

essential vehicles of the specific virus are cells or albuminoid molecules derived from an active syphilitic lesion. After fecundation, the embryo is not supplied with cells of any kind, but simply with serum. There is, therefore, after the occurrence of conception, no possibility of the transmission of syphilis.

The literature of the subject furnishes not a single reliable case in proof of the theory. Many cases, apparently convincing, are reported, which, on careful scrutiny, show some vital defect.

The following is an illustration of this point: A pregnant woman, healthy at conception, becomes syphilitic during gestation, and brings forth a premature macerated child, or a syphilitic child may be born at full time. Of such cases certain authors say, that the former was a syphilitic embryo, and that the latter derived its syphilis from the mother. Such errors as these are the chief cause of the doubt now resting on this question.

A syphilitic woman *may* bring forth a macerated child, but, undeniable lesions of syphilis must be found on the child itself to prove its infection.

The anæmic condition of the mother, and not the specific poison in her blood, may have caused the premature expulsion of the child.

Statistics show that syphilis, contracted by the mother during pregnancy, is a very prolific cause of premature birth.

The aborted products, however, may differ, in no respect, from those met with in the case of mothers, who have passed through some severe adynamic disease, having no specific nature whatever, and cannot be called syphilitic in the absence of undoubted lesions.

A syphilitic child may be born at full term of a mother infected at some time during gestation. It has often been assumed, that, in such case, the disease is derived from the mother; on the contrary, it may be, and always is derived from the father. It is possible for a healthy woman carrying a syphilitic foetus, to become infected herself, since the disease of her embryo imparts to her no immunity. This fact has been cited as evidence of syphilis acquired by the mother through conception, the truth being, that it was subsequently acquired directly from the father.

The importance of learning all the facts relating to father, mother, and child, before drawing conclusions, seems to have been often disregarded. As an illustration, we may mention the recent article of Hutchinson,¹ of London, in which, of six cases reported, not one bears out the theory advocated, some lacking most important details, while others are clearly instances of syphilis derived from the father.

The cases cited by Oewre, who also supports this theory, are equally unreliable for similar reasons.²

¹ A clinical lecture on the communication of Syphilis from a mother to her foetus. Med. Times and Gaz., Lond., Mar. 30, 1877.

² Among those who deny the theory in the most positive manner, and who furnish large numbers of trustworthy cases, may be mentioned Pick, Hennig, Köbner,

In order to prove this mode of transmission the following requirements must be observed: 1. It must be shown that the father was free from syphilis at the time of conception. 2. The infection of the mother during pregnancy, and her freedom from disease previously must be proved beyond doubt. 3. The child must have unmistakable syphilitic lesions, acquired without doubt before birth.

We reach the conclusion, based upon the physiological reasons already given, and upon the fact that satisfactory evidence to the contrary does not exist, that *the syphilis of the mother, acquired during pregnancy, cannot be conveyed to the foetus through the utero-placental circulation.*

We now come to the question, *Can a healthy mother bear a syphilitic child?* It must be evident that the immunity of the mother depends upon the same condition as that of the child, namely, the absence of cellular elements in the fluid interchanged. Many cases have been reported of women giving birth to syphilitic children year after year, while they themselves remain free from infection. I have reported two cases, and have seen others of a similar kind.¹

Abundant and trustworthy evidence is found in cases reported since 1801, when Swediaur first suggested that a syphilitic foetus could not infect the mother. Bertin, Haase, Colles, Acton, Meyer, Bednar, De Méric, Trousseau, and many others have given testimony worthy of credence. The most valuable is that of Kassowitz, who, like myself, has followed cases from year to year, and who is an ardent advocate of this view, never having found any evidence in refutation.

He gives the carefully taken statistics of the Vienna Foundling Asylum, where, out of four hundred children with hereditary syphilis, one hundred and sixty had healthy mothers, one hundred and twenty-two had syphilitic mothers, and, in the balance of the cases, the condition of the mothers was not known. In addition, he gives seventy-six cases of his own, in forty-three of which the mothers were healthy, in twenty-three both parents were syphilitic, and in ten the mothers only were diseased.

In spite of this mass of evidence, there are still those who claim that contagion of the mother by this method is possible. Gardien, in 1826, was the first to do so, and among its recent eminent advocates is Ricord, who called this mode of infection "*choc en retour.*" The chief ground for its acceptance is found in the fact that mothers, having produced syphilitic children, during, or soon after pregnancy, themselves develop specific symptoms.

