DIABETIC COMA COMPLICATING PREGNANCY*

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WHILE innumerable cases of diabetic coma complicating various other conditions have been reported, a careful search of the literature of the past twenty years has yielded the reports of only five cases dealing with diabetic coma complicating pregnancy. The rarity of this condition, therefore, justifies the report of the following case.

Mrs. J. P., aged thirty-six, Italian, housewife, mother of four children, was first seen by me at 3 P.M., December 15, 1925, complaining of abdominal pain and vomiting for the previous six hours. The examination proved negative except for slight indefinite tenderness over both lower quadrants, and the uterus which was the size of a seven months' pregnancy, with vertex presenting, and fetal heart in the lower left quadrant. She had always enjoyed excellent health, her previous pregnancies were normal, and her present pregnancy up to this time was entirely uneventful.

Twelve hours later the pains had become so severe that the patient was advised to enter the United Israel-Zion Hospital. On admission her temperature was 100°, pulse 126, respirations shallow and somewhat labored. In spite of the severe abdominal pains, however, there was no rigidity and but very little tenderness in

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both lower quadrants. Urine examination showed a few white blood cells, moderate number of granular and hyaline casts, heavy trace of albumen, 1.1 per cent sugar, and heavy acetone reaction. Blood examination showed erythrocytes 4,200,000, hemoglobin 82 per cent, 26,400 leucocytes, with 82 per cent polynuclears. The blood pressure was 145 systolic and 85 diastolic.

Within a few hours the patient's condition became markedly worse, and she sank into a deep coma. The respirations were deeper and more labored, of the typical Kussmaul type, the breath reeked of acetone odor, the pupils were dilated and reacted sluggishly to light, the mucous membrane of the mouth was parched, the teeth were covered with sordes, and the gums were bleeding. The heart sounds were normal except for the rapid rate. The lungs showed good resonance throughout. At this time, a diagnosis of diabetic coma was made, although the urinary findings and blood pressure suggested a possible renal complication.

The patient was given 1200 c.c. of 5 per cent glucose intravenously, and 40 units of insulin. The blood chemistry showed a blood sugar of 330, alveolar carbon dioxide of 8, urea nitrogen 15, and creatinine 2. Three hours later the patient's condition remained unchanged, and she was given 40 units of insulin intramuscularly, and 1500 c.c. of saline by clysis. Again three hours later she was given 1200 c.c. of 5 per cent glucose intravenously and 40 units of insulin. The alveolar carbon dioxide at this time was 12, the blood sugar was 160, the patient began to rouse somewhat and in two hours was fairly well out of her coma. The rapid and labored respirations however continued; although the pulse and general condition were much improved. In all, the patient had received 120 units of insulin, 2400 c.c. of 5 per cent glucose intravenously, and 1500 c.c. of saline by clysis, before coming out of the coma which lasted twelve hours.

Six hours after awakening from the coma, the patient complained of moderate abdominal pains, and definite uterine contractions could be felt. Within an hour, she delivered herself of a stillborn male fetus, weighing 3 pounds 4 ounces. Insulin was continued in doses of 15 units every three hours.

The following day, the alveolar CO_2 was 20, the blood sugar 235, and the clinical picture showed marked improvement, with the respirations less labored, the pulse 90, and of good quality, and the eyes clear.

From this time on, the patient showed continued improvement and as the amount of acetone and sugar decreased, the dosage of insulin was proportionately reduced. Within two weeks after her admission into the hospital the patient was discharged showing no acetone or sugar in the urine, with a blood sugar of 150 and alveolar CO_2 of 45.

For the first year, following her discharge from the hospital, it was found necessary to give her 15 to 30 units of insulin a day. During the past year, however, her condition has been controlled entirely by diet. At no time does the sugar in the urine exceed 2 per cent, and clinically she is in excellent condition.

COMMENT

It is interesting to note that of the five previously reported cases only one, that reported by Reveno,[1] in 1923, recovered. This patient who had been suffering from diabetes for several years, went into coma during the eighth month of her fifth pregnancy. After twelve hours, during which time she was given 52 units of insulin, she recovered from her coma enough to be roused, but the air-hunger, acetone odor, and high blood sugar persisted. Immediately after spontaneous delivery, however, there was a marked improvement in both her clinical and blood pictures. Reveno brings out the point "that in this respect the abrupt change simulated very closely the response of a patient suffering from one of the toxemias of pregnancy due to either therapeutic or spontaneous abortion."

Of the three cases reported by F. Umber,[2] before the use of insulin, two were young women, twenty and twenty-two years of age, both severe diabetics who became worse during their menstrual periods, and who had been advised against both marriage and conception. They went into coma during the fifth and seventh months of their pregnancies, respectively, and in spite of the most rigid dietary treatment, died undelivered. The third, the mother of four children, suffering from an extremely mild diabetes, had a very uneventful pregnancy until her eighth month when she suddenly began to vomit and showed signs of impending coma. A cesarean section was performed, with the delivery of a 4½ pound baby which died of asphyxia twenty-four hours later. Following the section, her condition was the same except for the increasing coma, and she died shortly after.

The fifth case reported by Schottelius,[3] a para iv, twenty-nine years of age, in whom diabetes evidently developed during the latter half of this pregnancy as evidenced by thirst, polyuria, and pruritus only at this time began, with headaches and vomiting in her seventh month of pregnancy. She went into coma during which she was delivered by insertion of a bag and deep cervical incisions, followed by a version and extraction of a macerated fetus. The patient died thirty minutes after delivery.

CONCLUSIONS

1. Only two cases, including the one presently reported, in which insulin was used, recovered.

2. Young women with diabetes, especially when aggravated during their menstrual periods, have the worse prognoses.

3. Even very mild diabetics may suddenly go into coma during pregnancy.

4. The use of insulin results in marked improvement immediately after delivery, similar to that noted in toxemias of pregnancy. However, the death of the fetus before delivery makes the prognosis much more grave because while the fetus is alive the fetal pancreas helps the mother in the carbohydrate metabolism.

5. Operative delivery during diabetic coma would seem to have as serious a prognosis as in eclampsia.

REFERENCES

(1) *Reveno:* J. A. M. A. **81**: 2101, December, 1923. (2) *Umber:* Deutsche Med. Wchnschr. **46**: 761, 1921. (3) *Schottelius:* Zentralbl. f. Gynäk., No. 23, 1912.

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