Beckwith-Wiedemann syndrome and pregnancy - a case report

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ABSTRACT

Background: Pregnant mothers with babies diagnosed to have Beckwith-Wiedemann syndromes (BWSs) have been reported in very few case reports in the literature.

Case Presentation: This case report describes the course of two pregnancies in a woman with BWS. The main metabolic issues encountered were recurrent episodes of hypoglycemia and suspected diabetes insipidus in pregnancy. Labor and delivery were uneventful, but she had significant secondary postpartum hemorrhage on both occasions.

Conclusion: This syndrome has not been studied in the antenatal period and its course in pregnancy is not well known. We discuss possible complications that women with this syndrome could present with, the need for blood glucose and urine monitoring, a multidisciplinary approach, and close liaison with medical colleagues to identify and treat metabolic complications early.

Keywords: Beckwith-Wiedemann, pregnancy, complications, case report

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Background

There have been a few cases (mainly case reports) of mothers who were pregnant with babies who were then diagnosed to have Beckwith-Wiedemann syndrome (BWS) after delivery. However, there have been no published reports on maternal BWS and its implications in pregnancy and delivery at the time of writing this case report. The first pregnancy in the same patient was presented as an abstract at the Royal College of Obstetricians and Gynaecologists (RCOG) International Congress. It recommended preempting, identifying, and managing complications early and pointed out that potential serious issues may coexist or complicate antenatal/intrapartum care in women with BWS.

Case Presentation

A 32-year-old, para 1, was booked under consultant care with a Body Mass Index (BMI) of 24. She was diagnosed with BWS shortly after her birth as part of the investigative work-up for a large congenital omphalocele that required surgical repair. She was otherwise low risk with no other preexisting medical conditions. She had no previous medical, family, or psychosocial history of note. There were no challenges to diagnostic testing, like access to testing or financial [as free healthcare provided by the National Health Service (NHS)] and no cultural challenges that were noted.

In her first pregnancy, 3 years previously, she had a vaginal delivery of a baby with birthweight of 3,345 g at 40 weeks and 3 days, which plotted on centile 39 of her customized growth chart. The first pregnancy had been complicated by renal tract calculi, hydronephrosis, and hematuria, requiring inpatient conservative management under the urology team. She had also suffered from recurrent low blood sugars, polyuria, and thirst, which were managed conservatively with a diagnosis of diabetes insipidus by the endocrine team. She suffered with early onset pelvic girdle pain and a referral was made to physiotherapy. She had preexistent hemihypertrophy of the spine and macroglossia, which were associated with a previous difficult intubation and so was referred to the anesthetic team. The labor and delivery were uneventful; however, 16 days after delivery of her first baby, she suffered a secondary postpartum hemorrhage (PPH). This was thought to be due to endometritis and responded to antibiotics.

At the time of booking in the second pregnancy, she had been symptomatic again with recurrent renal stones and urinary tract infections and was being monitored as an outpatient by the urology team. She had a normal ultrasound Kidneys, Ureters and Bladder (KUB) prior to pregnancy and an ultrasound scan of the renal tract was normal. She was reviewed by the urology team at 20 weeks' gestation and a plan was made to review her post-pregnancy, provided she did not develop pain or hematuria. As she suffered from recurrent episodes of hypoglycemia in her previous pregnancy, she was referred earlier to the endocrine team in this pregnancy. In view of her underlying medical condition, a plan was made for fetal growth surveillance and scans were arranged at 28, 32, and 36 weeks of pregnancy. The estimated fetal weight was plotted between the 50th

and 90th centile throughout pregnancy. At 32 weeks, she was reviewed by the endocrine team for recurrent episodes of hypoglycemia. She was treated as suspected diabetes insipidus and was commenced on Desmopressin 50 mg twice a day. At 34 weeks, she was reviewed again and there was no difference seen in her symptoms and she was still suffering from polyuria, thirst, and feeling faint. At 36 weeks, a decision was made to stop Desmopressin, as it was making no difference to her osmotic symptoms. By 36 weeks, her symptoms had improved slightly but in view of it being an ongoing problem, a decision was made to induce labor at 38 weeks of gestation.

She had a normal vaginal delivery of a live female, birthweight 3,485 g, which was plotted on centile 83 on her customized growth chart. She sustained a small second-degree tear which was sutured and the estimated blood loss was 450 ml. Following delivery, the lochia was normal and she was discharged 12 hours later. Seventeen days following delivery, she was readmitted with a secondary PPH of 500 ml. An ultrasound scan of the pelvis revealed significant retained products of conception measuring 61 × 36 × 21 mm, which was treated with Misoprostol (Prostaglandin E1). Hemoglobin at this time was reported as 126 g/l. Unfortunately, she continued to bleed despite this and subsequently underwent surgical evacuation of the uterus under general anesthesia (spinal avoided due to anatomical issues secondary to BWS). Estimated blood loss at the time of the procedure was 400 ml and the uterine contents were sent for histopathology. Hemoglobin level following surgical evacuation was 87 g/l. Histopathology examination of the uterine contents confirmed placental tissue. Low-grade bleeding persisted despite surgical intervention and she was readmitted 5 days later with bleeding and pain. She was treated with Misoprostol and Tranexamic acid. An ultrasound at this time showed a distended endometrial cavity with heterogeneous clot-type material, measuring 10.6 × 7.3 × 8.3 cm. As the bleeding settled, she was managed conservatively with antibiotics. Hemoglobin at this time had dropped to 75 g/l and she was feeling dizzy and unwell. One unit of blood was transfused, and she was discharged after 3 days of observation.

