ACUTE ENDO-CARDITIS IN PREGNANCY

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THE somewhat unusual course of illness and death of a pregnant woman under my care a short time ago prompted me to submit to you a history of the case, together with such literature bearing upon it as I have been able to secure.

Past History. Mrs. A. B., primipara, age thirty-one, farmer's wife, married one year, past history is negative. From a careful questioning of the patient and her friends, I have not been able to find any history of rheumatism, typhoid fever, or any septic trouble which might be accompanied with an involvement of the endo-cardium. As the patient expressed it herself, "she was never ill a day in her life."

Family History. The family history is also negative.

Present Condition. On February 2nd, the patient was taken ill with rather indefinite pains in her back and limbs, together with some slight chills, but as the whole countryside was epidemic with the usual winter influenza, little attention was paid to the condition. About one o'clock on the morning of February 3rd, the patient had a very pronounced chill, and when I saw her a couple of hours later, her temperature was 103° and pulse 120. I saw her the next forenoon when her temperature was down to 100°, and she appeared somewhat recovered from her experience of the night before. We brought her into hospital that afternoon, when a careful physical examination was made, and the following noted:

The patient looked pale and tired. She was moderately well nourished. A marked pyorrhea existed, involving all her teeth. Tonsils appeared normal. Examination of the heart and lungs revealed nothing abnormal. The patient was sixteen weeks pregnant. The urine was normal in quantity and on chemical examination. The bowels had been persistently constipated. The patient's temperature at this time was 98° and pulse 90. If it had not been for the peculiarly anxious mental condition of the patient, we would have been strongly of the opinion that her acute condition had subsided.

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The following forenoon the patient had a most violent chill, followed by a rise of temperature to 103 2-5 and pulse 130, lasting nearly one hour, together with very marked prostration and breathlessness. The pulse and temperature gradually subsided, and in eight hours reached 98° and pulse 90. During these attacks the patient became delirious, and frequent involuntary passage of both urine and fæces occurred. Examination of the blood at this time showed red cells 3,500,000 and white cells 18,500. Examination of catheterized specimen showed the urine again negative, both chemically and microscopically; examination of the vaginal secretion showed absence of any specific organism. The chills were repeated about every twenty-four to thirty hours, while the temperature and pulse in the interval varied from 96° to 100. Repeated white blood counts varied from 18,500 to 21,000, and repeated urinary examinations showed an absence of pus, albumen, or casts. A blood culture was made, but we do not care to refer to the report as contamination was subsequently advised.

On the fourth day after entering the hospital, a soft blowing murmur developed at the cardiac apex, and by the fifth day the murmurs were heard at the pulmonary and aortic orifices. The blood pressure taken at this time showed a systolic of 120 mm., and diastolic of 90 mm. On the fourth day 50 c.c. of polyvalent serum was given and repeated on the fifth day. Outside of the fact that the white blood count dropped to 9,500, no improvement was noted in the case. The serum was repeated on the eighth and ninth day, but the patient steadily grew worse. No further serum was used. The patient took nourishment pretty freely, but notwithstanding, emaciation was rapid and constant, and the delirium gradually increased. These symptoms continued until February 18th, when the patient suddenly aborted. The act was accompanied with little perceptible disturbance to the patient. Shortly after this she lapsed into unconsciousness, gradually grew weaker, and died three days later, having been ill in all nineteen days.

From the clinical evidence in this case, we made a diagnosis of acute primary endo-carditis, or the so-called malignant endocarditis. While the disease is somewhat unusual in pregnancy, there was another feature which appeared to us as equally unusual, and that was the possible mode of infection. We think there are three possible sources.

First: As a result of influenza.

Second: From the intestinal tract.

Third: From the pyorrhea.

The patient was undoubtedly exposed to influenza, but as she presented no symptoms prior to the onset of her fatal illness, we think we can reasonably exclude this disease.

Infection through the intestinal tract we know to be a common source, and we think can reasonably be considered here, as the patient gives a history of marked and persistent constipation previous to the onset of this attack.

Outside the specific intestinal infections, such as typhoid, the commonest infection of the alimentary canal is the colon bacillus, but so far as we know it shows an affinity for the genito-urinary rather than the cardio-vascular system, so I think, we can, clinically at least, exclude the intestines as a probable avenue through which infection entered.

To my mind the mouth offers a very apparent and probable portal of entrance for the infecting organism. This being the case, our attention is directed to the association of oral infections with pregnancy. I use the word association advisedly, because it may subsequently be shown that these septic areas are only a coincident of pregnancy, and in no way directly connected with it, but it seems to me that, in the light of our present knowledge, there is sufficient evidence to direct our attention to the mouth of a pregnant woman as a reasonable source of trouble.

