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PREGNANCY AND TUBERCULOSIS*

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PART I—THE EFFECTS OF PREGNANCY ON TUBERCULOSIS

THERE is plenty of scope for discussion, and room for difference of opinion, when a tuberculous woman is found to have become impregnated, as to what can be done and what should be done about it; but there is no difference of opinion as to this, that in most cases, and in the long run, the child-bearing cycle will have a very unfavourable effect on the woman who has pulmonary tuberculosis.

Among the practitioners of an earlier day, chiefly men interested in obstetrics, who perhaps did not follow their patients much beyond the time of delivery, there was an idea that a certain proportion of tuberculous women were actually helped by pregnancy. Perhaps some anæmic or bronchitic, nervous or under-par women, wrongly classed as consumptive, may have been improved, even permanently.

Even tuberculous women may frequently show improvement, usually temporary, during some part of the term of pregnancy. In a recent paper which paints this silver lining a little broader, perhaps, than usual, Dr. J. H. Elliott points out that the pregnant woman, if she eats, digests and assimilates well, has the advantage of utilizing food elements better than her usual, and "A form of hypernutrition, the products of which are intended for the fœtus, can be very useful to the mother who thus derives a certain profit from her greater histogenetic activity." However, in the later months of pregnancy, "A demand for decalcifiation of her own osseous system, the resources of which have already, perhaps, been depleted on account of her tuberculosis . . . . leads to a condition of demineralization unless digestion and assimilation are active."

Elliott's conclusion is not so very different from the dictum of Bacon that *many* tuberculous women do well in the first three months of pregnancy, *fewer* in the second three months, and *very few* in the last three months.

And the termination of pregnancy is by no means the end of danger. The most fateful part of the child-bearing cycle for the tuberculous woman begins with parturition does not end there. Bacon states that one-third of child-bearing women who are actively tuberculous die within a year following labour. Of two hundred child-bearing women treated in the Manitoba Sanatorium, reported upon in 1917, the break-down to tuberculous disease appeared to have occurred during the nine months of pregnancy in twenty-five per cent., or at the rate of nearly three per cent. per month; in the one month following labour, in twenty-four per cent., or at the rate of twenty-four per cent. per month; during the next twelve months, the period of lactation, in thirty-six per cent., or three per cent. per month; and in the interval between child-birth cycles, in fifteen

*(Part 2, dealing with "The Treatment of Tuberculosis Complicated by Pregnancy," will be published in a later issue.)

per cent., about one per cent. per month. The damage in these cases became apparent in the one month following parturition as often as during the whole nine months of pregnancy, or eight times as often as in any other one month in the cycle; and of break-downs during the cycle, only one-fourth occurred before, and three-fourths after the child had been born.

Pregnancy, then, is a complication, and maternity often a disastrous complication of pulmonary tuberculosis. Funk reports that thirty per cent. of married women, patients in the Phipps Institute at Philadelphia, dated the onset of acute symptoms of tuberculosis to pregnancy or parturition. Davis of Milwaukee quotes Trembly of Saranac as stating that among 250 tuberculous mothers, active disease in 63 per cent. was first discovered after the birth of a child. In 29 per cent. of the tuberculous women observed by Schauta the disease originated or became recognizable during pregnancy or the puerperium. Thirty-seven per cent. in Fishberg's series considered that they had no symptoms of tuberculosis until after one or more childbirths. Jacob and Pannwitz, to quote still farther from data collected by Norris and Landis and also by Davis, found that 25 per cent. of 337 tuberculous women attributed the origin or aggravation of their tuberculosis to pregnancy. Maragliano reported 59 per cent. According to Scarborough 47 per cent. of 200 tuberculous married women in the Iowa State Sanatorium considered that active symptoms first appeared after childbirth. In the Ohio State Sanatorium, Douglas and Harris found among mothers 37 per cent. in whom pregnancy appeared to be the cause of tuberculosis activity. Pregnancy was found according to Norris and Landis to have had a bad influence upon the course of pulmonary tuberculosis, in 75 per cent. of the cases of Lebert, 64 per cent. of those of Deibel, 70 per cent. of Rosthorn's, 73 per cent. of Herman's, 94 per cent. of the patients of Pankow and Kepperle, 77 per cent. of Reiche's and 38 pre cent. of Freud's. Von Bardeleben considered that pregnancy gave an unfavourable turn to tuberculosis in 71 per cent. of his cases and was fatal in 47 per cent. McSweeney and Wang conclude that in some women "pregnancy and labour whip a slightly active tuberculosis into a rapidly advancing and quickly fatal disease."

The saying has been attributed to Dubois and also to Louis that a tuberculous woman may bear the first childbirth well, the second with difficulty, the third not at all. Of the women in the Manitoba Sanatorium series already referred to, the first childbirth seemed to have been the cause of one-fourth of the break-downs, the second of one-fourth, the third of one-fourth and childbirths beyond the third; of the remaining fourth. A miscarriage seemed to have been more damaging than a childbirth. The whole series of tuberculous mothers showed on an average an advance in the progress of their disease about 20 per cent. greater than 1900 other Sanatorium patients.

