CASE REPORT

Morbid Obesity In Pregnancy

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ABSTRACT: Obesity is defined as a body mass index of 30 or above. The prevalence of obesity in pregnancy is currently rising, making pre-gravid overweight one of the commonest high risk obstetrics situations. It is associated with an increase in both maternal and perinatal morbidity and mortality. Pre-conceptional counselling, careful prenatal management, monitoring of weight gain, long term follow up could minimize the adverse consequences in overweight women. Here we present a case of 27 year female G3P1A1LO with morbid obesity who had been managed in antenatal, intrapartum & post partum period in our unit.

INTRODUCTION

In pregnancy, a body mass index (BMI) of 25 or more at the first antenatal consultation is considered to be overweight and a BMI of 30 or above is considered to be obese. BMI is an index of weight-for-height and is calculated using the formula weight (in kg) divided by the square of the height in metres (kg/m2). Obesity has a dramatic impact on pregnancy outcome. Apart from an associated increased prevalence of diabetes and hypertension, obesity has been associated with poor maternal and neonatal outcomes. A recent UK-wide Royal College of Obstetricians and Gynaecologists (RCOG)/ Centre for Maternal and Child Enquiries (CMACE) project found a prevalence of women with a known BMI 35 of 4.99%. There is a linear relationship between maternal obesity and the increased risk of the pregnancy complications such as anaemia, hypertension, pre-eclampsia, gestational hypertension, preterm delivery, shoulder dystocia, emergency caesarean section, venous thromboembolism among the pregnant women. Here we report a case of 27 year old morbid obese pregnant women who was managed in the antenatal, intrapartum & postnatal period in our unit.

CASE REPORT

A 27 year old G3P1A1LO woman residing in urban centre, had made a booking visit in Civil Hospital Ahmedabad, with h/o 4 month amenorrhea. Her BMI was 43.9kg/m2 (height 170cm, weight 126kg). Her obstetrics history revealed that patient had previous caesarean section for large size baby (4.5kg at the time of birth) 4 years back. Unfortunately, perinatal mortality occurred 4 days after birth, reason not known to the patient. Subsequently, she had one spontaneous abortion 2 years back which was not followed by any medical & surgical intervention. There were no h/o any medical termination or contraceptive use. There were no family history of diabetes and obesity. On her booking visit screening test was done to rule out gestational diabetes, Glucose challenge test was done (142mg/dl). Subsequently Glucose tolerance test was done (FBS 118 mg/dl, after 1 hr -199mg/dl, 2 hrs-160mg/dl, 3 hrs-114 mg/dl). As per carpenter and coustan criteria she was diagnosed as a case of gestational diabetes. Her Hb1AC was 7.2. Higher dose of folic acid supplementation 4 mg/day was started and 10 microgram vitamin D supplementation & other routine hematinics were given. Advice by dietician was provided keeping in mind patient’s obesity and diabetic status.