In such cases the initial lesion of the father has been overlooked

Spath, Schaunstein, Bidekap, Baerensprung, and Kassowitz. Baerensprung details fourteen cases, and says emphatically, that he has never seen a syphilitic child born of a mother infected during pregnancy.

The cases of Pick and Kassowitz are also especially valuable.

¹ A Contribution to the Study of the Transmission of Syphilis, Arch. Clin. Surg., N. Y., Sept., 1876.

or else that of the mother has escaped notice by reason of its trifling character, or its inaccessible location, as upon the os uteri.

Moreover, in most cases, the disease is fully developed in the mother before the birth of the child, who may manifest no symptoms until several weeks after birth.

Even in the absence of infecting lesions in the father, we must bear in mind that the mother may derive her contagion from the blood of the father, arising from chafes produced during coitus.

Moreover we must consider the difficulty of gaining correct information, in consequence of the reticence or forgetfulness of the patients. Many reported cases are based entirely on the statements of patients, which cannot be always trustworthy.

Again, the active symptoms of disease in the mother may appear so late that all traces of the initial lesion have faded.

To prove this mode of contagion, its advocates have only one class of cases to offer in evidence, which we shall refer to presently.

That errors and imperfections are met with in the reports of these cases, is strikingly shown in a recent article by Diday, in which he gives twenty-six cases, most of which are utterly valueless, and the others are more or less defective.

Diday claims that the syphilis thus acquired, is similar to that resulting from regular contagion.

Hutchinson, of London, twenty years ago, held that a pregnant woman becomes infected by a syphilitic fetus, and that at each succeeding pregnancy she receives fresh supplies of the poison, which thereby increases in volume and intensity, a view which is utterly opposed by the fact that in each succeeding pregnancy the children are less and less syphilitic.

Our only reason for referring to it is that the notion has been recently advocated by Dr. Dickinson of London.

From a recent article we learn that Hutchinson¹ thinks that the infection, derived by the mother from the child, is of a modified variety, the nature of which he does not clearly understand, but which he calls "blood to blood syphilis," in distinction from what he calls "chancre syphilis." Still he admits that he has seen mothers produce syphilitic infants and never show any evidence of disease themselves. In this connection two questions suggest themselves: Under similar circumstances, why are some women infected while others escape? Can syphilis exist without giving any manifestations?

A marked discrepancy is thus seen to exist between the views of the two chief authorities now living: Diday, who says that this form of syphilis differs in no respect from the ordinary kind, and Hutchinson, who claims that one is a slight and modified form of the other.

An interesting question, requiring further observation and study,

¹ On Colles's Law, and on the communication of Syphilis from the fetus to its mother. *Medical Times and Gazette*, London, December 9, 1876.

is with regard to the immunity of mothers in fondling and nursing their own syphilitic children, while nurses often contract chancre of the nipple. This fact was first observed by Colles, and is now called by many "Colles's law." It would seem to indicate that the escape of the mother is due to some occult, undiscernible change in her system.

Cases of maternal infection by syphilitic children have been reported by Cazenave, Brizia Cocchi, and Müller, but they are not conclusive.

Von Behrend and Deutsch have given cases, which tend to prove the perfect health of women who have borne syphilitic children, by the fact that on marrying a second, healthy husband, they produce children entirely free from disease.

For the reasons given, we conclude that in hereditary syphilis, the disease is conveyed either by the sperm-cells or by the ovule, diseased at the time of conception, and that infection of the mother or of the child cannot take place through the utero-placental circulation.

Infection of the Child at Birth.

The view, now accepted by few, has been upheld by some authors that the child often becomes syphilitic at birth from some lesion on the genital tract of the mother. In order to establish this idea, it must be proved that the product of conception was healthy, that the mother became syphilitic during pregnancy, and at full term had a contagious lesion on her genitals, and, moreover, on the child's body must be developed a primary lesion, and eventually secondary symptoms.

Infection by the Semen of Syphilitic Men.

Some authors hold that infection of the fetus by the semen can occur only at the time of conception, while others maintain that it may take place at any time. The cases which seem to indicate this mode of contagion are those in which the initial lesion has escaped observation. It has been proved that the semen is not an infecting fluid, as are syphilitic blood and the secretion of specific lesions; moreover, every physician of experience has met with many instances of syphilitic men cohabiting for years with healthy women, who never show any evidence of syphilis. We, therefore, cannot admit the infectious properties of the semen as regards the female, or the fetus subsequent to conception.

INVASION AND EVOLUTION OF HEREDITARY SYPHILIS.

Before considering in detail the lesions of syphilis, its evolution and mode of invasion should be described.

