

a drachm to a drachm of the bichloride of mercury. My own preferences are in favor of the gray powder for internal administration.

The advantages of mercurial inunction and the method of employing it are thus set forth by Sir Benjamin Brodie: "The mode in which I have treated these cases for some years past has been this: I have spread mercurial ointment, made in the proportion of a drachm to an ounce, over a flannel roller, and bound it round the child once a day. The child kicks about, and the cuticle being thin, the mercury is absorbed. It does not either gripe or purge, nor does it make the gums sore, but it cures the disease. I have adopted this practice in a great many cases with the most signal success. Very few children recover to whom mercury is given internally, but I have not seen a case where this method has failed."

Treatment should by no means be laid aside as soon as all syphilitic manifestations have disappeared, but should be continued as a prophylactic for several months afterwards.

Indirect treatment by means of remedies administered to the child's nurse is not to be depended upon in a disease which makes such rapid progress, and is so destructive in its tendency as congenital syphilis. MM. Lutz and Personne have carefully analyzed the milk of nurses who were subjected to mercurial treatment, pushed in some instances to salivation, without being able to discover the slightest trace of this mineral. Experiments upon animals, however, have shown that a very minute quantity of mercury may be detected in the milk of a goat that has been salivated by mercurial inunction, and cases have been reported in which infants have been cured of syphilis by being fed upon milk derived from such a source; but this method, for obvious reasons, could not be generally adopted, even if its efficacy were fully established.

In the treatment of osseous lesions, the use of mercury with iodide of potassium is much more efficacious than mercury alone. The combination on which we place most reliance is that of the iodide of potassium with the biniodide of mercury, commonly called the "mixed treatment." To children under six months of age it is well to give three times daily ten drops, well diluted, of the mixture, the formula of which is given on page 835. This may be increased by five drops each week, until a dose of nearly a teaspoonful is reached. Gastric disturbance is seldom caused by prolonged use of this remedy. In some cases, when the mixed treatment seems to have lost its power, I have used, with marked benefit, the iodide of potassium internally in connection with mercurial inunction.

The use of iodide of iron in the treatment of hereditary syphilis was advocated by Monti. I have used the remedy and found it of no value other than as a tonic. To place any dependence on it in severe cases is to waste valuable time and perhaps jeopardize the patient.

The local treatment of syphilitic lesions is the same in the child as in the adult, particular attention being given to cleanliness.

<sup>1</sup> Clinical Lectures on Surgery. Phil. ed., 1846, p. 230.

## CHAPTER XXVII.

## AFFECTIONS OF THE PLACENTA.

OUR knowledge of the effects of syphilis upon the placenta is still incomplete in many particulars. Previous to the publication of Virchow's lectures on tumors, the subject was little understood, and its literature consisted only of a number of papers by various authors, in none of which was there any approach to full and scientific investigation. In 1873, however, Ernst Fränkel<sup>1</sup> published an elaborate article, reviewing the cases which had already appeared, and giving the results of his own careful studies. An abstract of his paper will give a better idea of the subject than it is possible to offer in any other manner.

Fränkel believes that our want of knowledge of placental syphilis has been due in a measure to the attempt to include all cases under a single form, and that the portion of the placenta first affected must vary, according as the father is alone syphilitic, and according as the mother contracted syphilis before conception or shortly after;<sup>2</sup> and finally, that the fetus can be but little, if at all, affected if the mother contracts the disease late in pregnancy.

Virchow admits two forms of placental affection:

Endometritis decidualis.

Endometritis placentaris.

To these Fränkel adds a third:

Disease of the villous portion of the foetal placenta.

Fränkel founds his conclusions on the examination of over one hundred placentæ, including those of still-births, those of abortion, and those of mothers having recent or old syphilis. The histories of the father and mother were obtained whenever possible, and a record of the macroscopic and microscopic appearances was kept. The post-mortem examinations of the fetus were made by Prof. Waldeyer and his assistant.

He groups his cases into the following classes:

A. Disease of the villi of the foetal placenta.

B. Mixed form of placental disease, the disease of the villi encroaching upon the adjacent portions of the placenta materna.

C. Disease of the fetus only, without involvement of the placenta.

D. Primary disease of the placenta materna (endometritis placentaris gummosa).

<sup>1</sup> Ueber Placentar Syphilis; Arch. f. Gynæk., Berl., B. V., ss. 1-54, 1873.