A hysteroscopy was carried out 2 weeks later where some retained placental tissue was discovered and removed. Histology confirmed occasional fragments of infarcted decidua, in keeping with the clinical impression of retained products of conception. No other information regarding the placenta was obtained. A follow-up hysteroscopy a month later was normal and a Mirena coil was inserted in an attempt to manage the ongoing irregular bleeding. Both babies were well after delivery and until follow-up. When the woman was contacted 1 year after delivery for the writing up of this report, she was satisfied with the care provided to her during pregnancy.

The patient had been referred to genetic services in her previous pregnancy. At that time, she was informed that her BWS was due to uniparental disomy, which is a random event and the risk of offspring being affected is very low which is why prenatal diagnostics was not advised.

Discussion

BWS was initially described in the 1960s by Hans-Rudolf Wiedemann and J. Bruce Beckwith by the presence of macrosomia, macroglossia, and an abdominal wall defect [1,2]. A relatively high rate of congenital heart defects (excluding cardiomegaly/cardiomyopathy) of 22.6% was demonstrated in a large population-based study on BWS in Europe. This study also showed ventricular septal defects (26.8%), atrial septal defects (26.8%), and pulmonary valve stenosis (18.9%) [3] (Table 1). Nowadays, it is well accepted that the clinical features are more variable and that the three cardinal symptoms are not mandatory for the diagnosis of BWS.

Recently, the international BWS consensus group introduced the concept of the Beckwith-Wiedemann spectrum (BWSp), which includes patients with clinical diagnosis of BWS with or without an (epi)genetic change at 11p15, patients with atypical BWS that do not have enough cardinal or suggestive features to make a clinical diagnosis but have 11p15 (epi)genetic defect, and patients with isolated overgrowth and (epi)genetic defect at the BWS locus [4].

A case series of 12 mothers who carried babies with BWS showed that six (50%) pregnancies ended in severe preeclampsia - of which two were terminated due to gestation of onset of preeclampsia and seven (70%) of the 10 live-born fetuses were delivered preterm before 37 weeks' gestation [5]. Another case reported of a case series of three women who developed severe preeclampsia and whose infants demonstrated features of BWS after delivery. One pregnancy was terminated at 22 weeks, one baby was delivered by caesarean section at 27 weeks, and one lady had a stillbirth at 31 weeks. Placentomegaly was identified on ultrasound in all three cases and was mainly attributable to stromal expansion of the villous tree. Cysts resulting from hydrops in stem villi were identified in one placenta and a discrete complete hydatidiform mole was identified in another. They concluded that a diagnosis of BWS should be considered in women with severe preeclampsia with ultrasound findings of placentomegaly with or without associated cystic changes in the placenta [6].

There have been no published reports on maternal BWS and its implications at the time of writing this case report. An abstract of a poster that was published in the British Journal of Obstetrics and Gynecology reported the first pregnancy of this lady. It is difficult to draw significant conclusions regarding perinatal issues of pregnancy with BWS, given our observations are from two pregnancies from the same patient. However, it is important to be aware of complications that may occur in women who are known to have BWS. With the lack of epidemiological data about pregnancies in these women, case reports such

as this and entry into patient registries are necessary to raise awareness about BWS, so as to provide better care to these women and their babies during pregnancy and after.

Conclusion

BWS has not been studied in the antenatal period and its course in pregnancy is not well known. A multidisciplinary approach is necessary and close liaison with medical colleagues to identify and treat metabolic complications early is required. In managing patients with BWS, consider early blood glucose and urine monitoring to promptly identify emerging complications. This patient suffered from secondary PPH in both her pregnancies, presenting just over 2 weeks after delivery each time. This may well have been unrelated to BWS but given the lack of population data, consider counseling patients this could be associated with BWS.

What is new?

There have been a few cases (mainly case reports) of mothers who were pregnant with babies who were then diagnosed to have BWS after delivery. However, there have been no published reports on maternal BWS and its implications in pregnancy and delivery at the time of writing this case report.

List of Abbreviations

BMI	Body Mass Index
BWS	Beckwith-Wiedemann syndrome
KUB	Kidneys, Ureters and Bladder
NHS	National Health Service
RCOG	Royal College of Obstetricians and Gynaecologists

Consent for publication

Written consent was obtained from the patient.

Ethical approval

Ethical approval is not required at our institution to publish an anonymous case report.

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Summary of the case

1	**Patient (gender, age)**	32 year old female
2	**Final diagnosis**	Beckwith-Wiedemann syndrome
3	**Symptoms**	pregnancy, recurrent renal stones, urinary tract infections, recurrent episodes of hypoglycemia, suspected diabetes insipidus and secondary postpartum hemorrhage
4	**Medications**	Desmopressin 50 mg twice a day
5	**Clinical procedure**	surgical evacuation of the uterus under general anaesthesia, hysteroscopy and removal of retained placental tissue
6	**Specialty**	Obstetrics