

The acquired disease in the infant or young child tends to be milder than the congenital form in its symptoms and less apt to affect seriously the general health and development.

The testicle with little or no clinical signs of involvement may discharge a virulent infective material with the semen, years after the gross signs of the disease, including the strongly positive blood Wassermann, have disappeared.

Some individuals are Wassermann-fast, regardless of the amount of treatment.

Modern treatment requires the use of arsenic, bismuth, and mercury. The amount of arsphenamine required is not less than twenty injections. The critical point is between five and nine injections.

Inspection, instruction, control, and protection are more essential in rest periods than under treatment periods.

The critical time of probation for the treated patient is the two years following the cessation of treatment; no promises should be made, no precautions relaxed, and no observation neglected during the period; in fact should be increased rather than diminished.

Continuous treatment is superior in its results to intermittent treatment.

Infectiousness is not a function of the serologic state of the patient. No serologic test has any value as a proof of infectiousness or non-infectiousness, early or late.

Question the patient before treatment regarding: (a) itching skin or rash; (b) purpura and melena; (c) gastro-intestinal reaction; (d) condition of the mouth and teeth.

Keep carbohydrate and alcohol low in the diet, protein and fat high. Permit only a light meal before and after an arsenical, a mild cathartic the morning after.—From an outline prepared by the Association for Improving the Condition of the Poor, New York City, 1934. The outline has been prepared from standard text-books and articles on syphilis to guide the AICP nurses in their health service to families. It has been submitted to leading syphilologists for their advice. Where controversial points arose, the consensus of opinion was used. (*Reprinted by permission.*)

## THE PREVENTION OF PRENATAL SYPHILIS

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Syphilis is one of the most destructive diseases, caused by a cork-screw-shaped organism (*spirochaeta pallida*) which enters the body through the skin or mucous membranes. The disease is extremely deceptive in that its early manifestations are often so obscure or mild as not to be observed at all or are mistaken for conditions not considered serious. About half the people who have syphilis do not know they have it. The disease is deceiving also in that, when its early manifestations have disappeared—skin eruptions, mouth sores, temperature, and other constitutional disturbances—it tends to pass into a quiescent stage in which there may be nothing to indicate to the patient that the disease is at work in the body, gradually under mining important structures and organs which may result later in serious crippling or death.

**Destructive Effects.** At any time in a period of two to twenty or more years the more destructive, crippling, or killing effects may arrive. There may appear signs of disease of the heart and blood vessels which end in

death. Tumor-like growths (gummata) may appear in any of the tissues or organs, impairing or destroying them. The attack of the disease upon the nervous system, especially the brain and spinal cord, may show itself in various forms of paralysis, convulsions, sudden death from 'stroke,' mental deterioration ending in that pitiable form of insanity called general paralysis of the insane, or, if the spinal cord is principally involved, there may result progressive loss of muscular control and coordination, bringing distressing disorders such as locomotor ataxia, with ultimate confinement in bed or the wheel chair.

**Means of Diagnosis.** The hidden or obscure character of syphilis during much of its course renders diagnosis of the disease through its outward manifestations extremely uncertain. Fortunately, however, the disease causes changes in the blood which can be detected through one of a number of blood tests within a few weeks after infection. The Wassermann test is the best known. Even before the blood becomes 'positive' the disease may be discovered by finding with the dark-field microscope the live spirochetes in tissue fluids taken from open sores or infected glands.

**Syphilis Can Be Cured.** Fortunately, syphilis can be cured and all the terrible consequences mentioned can be prevented from developing while the process of cure is going on. A cure is best assured when treatment is begun early after infection.

**The Great Infant Tragedy.** The most tragic aspect of syphilis is the fact that the fetus or unborn child may acquire the disease from its syphilitic mother while growing in her womb, and the fact that almost all syphilitic pregnant women, when not treated, do transmit the disease to the child before birth. This is called congenital (born with) or prenatal (before birth) syphilis.

