CASE REPORT

Diabetic Ketoacidosis Masquerading as Rupture Uterus

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Abstract

Aim: To report a case of a pregnant patient with unconsciousness who was presented with features of obstetric hemorrhage but was diagnosed with diabetes ketoacidosis.

Background: Gestational diabetes mellitus can cause many complications. Of these, diabetic ketoacidosis (DKA) is one. The clinical features of DKA include nausea, vomiting, mild abdominal discomfort, tachycardia, elevated random blood sugars, despite a normal or near normal HbA_1c, and presence of urinary ketones.

Case description: G2P1L1 with 28 weeks period of gestation who presented clinically similar to abruptio placenta, underwent cesarean section, but had coexisting DKA.

Conclusion: When a patient presents with unconsciousness, the tendency of an obstetrician is to consider an obstetric diagnosis, whereas a coexisting metabolic condition which should not be neglected.

Keywords: Abruptio placenta, Acute care obstetrics, Diabetic ketoacidosis, Gestational diabetes, Unconsciousness in pregnancy.

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Background

There are many conditions in obstetrics where the patient presents in an acute critical state. These include abruptio placentae, rupture uterus, septic shock, ruptured ectopic pregnancy, etc.

Most of these are associated with antepartum hemorrhage. However, when a pregnant woman presents with unconsciousness, there is usually very little time to diagnose and manage. In this context, we present a case, which was presented with unconsciousness and was managed successfully.

Case Description

A 32-year-old G2P1L1 with 28 weeks and 2 days period of gestation presented to the hospital in an unconscious state. She was not responding to commands, hence history was elicited from husband. History of generalized weakness since 1 day, progressive continuous pain abdomen, decreased perception of fetal movements since 12 hours, minimal bleeding per vaginum since 4 hours, and drowsiness since 1 hour elicited. During the second trimester antenatal check-up, she was diagnosed with elevated sugars (no details available) but did not follow up due to the then ongoing pandemic (COVID).

In her prior pregnancy, she had received insulin for GDM from 7th month and underwent cesarean section for nonprogress of labor at term, and had delivered a female baby of 3.5 kg, which needed NICU stay for 4 days. Postdelivery, she defaulted on monitoring of sugar.

Antenatal care in this pregnancy was not regular. At admission, patient was unresponsive to commands. Pulse rate was 140 beats per minute, blood pressure was 80/60 mm Hg, respiratory rate was 50 cycles per minute, and oxygen saturation was 96% at room air. Abdominal examination showed fetus in longitudinal lie, there were no fetal movements appreciable, and fetal heart sounds could not be identified on hand-held Doppler. Vaginal examination showed high up cervix with no presenting part and blood was present.

The dramatic acute critical clinical presentation with bleeding per vaginum, hypotension, tachycardia, and absent fetal hearts in a setting of previous LSCS appeared to be suggestive of uterine rupture. The possibility of abruptio placenta could not be excluded. Ultrasonography confirmed intrauterine fetal demise but could not rule out dehiscence or rupture. Patient was immediately taken up for exploratory laparotomy for suspected rupture uterus under general anesthesia after taking informed written consent from the husband.

Vertical midline incision was taken. Upon opening peritoneal cavity, surprisingly (and to our relief), there was no free fluid or hemoperitoneum. Uterus was found to be intact, uterovesical fold of peritoneum was opened, and lower uterine segment was reached. Transverse uterine incision was taken and extracted a pale dead female fetus of 1.4 kg. Fundal abruptio placenta with a minimal retroplacental bleed of 50 mL and a focal couvelaire uterus was noted. The size of the abruptio was not massive and did not appear to convincingly explain the occurrence of the stillbirth. During intraoperative period, investigations were obtained and it was noted that hemoglobin value was normal (Hb 12 mg%), which also suggested that the abruption was not massive enough to cause the stillbirth. This led us to review the other investigations, and surprisingly, the RBS was 656 mg%. Immediately urine ketone bodies were done and found to be 3+. Potassium was 7.17 mEq/L, creatinine was 1.75, and pH was 6.9.

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Intraoperatively, anesthesiologists came to a diagnosis of diabetic ketoacidosis with acute kidney injury. Insulin-bicarbonate correction was initiated immediately. Uterus was closed and there were no surgical intraoperative problems. Gradually, all vital parameters were improved, and extubation was possible immediately postprocedure. After an ICU observation for 48 hours, insulin drip was converted to intermittent subcutaneous route and the requirement stabilized at insulin 18-0-12 IU s/c with tablet metformin 500 mg once a day. Later, HbA1c was found to be 12.1 mg%. Creatinine also improved and there was no residual kidney injury. She was discharged on day 6 with advice to follow up with physician/endocrinologist for blood sugar management.