After all allowances have been made, the conclusion cannot be avoided that child-bearing has a definite place in favoring the progress of tuberculous disease. It can break down resistance, light up anew old pre-maternal lesions and bring about the first sign of breakdown in one who has never before shown evidence of the disease.

This is not strange, but only what might be expected, when the events of the child-bearing cycle are considered in relation to the tuberculous woman. Pregnancy puts an added strain upon the whole nervous organization and on the organs of assimilation and elimination. Nature's arrangement for better assimilation during this period is very often counterbalanced by impaired appetite, nausea and vomiting, though it is said that tuberculous women get off easier than others. Even if metabolism should be bettered the demand is also increased. What vital reserve a tuberculous woman may have, which should be consecrated to the arrest and cure of her disease, is robbed from her by pregnancy. The actual physical burden of a gravid uterus is considerable. The lungs, with other viscera, are pressed upon, perhaps with some benefit to pulmonary disease, but if so, with corresponding harm when the pressure is suddenly removed at parturition. Van Voornveld believes that the sudden re-expansion of a compressed lung after childbirth is the greatest single menace to tuberculosis in the whole cycle, and recommends artificial pneumothorax as almost specific treatment in case of pregnancy in a tuberculous woman.

Parturition with laceration, loss of blood, anæsthesia and changes in pressure involves an amount of shock comparable to that of a laparatomy. Over-strain and violent respiratory efforts are not only most exhausting to an already enfeebled woman but tend also to force infective material from old foci into new lung areas. In autopsies upon women who died of tuberculosis after labour, Hanan found such new areas of infiltration. Van Voornveld considers that a miliary type of tuberculosis may thus be set up which

may simulate and be confused with puerperal sepsis.

Lactation can be avoided, and needless to say, should be; indeed must be; but child care is even more burdensome on that account. The birth of a child into a home doubles work for the mother who is nurse and housekeeper as well, and disturbs rest. Few mothers can make pregnancy and child care their one occupation. For most, these are new burdens which must be added to a load already heavy, sometimes heavier than can be borne.

To believe that such a degree of strain and stress, so great a disarrangement of habit, such interruption of rest, may break down a woman with partly patched up tuberculosis, or, added to other burdens, one with latent disease which has not yet shown open symptoms, it is not necessary to believe that childbirth creates any specific predisposition. The *quantity* of the over-strain, apart from the *kind*, explains the breakdown. If the ordinary routine of an ordinary woman under ordinary conditions has resulted in breakdown to tuberculosis, can the same woman, with the same disease still latent, add to her ordinary burdens the extra strain of pregnancy, childbirth and child care and expect to avoid harm? For the woman who carries the mortgage of a previous tuberculosis, child bearing, which will almost certainly mean expenditure of strength away beyond income, is a very risky speculation. If it is ever to be considered, all resources must be investigated and the whole cost counted.

Should a woman known to be, or to have been actively tuberculous, ever risk maternity? Like most large questions this cannot be answered categorically. Even normal maternity is not altogether without danger, but always means sacrifice, and many women who have been tuberculous will demand motherhood even if their danger and their sacrifice are to be beyond the usual. Where should the line be drawn?

Pregnancy should not be allowed in a woman who has *ever* reached the anatomical far-advanced stage, or *ever* had far-advanced symptoms. By "far-advanced" I do not mean coarse râles, a hollow cheek, and a cavernous cough, but a stage of the disease consistent with very fair appearance, popularly considered as "early" and unfortunately usually described also by many physicians as "early" or "incipient."

Pregnancy should never be allowed in the presence of active symptoms, however slight, or connected with however slight a lesion, and not for years after such a lesion and such symptoms have cleared up.

It should not be allowed until the disease, which has not at any time been severe, has been apparently arrested for at least three years, or still longer if bacilli have ever been found in the sputum.

When may pregnancy in a tuberculous woman, or rather in one with a tuberculous history, be considered?

If, when the disease was active, the lesion was small or moderate in extent; if the course was in every respect favorable, the arrest definite; if there has been freedom from symptoms for from three to five years; if, during that interval, strength and resistance have been well tried out at ordinary work with no evidence of weakening or break-down; if at the same time living conditions are good; if it is possible during practically the whole period of pregnancy and child-care to have, if necessity should arise, release from other burdens, and if there can be experienced, cautious supervision of the mother during the whole period by one who knows the ways of tuberculosis, pregnancy can be allowed in a tuberculous woman with some confidence that it will not lead to a breakdown. But strait is this gate, and narrow this way, and few there be of the women who have ever been tuberculous who can go in thereat.

Women who are or have been tuberculous should be plainly and frankly told of the danger of pregnancy. I have made it a rule to let no woman of child-bearing age, who was definitely tuberculous, whether married or unmarried, go from under my care without such a statement, and have discussed the same matter with the mothers of younger girls. While some with a history of tuberculosis may risk maternity, these are the carefully chosen few, and for the many the old rule holds that the tuberculous woman should not marry, or if married should not become a mother. The dangerous association of maternity and tuberculosis should be more widely known. Indeed, there would be no harm in having people in general realize that while motherhood in a normal woman is a normal function, in a woman weak or ill it is pathological.