	9	1	4
Rhinitis	47	9	11
Perforated palate	—	1	—
Facies	1	5	7
Ulcer of palate	—	1	1
High arch palate	1	3	8
Hutchisonian teeth	—	2	27
Irregular teeth	—	2	17
Strabismus	—	2	1
Optic atrophy	—	—	1
Interstitial keratitis	—	9	44
Ciliary injection	—	—	2
Iridocyclitis	—	—	1
Bossed skull	4	4	—
Epiphysitis	8	—	—
Periostitis	—	1	15
Osteitis	1	1	1
Clutton's joints	—	3*	8
Spleen enlarged	46	2	6
Liver enlarged	30	5	3
Nephritis	—	—	1
Jaundice	2	—	—
Hemiplegia	—	—	2
Tabo paresis	—	—	2
Fits	1	2	1
Argyl-Robertson pupils	—	—	3
Ptoxis	—	—	1
Seventh nerve paralysis	—	—	1
Mental defect	—	1	5
Backwardness	—	—	1
Deafness	—	—	6
Anæmia	6	—	3
Prematurity	8	—	1
Wig	2	—	—
Wasting	13	5	10
Onychia	3	—	—
Hæmorrhagic rash	1	—	—
Dactylitis	—	—	1
Hæmoglobinuria	—	1	—
Hydrocephalus	1	—	—
Adenitis	—	3	12
No signs	1	4	6

* One had also elbow affected.

BRITISH JOURNAL OF VENEREAL DISEASES

showed no definite signs, but the Wassermann reaction was +++.

Case No. 2.—H. D., born April, 1920. In September, 1920, the mother had a primary sore with moist papules and the Wassermann reaction was ++. Coitus six weeks before the birth of the child and again two months after. She was probably infected on the latter occasion. The patient when seen, aged five months, had a history of rash at three and a half months. Snuffles when seen, but no other symptoms. The Wassermann reaction was positive.

Case No. 3.—F. F., born January, 1916. The mother attended in May, 1917, and complained of sore throat and that her hair was falling out. The Wassermann reaction was +++ and the mother thinks that she was infected shortly before her first attendance on May 16th, 1917. The patient was seen on July 5th, 1917, with anal condylomata and macular syphilide on buttock. There is no record of the Wassermann reaction at that time, but on June 17th, 1920, it was positive.

SEROLOGICAL TESTS

The Wassermann reaction of the blood was investigated for us by Drs. Urquhart and Taylor in the pathological laboratory of the hospital, and in most cases the Sachs-Georgi reaction was tested at the same time. When first seen, 192 of the cases were examined serologically and a positive result obtained in 164 of these. Twenty-four cases gave a negative result, but on repeating the test after an interval, eight became positive. Four cases gave a doubtful reaction. Eight cases were not tested, owing to difficulties in obtaining blood, or because of the mother's refusal to consent, but in one of these cases a Wassermann was not considered essential to the diagnosis, as the spirochæte was obtained from the fluid in a buttocks eruption (pemphigus).

Comparing the Wassermann reaction obtained from the different age groups, it is seen that the biggest percentage of positive results was obtained in the older children and not in infancy. The results are shown in Table C.

In the majority of cases the collection of blood was not difficult. In the youngest infants the heel, after cleaning with ether, was punctured with a surgical needle and

MARRIAGE AND SYPHILIS

about 1 c.c. of blood drawn up into a Harrison's tube. In the older children blood was usually obtained from the median basilic vein, and it was found convenient when doing this to use a hypodermic syringe and needle rather than the ordinary pattern of needle used in adult work. It was considered too dangerous in out-patient practice to obtain blood from the superior longitudinal sinus *viâ* the fontanelle. This method has been resorted to in difficult cases in the hospital and, with care, appears to be devoid of marked risk.

In the newly-born, up to the age of three months, 27 per cent. of negative Wassermann reactions were

TABLE C.

Showing W.R. in 200 cases when first seen in three age groups.

Wassermann Reaction.	Age.		
	Birth to one year.	One year to six,	Six to fourteen years.
Positive	50	38	76
Negative	13	4	7
Doubtful	2	0	2
Not tested	7	0	1
	72	42	86

obtained, whilst from the age of three months to one year the percentage of negative results obtained fell to 10·7 per cent. From one to six years the percentage of negatives was 9·5 and in the last group 8·2. It seems that in cases which may ultimately be proved to be congenital syphilis, the Wassermann reaction is a better guide in the older children.

The Sachs-Georgi reaction corresponded with the Wassermann in 169 cases. In twelve cases where the Wassermann reaction was indefinite and reported as $\pm$, the Sachs-Georgi was positive in eight and negative in four. In eight cases with a negative Wassermann the Sachs-Georgi was positive in six and indefinite in two: on the other hand, this reaction was negative in eleven cases where the Wassermann confirmed the diagnosis of syphilis.