It is a well-known fact that caries of the teeth and inflammatory conditions of the gums and mouth are frequent causes of discomfort and even illnesses in the pregnant state. This being the case, it would appear that there might be a greater possibility of infection through the mouth of the pregnant than the non-pregnant.

When we turn to consult the literature bearing on cardiac infection we find that it is extremely limited. So far as the ordinary text-books are concerned, very little attention is given to the subject, and this indicates that the disease is very rare or else it is not considered as a separate pathological condition.

Almost all the articles to which we have had access speak of the lesion as having existed previous to pregnancy, the result of some well marked infection, which became manifest during gestation or the puerperium. It is possible in the case cited we may have had some latent valvular infection which became active in pregnancy, but in the absence of any previous illnesses or symptoms pointing to the endocardium, we think that there is reasonable evidence to believe this infection originated during gestation.

Tuszki[1] speaks of diseases of the heart arising during pregnancy from influenza, typhoid, gonorrhœa, etc., the cardiac lesion in

this case being a direct infection from these specific organisms, and might be from an acute attack occurring either in pregnancy or previously. If it were a previous attack, pregnancy would appear to cause a lighting up of the old lesion.

Durr[2] of the Berlin Charité Hospital is quoted as saying that in 40 per cent. of the cases of endo-carditis seen in pregnancy, no bacteria can be found in the blood and that these are probably gonorrhœal or rheumatic in origin. He also makes the statement that previously healthy women may develop endo-carditis during gestation.

Barclay and Bonney[3] say that the acute form is very rare, but mention it under two separate types, typhoid and septic. The septic type being that usually seen in pregnancy.

In 1909 Ryder[4] gave an analysis of nine thousand confinements at the Sloane Maternity Hospital, in which only ninety-two cardiac cases are recorded. Ninety-one of these showed various forms of endo-cardial and myocardial disease, but there was only one case of acute endo-carditis and this proved fatal.

In 1908 Dr. J. C. Cameron[5] presented a series of cases of endo-carditis occurring in the Montreal Maternity Hospital, but all were chronic in character. He, however, makes the statement that a cardiac lesion may begin in pregnancy as a result of infectious diseases, toxæmias or sepsis.

In a paper on endo-carditis in pregnancy by Vinay[6], he says that acute endo-carditis is very rare during gestation, but is reasonably common in the puerparium in septic cases. He quotes Jaccoud as reporting a case under the name of gestational infectious endo-carditis, but, as this patient was a syphilitic, the cardiac lesions were probably secondary.

Crooms[7] reports a case of malignant endo-carditis during pregnancy, together with autopsy. The clinical history of the case would indicate that there was a pre-existing cardiac trouble, with a secondary infection by staphylococci, which were found in sections of the heart valves. This author gives a history of four reported cases, two of which had history of rheumatism, one with a mitral murmur and the fourth was free from any previous history of heart trouble. Two of these cases died from cerebral embolism within a week of onset of acute trouble. At autopsy one case showed a recent valvular infection while the second had recent vegetations implanted upon an old lesion.

Gerhardi[8] says that endo-carditis occurs with special frequency during pregnancy, and the puerparium, but is inclined to look upon

it as a recurrent lesion frequently manifesting itself during pregnancy and the puerparium, frequently with fatal results.

To sum up our observations, we are led to believe that primary endo-carditis in pregnancy is an extremely rare condition. That in cardiac lesions arising in gestation there is almost always a history of some antecedent infection with cardiac involvement which may become active or reinfected during gestation. That many of these cases are rapidly fatal.

References:

1. Tuszki.—*American Journ. Obs.*, lxvi, 1913, 737.
2. Durr.—*Ibid.*
3. Barclay and Bonney.—"Obs. Emergencies."
4. Ryder.—*Am. Jl. Obs.*, 1909, lix, 17.
5. J. C. Cameron.—*Am. Jl. Obs.*, 1908, lviii, 422.
6. Vinay.—
7. Croom.—*Jl. of Obs. and Gynæcology*, 1908, x, 22.
8. Gerhardi.—"Chap. Puerp. Endocard.", 1914.

The possibility of aerial hospitals for the cure of tuberculosis and other diseases is being discussed by British journals. Advantage is claimed from the facts that the air at high altitudes is absolutely free from germs; and that the atmospheric pressure becomes progressively less as one ascends. The germ-free environment is what the surgeon is constantly seeking at the cost of infinite labour, expense and care, and to the physician it is equally valuable because it withdraws the danger of reinfection from fresh sources. The diminishing pressure of the atmosphere is claimed to be of further assistance in the treatment of tuberculosis; since at ground level the lungs are never thoroughly emptied of air, and the "dead" air left in their cavities is a factor in causing lung disease. Freedom from germs, lowered atmospheric pressure, and the complete sun-bath obtainable may lead to the creation of aerial hospitals, for specially selected early cases of consumption.