The mortality of syphilitic children is very great, fully one-third dying before maturity. Abortion, resulting from the death of the fetus, usually occurs about the sixth month, while that caused by

infection of the mother during pregnancy takes place somewhat later. An aborted foetus is usually in a macerated condition, the skin being easily detached, and the surface having a livid purple color, and various lesions will be found in some of the viscera. The integument may show nothing characteristic, or large bullæ may be found on the soles and palms.

In syphilitic children stillborn at term or dying soon after birth, frequently no lesion of the skin is found. The greater number of syphilitic children born living appear well nourished and perfectly healthy, but, generally at the end of three weeks, evidences of disease show themselves. The date of the evolution of syphilis has been noted by Kassowitz in one hundred and twenty-four cases, in eleven of which it was the first week; in twenty-one, the second; in thirty-four, the third or fourth; in forty, it was the second month; and in eighteen, the third month. The time seems to depend upon the varying intensity of foetal infection, the early appearance of symptoms indicating a virulent type of disease.

The prognosis in the case of syphilitic children is always unfavorable, death from marasmus often ensuing within a month, but it becomes less serious the later the appearance of active symptoms.

The first indication of disease in a child, apparently healthy at birth, is the characteristic *snuffling*, which is the cause of great discomfort, and, in some cases, death ensues from the obstruction to breathing. Emaciation may progress to such an extent as to leave the skin of the body loose and wrinkled. The integument of the face seems to be drawn tight over the bones, and assumes an earthy sallowness. The eyes become prominent, and the juvenile expression is lost, until these children come to look like little old men and women. In some cases, however, even of children intensely diseased, excessive emaciation is not observed, so that there seems to be no special relation between this condition and the activity of the disease. Simultaneous with these changes, the child's nutrition suffers, gastro-intestinal and pulmonary lesions may be developed, and various skin eruptions make their appearance.

ERUPTIONS OF HEREDITARY SYPHILIS.

The principal eruptions are: the erythematous syphilide, or roseola; the papular syphilide; the vesicular, the pustular, the bullous, and the tubercular syphilides; and a form of furuncle.

With certain modifications, the features of syphilitic eruptions in infants are similar to those in adults. In both cases they appear in crops, but, in the hereditary disease, the later rashes are less symmetrical and are likely to be limited to particular regions, and the fever accompanying an eruption in the acquired disease is frequently absent. Although their general course is subacute, yet, on account of the activity of cell-growth and circulation in the integument of infants, the eruptions are developed rapidly, and tend to involve

extensive surfaces. It may also be noticed that such lesions as papules and condylomata are less firm and solid than similar ones in adults.

The Erythematous Syphilide, or Roseola.

This is the most frequent and earliest hereditary eruption, appearing about the third week, and often preceded or accompanied by coryza. It begins on the lower part of the abdomen as minute round or oval pink spots, which at first disappear on pressure. It rapidly invades the trunk, face, and extremities, and is generally fully developed within a week. The spots then vary from a third to a half inch in diameter, assume a dull red coppery hue, and no longer disappear on pressure, owing to pigmentation of the skin. In some cases, as in adults, punctæ of a deeper color are seen on the surface of the roseolous patches, denoting the situation of follicles, around which the hyperæmia is more intense.

The patches are not usually elevated, and desquamation is generally absent, except in severe cases about the hands, feet, and nates, where it may be limited to the margins of the patches, or it may be so extensive as to resemble psoriasis. Sometimes the spots run together, and fissures form, either superficial or of sufficient depth to cause much pain.

The early change of color to a coppery hue, seen in irregular patches upon the chin, in the folds of the neck, and on the nates, where other lesions frequently coexist, is an important diagnostic feature.

The tendency to a circular form, so common in acquired syphilis, is observed in later hereditary eruptions more frequently than in roseola.

The eruption is sometimes so evanescent, and its color so faint, that it passes unobserved. By attention to the characteristics mentioned, and to the history of the patient, the diagnosis will generally be sufficiently easy.

The Papular Syphilide and Condylomata Lata.

These lesions will be described together, on account of their pathological similarity.

The papular syphilide may be the first eruption, and not unfrequently it is intermingled with a roseola, or three or four different syphilides may be seen at the same time on one child. The small acuminated papule of acquired syphilis is scarcely ever seen, except in a relapse, or late in the course of the disease. Flat papules, small and large, scattered symmetrically over the body, are the common forms. Crescentic grouping is seldom seen except at a late period, and then only about the joints and on the extremities. The papules, at first dull red, and then coppery, may have a smooth surface, or the epidermis may exfoliate, especially on the soles and palms.