TREATMENT

The predominating factor in the successful treatment of congenital syphilis appears to be the time period over which such treatment can be carried out. Where pain is given by means of intramuscular injections or by intravenous injections, too often the parents refuse to bring their children to the clinic. We decided that a period of at least two years' treatment was an essential, so every effort was made to make the treatment painless. For this reason we soon abandoned the use of intramuscular mercury or intramuscular arsenicals, and the same remark applies to the more recent treatment with bismuth. Mercurial inunctions were only used in the youngest children and do not appear to offer any advantages over mercury by mouth, as the disease is more quickly and more easily controlled by the use of organic arsenic. Mercury was given in doses of 1 gr. hyd. c. crete three times daily to all the congenital syphilitics after the age of three months. In the first three months of life the dose was $\frac{1}{2}$ gr. three times a day. We have never seen any ill effects arising from this dosage even when carried out for a full period of two years, with little more than a fortnight's intermission in each year. In only one case of our series was there any gastro-intestinal upset, and this case had to be given Hutchinson's pill. Organic arsenic compounds were also used in the treatment of our cases, and although most of the better-known preparations were given when the clinic was first started, latterly sulpharsenol was the only one used. The reason for this is that it can be readily dissolved in one or two cubic centimetres of water and injected by means of an ordinary hypodermic syringe into the subcutaneous tissues without causing any general or more than a trivial local reaction. Three courses of such a preparation are given in the year; each course consists of six weekly injections of sulpharsenol. In the case of the recently-born infant, 0.06 gr. was given into the subcutaneous tissue of the abdominal wall. In older infants the dose was 0.12 gr., and after the first year, 0.24 gr. It was not found necessary to prepare our cases in any way. The children received their injections about 11 a.m., having had their usual breakfast at 8 a.m. The urine was examined when the children were first seen, and it was not found necessary

MARRIAGE AND SYPHILIS

to repeat this examination before giving the injections. We have seen no reaction of any sort since treatment with sulpharsenol was started. With intravenous injections of N.A.B. fainting attacks were sometimes noticed, and a history of vomiting some hours after the injection was obtained in about 10 per cent. of cases. Intramuscular injections in children were a frequent source of trouble. A very definite proportion resulted in tender, indurated buttocks. The treatment may be summarised as a grain of hyd. c. crete three times a day for two years and six courses of sulpharsenol extending over the same period.

EFFECTS OF TREATMENT ON THE WASSERMANN REACTION

The effects of treatment were controlled not only by the improvement in the clinical signs, but also by repeating the Wassermann reaction. A positive reaction became negative in eighty-four cases, the average time taken to obtain this being twelve and a half months. A negative result was obtained in one case after two months' treatment, and it was found that such a result, though transient in nature, was often present immediately after a course of injections had been completed. One case, however, which ultimately became negative, took three years and eight months of continuous treatment before this result was obtained. Of the eighty-four cases which became negative, eight relapsed to positive.

In thirty-three cases the W.R. was not influenced by the treatment; in some the attendance was not regular, though the average attendance for treatment was over a period of twelve months. A refractory case which attended well was still positive at the end of four years.

An acute specific rash would often disappear completely after one injection of sulpharsenol and one week's treatment with mercury. We could not determine that intensive treatment was of much value in clearing up interstitial keratitis. Where one eye only was affected when treatment was started, mercury and arsenic did not prevent the other eye becoming inflamed.

SUSPECT CHILDREN OF KNOWN SYPHILITIC PARENTS

Colonel Harrison kindly allowed us to examine and keep under observation children born to mothers who

BRITISH JOURNAL OF VENEREAL DISEASES

were attending the V.D. clinic at St. Thomas's Hospital for syphilis. There was definite evidence of the mother having this infection in 196 cases, and in fifty cases the father was known to be also syphilitic. In the four cases where evidence of syphilis was lacking in the mother, the father was infected.

None of these babies had any signs of syphilis when first examined—usually at a period within one week of birth—none developed syphilis during observation, which in the majority of cases extended over one year, and all gave negative serological tests.

TREATMENT OF THE FATHER

The fathers' treatment was considered to have been adequate in nine cases and inadequate in twelve, whilst no record of treatment could be obtained from 179 of the men.

TREATMENT OF THE MOTHER

In sixty-eight cases the mother had intensive treatment throughout pregnancy, whilst fifteen other cases had had adequate treatment which was concluded before the pregnancy and was repeated during it. There is no record of the mother having had treatment in thirty-eight cases, nine others had had inadequate treatment prior to pregnancy, and four more had irregular treatment during this period. All were suffering from syphilis, and yet the child appears to have escaped infection.

With regard to the question of syphilis and marriage from the point of view of the disease being transmitted to the child, it appears that although it is possible for syphilitic parents who have had no treatment, in some cases, to beget a child who is apparently healthy, yet the chances of this are small and the probability is that the child will show evidence of disease either at birth or at a later period. Also miscarriages and still-births are of frequent occurrence in cases where the parents, particularly the mother, are infected and have received no treatment. Results show that if the mother has received adequate treatment, and especially when treatment is given during her pregnancy, that in the large majority of cases the child appears to escape infection altogether, but in our own series of cases it will be necessary to keep them under observation for a longer period before we can say

MARRIAGE AND SYPHILIS

definitely that these children remain unaffected. (It must be remembered that in three of our cases, although the mother had received adequate treatment, the child was syphilitic.)

I think it is desirable that no syphilitic man or woman should be advised to marry until he or she has received at least two years of adequate treatment. With regard to the W.R., at the end of this time I think a positive W.R. need not necessarily be a bar to marriage provided there are no lesions present which might be regarded as infective.

With regard to the syphilitic mother, it is desirable that she should have an adequate course of treatment in the first instance, and that she should again receive a fresh course of treatment throughout each pregnancy, and the earlier the treatment is started during her pregnancy the better.