<sup>2</sup> It will be seen that Fränkel believes in the transmission of syphilis from the mother to the fetus through the placental circulation, the possibility of which we have denied. We, however, leave Fränkel's views unchanged.

The characteristic lesions of the placenta are changes in volume, weight and consistency, and, microscopally, the thick, plump form of the foetal villousities, which is due to the filling-up of the villous spaces with an abundant proliferation of moderately sized cells proceeding from the bloodvessels, complicated with a proliferation of the cell-contents of the villi. Obliteration of the bloodvessels, and, finally, complete destruction of the villi ensue. This affection may appropriately be called "Deforming Proliferation of Granulation Cells of the Placental Villi."

The following is a more detailed description of the above changes:

*Macroscopic Appearances.*—Increased size and weight (up to 1000 grammes) of the placenta in strong contrast to the slight development of the foetus.

*Closer and firmer texture of the placental tissue, yet differing from that of old extravasations of blood and fibrinous nodules.* Color pale yellowish-gray, resembling gray nerve matter; this color was uniformly diffused in some cases; in others, it was circumscribed in larger or smaller wedge-shaped processes, extending from the uterine surface towards the foetus. A point of special importance was the constant marked opacity of this abnormally colored portion of the placenta, especially noticeable in the circumscribed form. In this latter case the healthy villous tissue which lay between these portions was markedly hyperæmic and livid in its color near the transitional portion. Old and recent extravasations of blood in all stages, from organized fibrin to cysts of dark grumous blood, were also found.

The *uterine surface of the placenta* had indistinct, faded, patchwork appearances, which were due to opacity and thickening of the decidual covering. The color was often yellowish-gray. Immediately beneath these spots lay the wedge-shaped processes or areas above referred to, and when the latter extended to the foetal surface they also appeared of a yellowish color through the chorial covering.

The *amnion and chorion* were thickened and rendered opaque by deposits of finely granular masses, and they were adherent to each other in spots, which were occasionally the seat of extravasated blood. The umbilical arteries were only once atheromatous to any extent; their intima was colored yellow, fatty, and thickened; this change, however, extended but a short distance from the placenta towards the foetus. On the foetal surface of the placenta, in many cases, were numerous miliary whitish nodules about the size of a hemp-seed, which closely followed the course of the vessels and were simple hyperplasia of the connective tissue of the chorion.

*Microscopic Appearances.*—In preparing specimens for the microscope, it was first noticed that the villi of the changed placenta required much more teasing and pulling apart than usual. They appeared thickened and opaque even to the naked eye, and, under a low power of the microscope, it was evident that they were swollen, plump-looking, irregular in their form and bulbous. Their ends were enlarged into knob-like processes, and the branches were irreg-

ularly formed. Their normal transparency had entirely disappeared. They were filled with round and spindle-shaped, occasionally polygonal, small and moderate sized cells, which were finely granular and contained one or two, and sometimes three nuclei. These cells were especially abundant in the centre of the villous spaces, along the axis where the vessels usually take their course. In the villous trunks and branches the spindle-shaped cells predominated; in the ends of the villi the round cells. Many of these cells were undergoing fatty degeneration, and the villous space was often filled by fatty and molecular detritus. The bloodvessels of the villi were sometimes completely obliterated, often circularly compressed, while again no traces of them could be found.

The epithelium of these villi was often wholly wanting; when present, it was denser than usual, its cells strongly granular and opaque. In one case the change was confined to the epithelium alone, while the villous space was swollen by œdematous transudation from the dilated villous bloodvessels.

When healthy places still existed in these placenta, the normal villi were usually found near the foetal surface; but even these had a stroma rich in cells, which at the same time exhibited numerous connective tissue fibres. Their vessels were dilated, tortuous, very full and ruptured in spots.

The most frequent complication of this change in the villi, was extravasation of blood, which was either superficial or deepseated, and which occurred in streaks along the borders of the vessels or oftener still in the form of sharply-defined, firm nodules which extended to one of the placental surfaces. The exuded blood exhibited the most varied transitional stages; the inclosed villi were atrophied and fatty, and degenerated into fibrous tissue.