In this connection may be mentioned certain diffuse infiltrations, sometimes observed, which have not yet been carefully described. When papules are copiously distributed upon the palms and soles, it may be noted that they increase rapidly in size and number, and fuse together. The skin is of a dull red color, much thickened and scaly. An entire foot or hand, or the gluteal region, from the thighs to the top of the sacrum, may be thus involved.

Irritation, from active movements or from pressure, often excites fissures and ulceration, which are the cause of much suffering. This condition may accompany any lesion of hereditary syphilis; its course is chronic, and it is not, as a rule, affected by internal medication. The duration of the hereditary papular syphilide depends upon treatment, to which it promptly yields.

Condylomata lata are simply modifications of the papular syphilides, due to their situation between the folds of skin, or at its junction with mucous membranes, or wherever there is moisture. The change in the papule is chiefly hypertrophic, there being no decided histological difference between the two forms of eruption. In size condylomata vary; their shape is governed by the conformation of the parts upon which they grow, and in color they are usually grayish-pink to dark brown. Their surface is generally flat, sometimes fissured and ulcerated, when a scanty offensive secretion exudes, which may form a thin dirty-colored crust. Particularly in cachectic infants, a false membrane may form, which is slightly adherent, and leaves a raw, bleeding surface on removal.

When condylomata reach a diameter of more than an inch, an unusual size, the margins become elevated and rounded, and end abruptly in the surrounding skin. The latter may be of its natural tint or hyperæmic, or it may be the seat of the diffuse infiltration already spoken of.

Condylomata are among the early and most obstinate of hereditary lesions, local measures appearing to have more effect upon them than internal medication. They vary greatly in number, and, in infants, are most frequently seen about the anus. A characteristic symptom is exhibited when they exist at each angle of the mouth, associated with mucous patches in the buccal cavity. They are much aggravated by neglect and want of cleanliness, but with proper care and treatment they shrink and disappear, leaving a temporary copper-colored stain.

The Vesicular Syphilide.

This rare form of eruption occurs among the early symptoms in severe cases of hereditary syphilis. It is never general, but is usually associated with a pustular or bullous eruption, and appears in groups of vesicles, closely and irregularly packed together, upon the chin and about the mouth, upon the forearms, the nates, the hypogastrium, or the thighs. It rarely shows a tendency to relapse.

The size of the individual vesicles varies. The smallest are about

two lines in diameter, and elevated about one quarter of a line above the general surface, or conical, contain transparent serum, and are situated upon a firm infiltrated base, which has a brownish-red color. Larger vesicles seem to be situated upon papules, and their contents are sero-purulent. Unlike eczema, the distinct vesicles show a tendency to remain isolated and to involve deeper portions of the skin, and rarely coalesce to form superficial, weeping patches. Though chronic in its course, this eruption generally yields to internal or topical treatment.

The Pustular Syphilide.

This eruption usually appears before the eighth week in children profoundly syphilitic, but is not infrequently seen in those whose nutrition is fair. The later it appears, the more likely are the pustules to be small, few, and superficial. It may invade the entire body, but is usually more abundant on the thighs, buttocks, and face, while elsewhere the pustules are thinly scattered and irregular.

The pustules vary from a third of a line to a line in diameter at their bases, and from a third to half of a line in elevation. The deep red color of their thickened bases ends abruptly at their margins. They may remain intact for many days, and, after rupture, the ulcerated surface may or may not become incrustated. Especially about the mouth, there is a tendency to grouping and the formation of quite extensive patches, or the whole head and face may be thus involved. The crusts are generally darker than those of eczema and contagious impetigo, and the ulceration beneath is deeper. Itching and burning are usually slight, but much uneasiness and even suffering may be caused in certain locations, as when pustules form on the scrotum, the buttocks, or the face. Groups of pustules, attended by much redness and thickening of the surrounding skin, may form on the palms and soles, and the nails may be destroyed by pustules developed around them or beneath their free extremities.

This eruption usually leaves no permanent trace, but in some cases marked loss of tissue and scarring result, which become less noticeable as the child grows older. Sometimes alopecia results from cicatrices on the scalp or the alæ nasi; the free border of the lips, or the angles of the mouth may be partially destroyed.

The pustular eruption may or may not be associated with some other form, the vesicular being seen with it most frequently. When a second pustular eruption is developed within the first three or four years of the disease, it is apt to be much more limited in extent than the first, but, in other respects, is precisely similar.

Furuncular Eruptions.

As early as the sixth month or as late as the third year, crops of furuncles may appear, constituting the sole symptom of hereditary

syphilis or associated with other lesions. If symmetrically arranged, as they usually are, they are quite numerous; if irregularly distributed, they are few. They differ, in some respects, from ordinary furuncles.