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Medical reference was done for gestational diabetes, on the basis of which she was started injection insulin mixtard (before breakfast 4 units sc and before dinner 2 units sc). She was also screened for hypothyroidism, which was normal (S.TSH 1.96mIU/L). Lipid profile was within normal limit. Her other routine antenatal investigations were normal. As per NICE guidelines, she was recognized as moderate risk for preeclampsia for which low dose aspirin(75mg pc) was started from her first antenatal visit. She was screened as high risk obstetrics patient, so she underwent more rigorous antepartum surveillance with increased frequency of antenatal visits—a record of weight gain, blood pressure, urine sugar & albumin made at each visit. She was advised regular monitoring of blood sugar levels by glucometer (FBS & PPBS measurements). It was difficult to locate fetal heart sound by stethoscope due to obesity, so it was monitoring by cardiotocogram machine. A regular NST done from 30 week onward, which was reactive every time. Due to obesity it was difficult to appreciate fetal growth, it was manage by Serial ultrasound assessment of fetal growth twice a month for accurate growth assessment & also to rule out congenital anomalies. She being a patient of gestational diabetes, a Doppler assessment of fetal blood flow at 28 week & thereafter serially at monthly interval was done. Fetal blood flow was normal on Doppler surveillance. A discussion regarding mode of delivery to the patient at 38 week of gestation, obesity is a risk factor for unsuccessful VBAC & it carries greater risk for uterine rupture during trial of labour we advised & counselled to the patient and relatives for ELLSCS. As the patient was unwilling for VBAC consent, a decision for ELLSCS made out. Patient was admitted at 38 weeks of gestation, at the time of admission her BMI was 59.1kg/m2. As her BMI> 40 had a highest risk of anaesthetic complications, so preanaesthetic consultation was done to identify potential difficulties with regional and/or general anaesthesia, then after local anaesthetic resources were chosen. As per anaesthetist’s advice 2-D echo was done which came out to be normal. A full term elective LSCS was done under spinal anaesthesia at 38 week of gestation. There was difficulty to gain access to peritoneal cavity because of thick subcutaneous fatty layer. It was difficult to extract fetus head out of uterine cavity by manual manipulation. So head was delivered by single forceps blade as vectis. MCH full term, with normal APGAR score 3.6kg was delivered, baby kept in NICU for 24 hours for blood sugar monitoring. Abdomen was closed in layer. Negative suction drain was kept in subcutaneous tissue. In the postpartum period low molecular weight heparin was given to the patient for 10 days to prevent venous thromboembolism. Patient was encouraged for early ambulation, elastic compression stocking were also advised. Drain was removed on 4th post operative day. The post operative period was uneventful. Sutures were removed on 10th post operative day, stich line was healthy. Oral contraceptive pills is contraindicated in obesity, she was counselled about advantages of IUCD.