In explanation of the origin and course of these changes, Fränkel states: Owing to the irritation caused by syphilis, proliferation, in a greater or less number of villi, begins in the cells, which, in the normal stroma of the villi, are only sparingly found. Their nuclei, and still later the cells themselves, undergo manifold division; and the increase in number of the cells is attended by an increase in their size. This proliferation is chiefly seated about the vessels of the villi, and about the deeper ones of the parenchyma, as well as around the more superficial and also about the fine capillary network lying directly beneath the epithelium.

Homologous products arise in every tissue of the villus in consequence of this hyperplasia,—cell-proliferation of connective tissue in the stroma, epithelial proliferation in the epithelial covering. The cell-proliferation causes compression of the vessels, interferes with the circulation, and, finally, leads to thickening of their walls and obliteration of the vessels themselves. The villi themselves are filled up with cells, become hyperdistended, plump and thickened. The vascular spaces into which they dip, become filled up and narrowed, and in the most advanced stage they entirely disappear. By this

means and by the proliferation and thickening of the epithelial covering, the interchange between the maternal and foetal blood is interfered with, and finally is wholly obstructed. The villi, having lost their function, undergo fatty degeneration. The cells of the stroma and epithelium become filled with fat-globules and finally break down into granular matter.

If the process is diffuse and continuous over the whole placenta, the foetus has in the meantime perished; if limited to circumscribed foci, it may have continued to live. In the latter case, the degeneration frequently appears to have advanced from the uterine toward the foetal surface; the contrary, however, has been noted. The relatively healthy portions of the placenta between the diseased parts are the seat of deep congestion; their bloodvessels are dilated and gorged with blood. Extravasations of blood in all stages of retrograde change occur, and now and then connective tissue formation in the interstitial tissue is superadded. Thickening of the intima of the umbilical vessels has been found but once by Fränkel, who considers it the result of the resistance met with by the circulation in the deformed and compressed villi, and not a truly syphilitic lesion. Although this process might be considered a chronic inflammation, or one due to new formation of granulation tissue, yet, on the whole, it must be conceded that it begins as, and runs the course of, a chronic inflammatory process.

The reasons for calling this lesion syphilitic are:

1. It was found in all of Fränkel's cases in which autopsies showed the existence of syphilitic lesions of the bones in the foetus.
2. The proof of the existence of syphilis in the parents in many cases.
3. That this lesion was not due to the death of the foetus, is shown by its existence in several cases in which the foetus was living.
4. Absence of this lesion in every other case of diseased placenta ever examined by Fränkel.
5. Club-shaped hypertrophy and cell-infiltration is a constant accompaniment of syphilis.

*Predisposing Causes.*—It appears that this condition of the villi is developed, even if the health of the mother is in a fair condition at the time of conception, and that it is certainly due to a direct transfer of the paternal syphilis to the foetus, as shown by the fact that its almost exclusive seat is in the foetal portion of the placenta, the maternal portion not always presenting the characteristic appearances.

It may be objected that the ovum may have been infected through diseased ovaries on the part of the mother without any lesion of the remainder of the genital tract. To this it is to be said:

1. Syphilitic disease of the ovaries rarely occurs.
2. In Fränkel's case V., the disease existed in the foetal placenta, yet post-mortem examination of the mother failed to reveal any ovarian disease.
3. In case XVI., that of a markedly syphilitic child, villous de-

generation was present, together with gummous degeneration of the adjoining maternal tissues, and yet the decidual covering of the convex surface of the placenta was not involved, a portion which by Winkler is considered "the great highway" from the mother to the foetus through the placenta.

Fränkel next inquires whether the origin, progress, and course of the disease can be inferred by reasoning from the exclusive seat of the syphilitic affection in the foetus and foetal portion of the placenta, taken in connection with the history of the case. Of 17 mothers, 14 were free from disease at and before their confinement; 1 died, the autopsy revealing no syphilitic lesion; 2 mothers became diseased, one on the fifth day, the other during the fourth week after confinement. The lesions in the mothers before confinement were: in 1, condylomata lata; in 1, psoriasis at time of confinement, the chancre having been acquired in the second month of pregnancy; in 1, syphilis denied, but glandular lesions afforded strong suspicion.