Their bases are usually compact, well-defined, and of a dull coppery-red color. Their formation is slow and without signs of active inflammation. They begin as a small nodule in the corium, and gradually increase to the size of half a nutmeg. A superficial ulcer forms at the summit of the nodule, and a mass of slough comes away, leaving a deep cavity, with irregular, unhealthy walls and everted discolored margins, which may remain in a sluggish condition for many weeks or may increase in dimensions. The discharge is scanty and offensive. Their duration is from one to several months, and repair is often followed by permanent cicatrices.

Several older writers have referred to certain ulcers about the heel and ankles as being diagnostic of hereditary syphilis. These ulcers are simply the results of pustules or bullæ, which are often developed in those situations, and are liable to irritation, which renders them very persistent.

The Bullous Syphilide—Pemphigus.

This eruption, sometimes seen at birth, and sometimes a month or six weeks after birth, is always indicative of a severe form of hereditary syphilis, and is frequently a precursor of death. As regards its situation, it resembles the pustular syphilide, but the palms of the hands and the soles of the feet are most frequently involved, the lower extremities being most extensively involved, while upon the trunk the bullæ are sparsely scattered.

Diffuse infiltration, ulceration and the formation of fissures may attend the development of this eruption upon the thighs and buttocks and upon the extremities. It may accompany pustules, and, less frequently, one or more of the other syphilides, is generally copious and is always symmetrical. The bullæ are developed rapidly, and their sero-purulent contents soon become purulent. They are surrounded by a rim of thickened integument of a coppery color, and unlike other forms of pemphigus in children, lack uniformity of shape, some being conical, others rounded, and still others flattened.

Although they are developed rapidly, the subsequent course of bullæ is chronic. After having been ruptured their progress is similar to that of pustules. It differs from every other form of eruption in being limited to a single outburst, rarely or never relapsing.

The Tubercular Syphilide.

This lesion, much rarer in hereditary than in acquired syphilis, may occur as early as the sixth month, or a second attack may be met with several years after birth. The tubercles begin as deeply seated papules, or as small movable nodules, in the latter case greater depth of tissue being involved. The skin soon becomes implicated,

and a sharply defined tumor, from a quarter of an inch to an inch or more in diameter, results, which may disappear leaving no trace, or it may break down into an ulcer, which is very persistent and demands local as well as constitutional treatment.

Regions where the connective tissue is loose and abundant are the favorite seat of tubercles of the largest size. Their surface sometimes becomes scaly and the eruption then resembles psoriasis. Similar eruptions are also seen in scrofulous children, but the greater surrounding hyperæmia, which is of a bluish rather than a coppery color in the scrofulous affection, and the points already given in the description of ulcerations of acquired syphilis, may aid in the diagnosis.

Gummata, and Gummatus Ulcers.

These lesions sometimes appear as early as the third year, but generally later, even as late as the twentieth year. After this period, it is not usual for ulcerations to have the features of hereditary syphilis, typical gummata having been observed by me in only one instance.

The course of these lesions in hereditary syphilis is similar to that in acquired, and therefore needs no additional description.

AFFECTIONS OF THE MUCOUS MEMBRANES.

One of the earliest and most constant symptoms of hereditary syphilis is coryza, which is due to structural changes in the mucous membrane of the nasal passages. A few days before the appearance of general manifestations there may appear a serous discharge from the nostrils, sometimes trifling, sometimes so excessive as to impede respiration, especially during sleep and in the act of nursing. This discharge is accompanied by the characteristic "snuffling."

The nasal secretion soon becomes purulent, bloody and very offensive, and causes swelling and excoriation of the *alæ nasi* and upper lip. Tenacious crusts composed of the dried secretions form on the inflamed surfaces, causing much discomfort. In its mildest and rarest form, this affection is a simple erythema. Generally, ulceration of the mucous membrane ensues, and not infrequently the disease progresses to the bony structures, producing necrosis, with perforation or even entire destruction of the septum, followed by striking deformity.

The intensity and chronicity of specific coryza, the limitation of the disease to the nasal passages, and the coexistence of other syphilitic manifestations are sufficient to establish the differential diagnosis.

Mucous Patches of the Mouth.

In the infant these lesions often lose their characteristic appearance quite early. At first they consist of slightly elevated portions of mucous membrane with whitish surfaces and surrounded by erythematous areolæ. The pearly epithelial covering may be soon cast off, leaving a smooth red surface, slightly depressed, which may ulcerate.