We have as yet no way of knowing accurately the prevalence of syphilis in pregnancy among the general population. From a variety of studies we estimate that among women who attend public clinics, an average of about 9 per cent are syphilitic. Certain data indicate that it may occur in from 1 to 3 per cent of pregnant women attended by private practitioners.

It is estimated that syphilis occurs among children of all ages in the child population as a whole in 2 to 3 per cent. Studies of various large children's clinics have shown a prevalence of syphilis of 5 to 6 per cent among children up to one year of age.

**Results of Syphilis in Pregnancy.** The outcome of untreated syphilis in pregnancy is well established. Of such pregnancies 25 to 40 per cent result in miscarriage or stillbirths. From 30 to 40 per cent of pregnancies result in living but syphilitic children. Only 15 to 17 per cent of syphilitic pregnancies result in children who are non-syphilitic. In other words, a syphilitic woman, untreated, has only one chance in six of bearing a live, healthy child, as compared with nine chances out of ten if she has proper treatment.

**Effects of Prenatal Syphilis on the Child.** The early manifestations of congenital syphilis in the child are mainly skin eruptions, sores on mucous membranes, and diseases of bones and of the nervous system. Occasionally the eye is involved. The later effects are afflictions of the eye, mostly interstitial keratitis, which causes a clouding of the cornea and usually leaves impaired vision or blindness; disorders of the nervous system; diseased bones and joints; destructive gummata; and occasionally deafness. Interstitial keratitis occurs more frequently than all other effects combined. In children over five years of age with active syphilis, keratitis occurs in 60 to 70 per cent.

**The Badges of Prenatal Syphilis.** Untreated syphilis in the child commonly leaves behind certain deformities (stigmata) which place upon the

child the permanent mark of syphilis. The most characteristic of these are: peculiarly notched front teeth (Hutchinson's teeth); a mulberry-shaped molar tooth; scars about the mouth and other openings of the body (rhagades); a type of bowed shin called saber shin; and a form of depressed nose bridge called saddle nose.

Congenital syphilis, like acquired syphilis of the adult, tends to pass into varying periods of quiescence in which no obvious signs of its existence appear, the disease carrying on its insidious destructive processes behind a mask of comparative well-being.

Transmission of the disease from mother to child occurs usually after the fifth month of pregnancy, and experience has shown that if treatment of the mother is begun by the middle of the period of pregnancy, the child is protected against infection in almost all cases so that a healthy non-syphilitic child is born of a syphilitic mother. This fact constitutes one of the most dramatic and important achievements in modern medicine. Furthermore, while the preventive effect of treatment begun after the fifth month progressively diminishes, nevertheless a striking proportion of infants are protected with treatment of the mother begun any time after the fifth month, even up to the time of delivery. Even though the child has already become infected, treatment of the mother is important because it constitutes also early treatment of the infected child and thus provides a far greater chance of cure when treatment of the child is continued after birth.

For her own health and cure the mother needs to continue her treatments after the birth of the child. Also, in all future pregnancies she should, for the protection of her offspring, undergo treatment early, regardless of what her blood tests may show. A single negative blood test does not assure a cure; she may still be infectious for the child.

**Protection of the Family.** In every case of a syphilitic pregnant woman all the members of the family, especially the children, should be medically examined, including a blood test, and all those found to be infected brought promptly under treatment.

In all cases of syphilis, outward appearances cannot be relied upon for discovering the disease because so much of the time there are no appearances. In these cases the disease can be diagnosed with reasonable assurance only by means of the blood test. This is particularly true in pregnancy because pregnancy of itself restricts the manifestations of syphilis.