**DISCUSSION**

Obesity is associated with increase in maternal and perinatal morbidity and mortality. Preconception assessment and counselling are strongly encouraged for obese women and should include the provision of specific information concerning the maternal and foetal risks of obesity in pregnancy, as well as encouragement to undertake a weight-reduction program. These women should be screened for hypertension and carbohydrate intolerance. At the initial antenatal visit, height and weight should be recorded for all women to allow calculation of body mass index and recommendation for appropriate weight gain should be reviewed at the initial visit and periodically throughout pregnancy. The recommendations for weight gain in pregnancy have been based on the Institute of Medicine (IOM) guidelines that were published in 1990. The suggested weight gains are a weight gain of 11.2–15(25-31b)kg for women with a normal BMI,
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6.8–11.2 kg (15–25 lb) for overweight women, and more than 6.8kg(15lb) for obese women. Pre-conception advice and care is the ideal scenario for women with obesity, those women presenting for the first time during pregnancy should be given an early opportunity to discuss potential risks and management options with a healthcare professional. The aim is to provide appropriate information sensitively, which empowers the woman to actively engage with health professionals and the services available to her. Pre-conceptional, the bariatric surgery like laparoscopic adjustable silicone gastric banding(LASGB) & Roux-en-Y gastric bypass also advise, and it should be evaluated for nutritional deficiencies and the need for vitamin supplementation when indicated. However, the overall rate of maternal & fetal rate complication in pregnancy seems to be lower in women who undergone bariatric surgery. The PRECOG Guideline states that: Women with a booking BMI ≥35 with no additional risk factor can have community monitoring for pre-eclampsia at a minimum of 3 weekly intervals between 24 and 32 weeks gestation, and 2 weekly intervals from 32 weeks to delivery. It is essential that all blood measurement, appropriate size of arm cuff and cuff size should be readily available in hospital. Nutrition consultation should be offered to all overweight or obese women, higher dose of folic acid supplementation (4mg/day) reduces the risk of a subsequent NTD-affected pregnancy and also recommended oral intake of 10micrograms Vitamin D daily should be provided early in the pregnancy. Women should be made aware of the importance of healthy eating and appropriate exercise during pregnancy in order to prevent excessive weight gain and gestational diabetes. Dietetic advice by an appropriately trained professional should be provided early in the pregnancy. Maternal obesity is known to be an important risk factor for GDM with a number of large cohort studies reporting a three-fold increased risk compared to women with a healthy weight. A randomised controlled trial of 1000 women with GDM found that treatment, comprising dietary advice, blood glucose monitoring and insulin therapy as needed, significantly reduced the risk of a composite measure of serious adverse perinatal outcome (death, shoulder dystocia, bone fracture, and/or nerve palsy) compared to routine care. The NICE Clinical Guideline on Hypertensive disorders during pregnancy (in draft, due to be published April 2010) states that although moderate risk factors for pre-eclampsia may benefit from taking 75mg aspirin daily from 12 weeks’ gestation until birth of the baby. Relevant information will include the increased risk of pre-eclampsia, gestational diabetes and fetal macrosomia requiring an increased level of maternal and fetal monitoring; the potential for poor ultrasound visualisation of the baby and consequent difficulties in fetal surveillance and screening for anomalies; the potential for difficulty with intrapartum fetal monitoring, anaesthesia and caesarean section which would require senior obstetric and anaesthetic involvement and an antenatal anaesthetic assessment; and the need to prioritise the safety of the mother at all times. Deciding the planned mode of delivery following previous caesarean section requires consideration of the circumstances surrounding the previous caesarean and the current clinical situation. For all those obese patients, anaesthesiology consultation early in labour should be considered. Obesity is a risk factor for unsuccessful VBAC, and morbid obesity carries a greater risk for uterine rupture during trial of labour and neonatal injury. Emergency caesarean section in women with obesity is associated with an increased risk of serious maternal morbidity because anaesthetic and operative difficulties are more prevalent in these women compared to women with a healthy BMI, and this should also be taken into account when discussing the risks and benefits of VBAC. Active management of the third stage of labour reduces the risk of postpartum haemorrhage, post partum anaemia and the need for blood transfusion. Women with obesity are at
significantly higher risk of shoulder dystocia and postpartum haemorrhage and immediate obstetric intervention is vital in these situations. In addition, babies born to mothers with obesity are up to 1.5 times more likely to be admitted to a neonatal intensive care unit than babies born to mothers with a healthy weight. A woman with a BMI ≥30 who also has two or more additional risk factors for thromboembolism should be considered for prophylactic low molecular weight heparin (LMWH) antenatally. This should begin as early in pregnancy. All women receiving LMWH antenatally should usually continue prophylactic doses of LMWH until six weeks postpartum, but a postnatal risk assessment should be made. Obese women who have one or more additional persisting risk factors for thromboembolism should also be considered for LMWH for seven days after delivery. Women with a BMI ≥30 who have two or more additional persisting risk factors should be given graduated compression stockings in addition to LMWH. There is a little evidence in literature about weather elective caesarean section or normal vaginal birth is the optimal mode of delivery in morbid obese women. The rate of caesarean section in morbidly obese patient is reported to vary from 42 to 50% compare to around 9% in the normal women. Patient with BMI>40kg/m2 have an increase in total operative time, and time from incision to delivery. So it is better to perform scheduled elective caesarean section with proper pre-anaesthetic evaluation. Women with obesity should have an opportunity during the antenatal period to discuss the benefits of breastfeeding and the support that will be available to them, so that they can make an informed decision regarding feeding choices. Dedicated breastfeeding support during the postnatal period is also needed to overcome any potential difficulties with feeding. Low APGAR score, macrosomia, neural tube defects are more common in infants of obese mother than in infants of normal weight mother.

**CONCLUSION**

Compared with normal weight, abnormal overweight has higher risk of caesarean deliveries, and higher incidence of anaesthetic & operative complications. A composite morbidity outcome was developed including at least one of Caesarean section, gestational hypertension, length of hospital stay, maternal ICU admission, postpartum hemorrhage, venous thromboembolism. Perinatal outcomes included birth weight≥4000 g, birth weight < 2500 g, preterm birth, low Apgar score, NICU admission, stillbirth, and neonatal death. Women with extreme obesity have increased risks of a variety of adverse maternal and perinatal outcomes. As approximately 6 per 1000 women giving birth in our population have extreme obesity, it is important to address these risks pre-conceptually and encourage a healthier BMI before pregnancy.

**REFERENCES**

4. CMACE/RCOG joint guideline, management of women with obesity in pregnancy, March 2010.