Discussion

Diabetic ketoacidosis in pregnancy is seldom encountered. When it does, it is known to have deleterious impact on the maternal and fetal health. Fetal mortality and maternal mortality have both been documented in DKA. Although advances in antenatal care have improved the screening for diabetes, a significant level of poor outcomes and unpredictability remains.[1] Hence, it demands a prompt response from the treating medical professionals to reduce the complications associated with it.

In the case described here, we report DKA mimicking abruptio placentae. Ng et al. have published an article titled "Resolution of severe fetal distress following treatment of maternal diabetic ketoacidosis."[2] In this, they describe a patient whose fetal monitoring showing significantly pathological tracing, which nearly necessitated delivery. However, further investigation actually showed the presence of diabetic ketoacidosis. Following treatment and resolution of the same, there was improvement in the fetal heart rate pattern and pregnancy continuation was possible. However, in our case, the patient reported many hours after onset of symptom, in an unconscious state. Had she presented a little earlier, fetal survival may have been possible, just like that described by Ng et al.

Usually, the presence of diabetes mellitus is a common predisposing factor to DKA. Considering that this case happened in the peak of COVID pandemic, the possibility of COVID-related DKA could have been considered. However, her COVID RTPCR was negative. Moreover, her HbA1c turned out to be 12 mg%, which suggests poor control rather than an infective cause.

While COVID being the immediate precipitating factor for DKA in nonpregnant state has been described, not many cases of DKA in pregnancy due to COVID appear to have been reported.[3]

A notable fact in the case was the severe presentation of the patient. In standard accepted obstetric teaching, an unconscious hypotensive patient with previous LSCS and absent fetal hearts is consistent with a uterine rupture. However, simultaneous abruption and diabetic ketoacidosis leading to unconsciousness and hypotension and intrauterine fetal demise is a rare finding and is the highlight of the case.

Intraoperatively, once the diagnosis of uterine rupture was ruled out and the diagnosis of DKA was obtained, correction with appropriate fluids was instituted promptly. The recovery of the patient in the postoperative period was rapid, wherein it was possible to extubate immediately. She became conscious and well oriented within few hours of surgery completion.

Recently, Sharma et al. have described a case of diabetic ketoacidosis with IUFD, which is quite similar to our case.[4] In the initial presentation, there was altered sensorium, breathlessness, and tachycardia. She went into spontaneous labor and allowed to delivery vaginally. However, this was followed by obstetric hysterectomy, a catastrophic poor maternal outcome.

However, in a sharp contrast to such poor outcome described by Sharma et al., and as a significant improvement, in our patient, performance of a prompt LSCS (though the initial indication was one of suspected uterine rupture) probably led to a better maternal outcome.

As in most medical college institutions like the one from where this case was presented, one particular unit managed this case. When this case was discussed with other senior faculty, albeit after the completion of the procedure, the decision of a prompt LSCS was looked upon as a probably jeopardous decision.

However, the excellent recovery of the patient described above and the poor obstetric outcome described by Sharma et al. (need for obstetric hysterectomy) support the institution of a prompt operative management.

Through this case report, we would like to highlight the coexistence of obstetric condition like abruptio in DKA. We have also highlighted the difficulties in decision-making and possible differences in interindividual management in the situation of an unconscious patient with IUFD.

Sharma et al. have already provided an excellent review of the literature concerning DKA in pregnancy. Further improvement is needed in our understanding of this potentially fatal condition, DKA, with the hope of improving the maternal and fetal outcomes among diabetic pregnant women.

Conclusion

Diabetes ketoacidosis is a rarity when associated with pregnancy. Its association with abruptio placenta is even more rare, as described here. When a patient presents with hemodynamic instability, the onus lies on the obstetrician to act promptly to stabilize the patient. In case of dilemma, it might be imperative to perform a cesarean section and also treat the associated conditions like abruption as in our case. However, there may be coexisting metabolic condition which should not be neglected.

Clinical Significance

It is important for an obstetrician to navigate beyond the obstetric conditions in cases of emergency, wherein a medical/metabolic cause like diabetic ketoacidosis may be an accompaniment.

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