**Difficulties of Early Diagnosis.** The earliest possible diagnosis of syphilis in the child is of utmost importance because the earlier treatment is begun the greater are the chances of cure and of the prevention of destructive effects. Unfortunately early diagnosis is often rendered difficult. In the first place, most syphilitic infants present no obvious manifestations of the disease for weeks or months after birth and sometimes not for years. In the second place, even the blood test may fail or mislead; for, during the early weeks a syphilitic child may show a negative blood test, the blood not having had time to become positive; and a non-syphilitic child may show a positive blood test through the carried-over influence of the mother's syphilitic blood. However, sometime within the first two months tests of the infant's blood will in most cases tell the truth.

**Difficulties of Cure.** Acquired syphilis in the adult can be cured in virtually 100 per cent of cases if modern treatment is begun early and carried on long enough. Congenital syphilis in the child, too, can be cured but with no such rosy assurance or such a high percentage of good results. Congenital syphilis is much more resistant, and even at best a much lower percentage of cures are achieved. However, with treatment the condition of every child can be improved and destructive processes can be prevented or held in check.

**It Can Be Prevented.** Now, in view of the prevalence of prenatal syphilis in children, its extreme destructiveness and the difficulties of its cure, the pertinent question is, 'Can it be prevented?' The answer is, yes, congenital syphilis can be entirely prevented, and by comparatively simple means. If our knowledge and available preventive measures were generally applied, congenital syphilis could be wiped out in a short time.

**The Certain Means of Prevention.** The certain way to prevent prenatal syphilis and stamp it out as a disease is to include a blood test in the early medical examination of every pregnant woman, and promptly bring under treatment those found to be infected.

To conquer congenital syphilis, two things are necessary: that all doctors, in private practice as in clinic and hospital practice, regularly include the blood test for syphilis in the early examination of pregnant women, as is already being done in most modern prenatal clinics; and that all women in every social level or class, instead of possibly resenting the taking of blood for a test because of imagined moral implications, should, on the contrary, welcome it and insist upon it for their protection, recognizing that syphilis does not respect race or class or creed, and that the implication of moral stigma is unjustified inasmuch as a large proportion of syphilitic infections occur under conditions of entire unblameworthiness. The scourge of congenital syphilis needs to be considered and handled on the same medical and public health basis as is smallpox or any other contagious malady.

Dr. Ray Lyman Wilbur, former Secretary of the Interior, has said:

When we can keep the spirochete of syphilis out of the body of every newborn babe, we shall have added enough to human life and happiness to heal the wounds of the Great War.

It is fortunate that the condition of pregnancy in no way renders treatment of the syphilitic woman unwise. Indeed, pregnant women endure such treatment exceptionally well. The nature of the treatment of the pregnant syphilitic women does not differ essentially from the treatment of any ordinary case of syphilis of the same stage in other adults. The same drugs are used, namely, one of the arsenical compounds such as arsphenamine or neoarsphenamine, and bismuth or mercury, usually given in alternate courses or doses. The proportions of these two classes of drugs given will depend, among other conditions, upon the period of pregnancy in which treatment is begun. When started late in pregnancy the treatment will be planned so as to give the maximum number of doses of the arsenical drug, inasmuch as the arsenicals have the greater preventive effect. For adequate preventive treatment, begun by the fifth month of pregnancy, it is held that at least ten doses of the arsenical drug and ten doses of bismuth or mercury need to be given. However, since in not a few cases even a very few treatments given late in pregnancy serve to protect the child, treatment should be begun at any time when the disease has been discovered. The arsenical drugs are usually injected into the blood stream by way of a vein; bismuth and mercury are injected into muscular tissues.

These same classes of drugs are used in the treatment of the syphilitic child, the dosage being adapted to the age of the child. Since at best a far smaller proportion of cures can be expected in congenital syphilis than can be in acquired syphilis of the adult, the emphasis in the case of the child must rest peculiarly on prevention. Here an ounce of prevention is better than a ton of cure.

Congenital syphilis is a frightful scourge. But the means for its complete prevention are at hand and the means are comparatively simple. The key to the problem is *a blood test early, for every pregnant woman*. With co-operation between pregnant women and the medical profession, this dangerous disease can be quickly wiped out.