CONGENITAL SYPHILIS*

BY

A. FRIBOURG-BLANC AND G. NIEL

Laboratoire de Biologie Médicale, Paris

This brief report of an example of familial syphilis appears to demonstrate the biological evolution of treponemes in the body in the course of untreated syphilis.

The family under observation may be said to include eight persons: five children whose present ages range from 6 months to 7 years, the mother, the father, and a mysterious unidentified eighth person, who is essential to the plot of the detective story in which we found ourselves involved at the beginning of our investigation. Of these eight persons, four (the three eldest children and the father) are healthy, and three (the mother, the fourth child, and the hypothetical unknown person) are syphilitic. The fifth child may also be regarded as healthy.

Syphilis was discovered accidentally 6 months ago in the fourth child, then aged 1 year, following an appendicectomy which was complicated by a prolonged febrile episode, concomitant with the administration of penicillin. To our astonishment the blood Wassermann reaction was strongly positive. At the same time, *i.e.* in October, 1960, we were sent the sera of the mother and of the fifth child (then aged 15 days). The only information we were given concerned the positive standard serological tests for syphilis in the fourth child and the existence of the three elder brothers.

The high titre of immobilizing and fluorescent antibodies in the two sera examined permitted the following conclusions to be drawn:

- (1) The mother must have become infected during or shortly before the fourth pregnancy.
- (2) The fourth child was a true congenital syphilitic, and in this case the specific serological tests would probably always remain positive in the present state of therapy.

- (3) The fifth child was merely a carrier of passively transmitted maternal antibodies not requiring specific treatment.
- (4) The three eldest children were undoubtedly free from infection.

It should be added that, oddly enough, it was not improbable that the putative (legal) father was also free from infection.

We were able to follow the serological condition and the changes in the antibodies in the different members of the legal family from month to month. The results confirmed our deductions in all respects:

- (1) The three eldest children are completely healthy and sero-negative.
- (2) The mother and the fourth child remain sero-positive, despite the intensive treatment which they have received for the past 6 months; in particular, the titres of the immobilizing and fluorescent antibodies are unchanged.
- (3) In the fifth child, with the normal passage of time, the various antibodies completely disappeared; the Wassermann reaction, treponemal immobilization test, and immuno-fluorescence test are now completely negative, and there are no clinical stigmata of congenital syphilis.
- (4) The legal and possibly actual father is also free from infection.

One person is missing from our serological picture, the unidentified and infecting contact, who may or may not have been the father of the fourth child. The mother had never received antibiotic treatment.

Discussion

This observation seems to us worth reporting because it brings out and confirms several points in

*Paper read at the M.S.S.V.D. meeting in Paris on May 12, 1961.

the evolution of untreated treponemal infection and of the development of antibodies.

On the one hand, antibodies passively transmitted to the foetus *via* the placenta are totally eliminated in less than 6 months, whatever treatment is given and whatever the initial antibody level. In our case, the immobilizing antibodies fell from 300 to 10 in 3 months and to zero in 4 months. The fluorescent antibodies fell from 2,500 to 150 in 3 months and to zero in 6 months.

On the other hand, untreated treponemal infection is only contagious, even for the foetus, for a brief period not exceeding a few months; quite probably this period is that of the florid primary and secondary stage of clinical syphilis.

Once the body has developed its personal defences against infection, the treponemes are partially destroyed spontaneously, whilst the few survivors take refuge in areas as yet little known, lose their pathogenicity and infectivity, become resistant to therapy, and ensure the continual production of antibodies.

It can be logically deduced that the mother was infected in the early months of her fourth pregnancy, so that the foetus benefited *in utero* from the maternal antibodies already produced before its birth. The child was thus born with latent syphilis of a non-progressive or only slightly progressive type, and the maternal antibodies assured the necessary protection before the child was able to produce its own antibodies.

If the foetus had been infected by virulent treponemes a very short time before birth, and had then been deprived of both maternal and personal serological protection, it would certainly have developed a very much more severe type of treponematosi.

However, the child is nevertheless infected and will probably remain so all its life. Its immobilizing antibodies fluctuate between 300 and 600 and its fluorescent antibodies are stabilized at 4,000, *i.e.* at about the same level as in the mother.

We have been waiting for the opportunity to observe a case of this kind for several years, hardly hoping that it would in fact reveal so much.

Summary

A mother, infected with syphilis during her fourth pregnancy, gave birth to a congenital syphilitic child.

Syphilis was not discovered in the mother and child until after a year had elapsed, and in the interval a fifth child had been born. Although no treatment had ever been given to the mother, the fifth child showed only passively transmitted antibodies, and these disappeared in less than 6 months, whereas the mother and her fourth child still have high titres of immobilizing and fluorescent antibodies after 6 months of treatment.

The putative father and the three older children are free from infection, which suggests that the fourth child was fathered by a man infected with contagious syphilis.

This observation offers added proof that, even when there has been no treatment, the infected person's own defence mechanism, demonstrated by the appearance of immobilizing antibodies in the serum, causes the treponemes to disappear almost completely from the body while the few surviving treponemes lose their infective powers. These latent forms, which are only slightly pathogenic, do not appear to be influenced by therapy and continue to stimulate the production of protective antibodies.

Syphilis familiale

RÉSUMÉ

Une mère de famille contaminée au cours de sa 4^{ème} grossesse donna naissance à un enfant hérédo-syphilitique.

La syphilis ne fut découverte chez la mère et l'enfant qu'au bout d'un an, la mère ayant donné entre temps le jour à un 5^{ème} enfant. Bien qu'aucun traitement n'ait jamais été donné à la mère, le 5^{ème} enfant n'était porteur que d'anticorps transmis passivement qui disparurent en moins de six mois, tandis que la mère et le 4^{ème} enfant gardent des titres d'anticorps immobilisants et fluorescents très élevés après six mois de traitement.

Le père putatif et les trois enfants plus âgés sont indemnes.

Cette observation apporte une preuve supplémentaire que, même en l'absence totale de traitement, sous l'action des réactions de défense organique décelées essentiellement par l'apparition dans le sérum des anticorps immobilisants, les tréponèmes disparaissent presque totalement de l'organisme et les rares survivants perdent leur pouvoir infectieux. Ces formes latentes très peu pathogènes ne semblent plus atteintes par les thérapeutiques et subsistent en assurant la permanence de sécrétion des anticorps protecteurs.