Fränkel relates one case in which the maternal portion of the placenta was primarily affected. This he calls "primary disease of the placenta materna" (Endometritis placentaris gummosa). The case reads as follows:

Bertha B. has suffered since youth with eruptions and suppurating glandular enlargements. Has marked leucorrhœa; was never under syphilitic treatment. Husband not syphilitic. Now has swollen post-cervical glands and pigment spots on forehead. Has had five children in five years; one macerated foetus at eight months; one born living which died at the age of five weeks with ulcers, etc.; third and fourth, abortions in early months; fifth, child born at eight months, breathed feebly and died in half an hour. Autopsy of fifth child showed infant atrophic, general induration, especially of lungs, liver, and spleen. Spleen very large. Osteochondritis syphilitica present. Placenta weighed 480 grammes, of a brownish-red color; its diameter 16 and 15 cms.; thickness 1.3 cm.; cord normal. Convex surface of placenta covered by coagula; markings of lobuli obliterated through thickening of placenta materna. Vertical section showed yellowish-gray spots or nodules of the placenta materna, which seemed continuous and inseparable from the foetal placenta.

Under the microscope, decidua showed slight and localized fatty degeneration, while the thickened portions were the seat of cell-proliferation. The nodules were composed of connective tissue, studded with granulation cells, and their interior contained finely granular detritus, but no normal villi. The villi are found between them and compressed by them; they are atrophied, devoid of bloodvessels, very fatty, and calcified. The foetus had visceral and bone syphilis, and the mother suffered with syphilis before conception; the direct influence of the disease in the mother upon the placenta is apparent. In the previous cases referred to the villi were the seat of the disease, while here it was the maternal placenta.

In all the seven cases reported up to the present time of endometri-

tis placentaris gummosa, the mothers presented well-marked symptoms of syphilis, but Fränkel states that he has met with cases in which the syphilitic mother had a healthy placenta. He thinks that in these latter cases the disease circulates through the blood without leaving any trace of it at any point, while in other instances it is localized in the endometrium and is then transmitted to the foetus.

That syphilitic endometritis occurs is beyond question; it only remains to prove that this endometritis decidua or placenta gummosa recurs every time that an abortion takes place in the same woman. In this case the fact of local transmission would be established, and local treatment of the uterine cavity would be demanded as well as general constitutional treatment.

The influence upon the foetus of placental disease is of course prejudicial. In all seven cases the infants were premature; six were already macerated, and one, though born alive, was so atrophic that it died soon after birth.

## CHAPTER XXVIII.

## TREATMENT OF SYPHILIS.

THE expectant treatment of syphilis has been thoroughly tried by Diday, Zeissl, and others, as it was extremely desirable it should be, in order to ascertain what the natural course of the disease would be uninfluenced by medication. Patients with the early manifestations of secondary symptoms have been placed under the best hygienic conditions and rules of diet, and have received only a placebo internally or some bland inunction, as of cod-liver oil, externally, to lead them to suppose that active treatment was employed, while, in fact, only the natural course of their symptoms was watched. In some of these cases, especially those in which the symptoms were very persistent, the iodide of potassium was administered, but all forms of mercury were carefully excluded. The result of these trials has been, as already stated, that in very many cases the disease tends to a spontaneous cure. The syphilitic eruption and other symptoms disappear after a while, to return again very likely, but this is no more than we see after decided medication continued only for a short period. Still, under this purely expectant treatment the result *may be* most satisfactory, and the patient be left without permanent injury to the health or impairment of any organ. It is only in a few instances at this early stage that the administration of iodide of potassium has appeared to contribute to this favorable result. But while the above was true of many cases, others were met with in which both patient and surgeon were forced to renounce mere expectancy, and were only too glad to have recourse to their only sheet-anchor, *mercury*.

The expectant treatment of syphilis will commend itself chiefly to those who are imbued with the vulgar and unfounded prejudice against mercury, even when most judiciously administered. Under the expectant treatment, the existing symptoms persist for a much longer time than when mercury is used, and the patient continues to be a focus of contagion to the members of his family and his intimate associates. If thus treated unwillingly, he is, moreover, rendered impatient and despondent as he sees some comrade rapidly improving under mercurials, and is very likely to abandon his surgeon. Still further, he is exposed to the outbreak of serious manifestations of the disease, which may leave indelible marks upon him; and we question whether his chances of immunity in future years from tertiary lesions are not greatly lessened.<sup>1</sup>

<sup>1</sup> It may here be remarked that Zeissl, within the last few years, has given in his adhesion to the expectant treatment, while Fournier (Leçons sur la syphilis, Paris, 1873) most ably and eloquently advocates the use of mercury, prolonged for several years. (See chapter on the Prognosis of Syphilis.)