CLINICAL NOTES

Juvenile Diabetes with Long-standing Remission

A Case Report

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Summary. A case of juvenile diabetes with long-standing remission is reported. During the remission the patient has had three normal pregnancies without exacerbation of the disease.

Diabète juvénile avec rémission de longue durée: A propos d'un cas.

Résumé. Les auteurs rapportent le cas d'un diabète juvénile avec rémission de longue durée. Pendant la rémission la patiente eut trois grossesses normales sans aggravation de sa maladie.

Jugendlicher Diabetes mit langer Remission.

Zusammenfassung. Es wird über eine jugendliche Diabetikerin mit einer sehr langen Remission berichtet. Während der Remission machte die Patientin 3 normale Schwangerschaften ohne Verschlechterung Ihrer Krankheit durch.

Key-words: Juvenile diabetes remission, pregnancy.

Juvenile diabetes with a clinical picture differing from the usual one has evoked considerable interest during recent years. LISTER [10] recently reviewed the clinical spectrum of juvenile diabetes and described a case of juvenile diabetes with long-standing remission of the disease. Spontaneous remissions of juvenile diabetes are rare. Only a few cases are reported [1–6, 8–10, 12–13, 15–17], and most of these showed only short periods of remission or had been followed for only a short time when published. Thus it may be justified to report a case of juvenile diabetes with a remission that has now lasted for more than 10 years. During this remission the patient has borne three healthy children.

Case report

Woman born 1935. Her father and one sister are diabetics. Completely healthy until 1952 when she, at the age of seventeen, was admitted to hospital because of headache and fatigue. Examination showed glucosuria but no ketonuria. Daily urine volume was between 900–2000 ml and the daily sugar excretion 7–15 g. Blood-sugar fasting values were 160–200 mg%, and afternoon values 180–270 mg%. The patient was prescribed a carbohydrate-restricted diet. She was followed as an out-patient during the following one and a half years. She felt well and her blood sugar varied between 140–180 mg%. At a control in December 1953 the blood sugar had risen to 340 mg%, and she was again admitted to hospital in January 1954. This time she had ketonuria and 6–16 g sugar in the urine daily. Blood-sugar fasting values were 220–280 mg%, and afternoon values 320–400 mg%. She had a normal temperature and a normal sedimentation rate. The patient did not show any signs of infection before or during the stay in hospital. A 24 hour blood sugar curve showed a highly pathological pattern (Fig. 1). 20 I.U. of protamine-zinc insulin was prescribed. This dose was progressively lowered during the following year as her diabetes gradually improved, and the insulin therapy was discontinued in March 1955. Since then she has only been

treated with a carbohydrate-restricted diet. The patient became pregnant in November 1955, and there were no complications during the pregnancy or at the delivery. Blood sugar values were 120–180 mg%, with no glucosuria or ketonuria. The delivery was induced two weeks before the expected date. The child weighed 4310 g.

Fig. 1. 24 hour blood sugar curves, performed in 1954 in the non-pregnant state (open circles) and in 1966 in the third trimester of pregnancy (filled circles)

Out-patient controls 1956–59 showed normal blood sugar values and no glucosuria. Her second pregnancy started in June 1959 and proceeded normally. The blood sugar values were normal, with no glucosuria. Normal delivery took place one week after the expected date, and the baby weighed 4190 g.

She became pregnant again in July 1965. She also had at this time normal blood sugar values, with no glu-

cosuria or ketonuria. An oral glucose tolerance test was performed in the second trimester of the last pregnancy and the curve is shown in Fig. 2. This curve must be judged as normal when taking into consideration the usually impaired glucose tolerance during late pregnancy [19]. It has been suggested that unless the upper limit of the tolerance curve is elevated by 30 mg% or more, the diagnosis of diabetes cannot be established in the second and third trimesters of pregnancy [18]. A new oral glucose tolerance test was performed in the third trimester, and the curve (Fig. 2) showed a slightly diabetic pattern according to the above mentioned criteria. An intravenous glucose tolerance test performed in the third trimester also gave a slightly diabetic curve ($K = 0.80$). A 24 hour blood sugar curve in the third trimester was completely normal (Fig. 1). Normal spontaneous delivery took place two weeks before the expected date, and the baby weighed 4500 g.

The blood glucose determinations 1952–1964 were made according to the CRECELIUS-SEIFERT method [3] and since 1965 with the glucose-oxidase method of MARKS [11].

Fig. 2. Oral glucose tolerance tests, performed with 30 gram glucose per square metre body surface area, in the second (open circles) and in the third (filled circles) trimester of the last pregnancy

Discussion

The patient from a family with a diabetic history developed mild diabetes at the age of seventeen. The onset of diabetes at this age is common. Little is known about the hormonal details, but it is generally accepted that this is due to endocrine changes occurring during adolescence. In most cases, onset of the disease is dramatic and the patient at once becomes insulin-dependent. In this case the diabetes was well controlled by diet alone for one year. After this year her diabetes was clearly worsened, for she had rising values of blood glucose and also ketonuria. No infections, hormonal disorders or other factors known to exacerbate diabetes were diagnosed. Insulin therapy was now necessary, and her disease fitted the usual picture of diabetes of the juvenile "brittle" type. During the following year, however, a gradual improvement of her disease was noted. Her insulin dose could be reduced and finally withdrawn.

During the remission, which has now lasted for eleven years, she has had three normal pregnancies and deliveries. In most cases pregnancy exacerbates diabetes but this did not occur. Her diabetes was all the time well regulated by diet alone. All her children weighed more than the average newborn child but none exceeded 4500 g.

An oral glucose tolerance test in the second trimester of the last pregnancy was normal, and another oral glucose tolerance test in the third trimester showed only borderline diabetes when the physiological impairment of carbohydrate tolerance during late pregnancy was taken into consideration.

A 24 hour blood glucose curve carried out during the third trimester of the last pregnancy was normal. This is in contrast to the highly pathological 24 hour blood glucose curve registered about eleven years earlier in the non-pregnant state.

Apparently, this patient is a case of juvenile diabetes with an almost complete spontaneous remission of the disease, which has resisted the stress of three pregnancies.

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