

Asymptomatic Euglycemic Diabetic Ketoacidosis in a patient with Gestational Diabetes Mellitus



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Background:

Diabetic ketoacidosis (DKA) is a medical emergency characterized by hyperglycemia, ketonemia and metabolic high anion-gap acidosis,¹ affecting 3% of pregnant women with diabetes mellitus (DM).² DKA in pregnancy which occurs mostly in patients with type 1 DM and infrequently with type 2 and gestational diabetes mellitus (GDM), carries a perinatal mortality of 35% with previously reported maternal mortality of 15%.^{3,4} We describe an unusual case of asymptomatic euglycemic DKA in a patient with diet-controlled GDM.

Case History:

A 32-year-old primigravida with 30-weeks gestation, diagnosed with GDM a week ago with oral glucose tolerance test results of 5.5 and 9.3 fasting and 2-hour respectively, presented to clinic. Her physical examination was unremarkable with capillary blood glucose (CBG) of 7.3 but she had 2+ ketones on urine dip which prompted a blood ketone (BK) check which was 0.6. Although asymptomatic, she was asked to eat and drink but her BK remained 0.6 after 2 hours with CBG of 6.5.

Results & Treatment:

Her arterial blood gas showed pH 7.277, lactate 0.4, bicarbonate 18.6 with her blood ketones 1.9 and capillary blood glucose of 7.8 with lactate of 1.1. All other blood tests including full blood count, renal and liver functions were unremarkable. Her HbA_{1C} was 5.6% and no precipitating factor for DKA identified. She was successfully treated with intravenous fluids and insulin variable rate infusion. She responded very well (see table 1) and once out of DKA did not require any further insulin as an inpatient. She was discharged home and had minimal insulin requirements (up to 12 units Novorapid / day) prior to delivery. Post delivery she did not require any oral hypoglycemic agents or insulin.

Her 6-week post delivery bloods showed fasting blood glucose of 5.7 and her HbA_{1C} done 3 months later revealed value of 5.5% which proves that she had likely gestational diabetes only.

Labs @ Time	1908	2030	2245	0030
pH	7.277	7.221	7.301	7.362
HCO₃	14.6	15.1	18.6	22.5
Glucose	7.8	7.4	5.8	5.6
Blood ketones	1.9	2.1	0.9	0.9

Table 1: Laboratory data of the patient showing sequential venous blood gases

Conclusions:

DKA may develop quite rapidly in state of pregnancy, even with near normal blood glucose levels, and requires early identification and prompt treatment.

References:

1. Kitabchi AE, Wall BM. Diabetic ketoacidosis. Med Clin North Am 1995; 79: 9–37.
2. Cullen MT, Reece EA, Homko CJ, Civan E. The changing presentations of diabetic ketoacidosis during pregnancy. Am J Perinatol 1996; 13: 449–451.
3. Kamalakannan D, Baskar V, Barton DM, Abdu TAM. Diabetic ketoacidosis in pregnancy. Postgrad Med J 2003; 79: 454–457.