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Case Report

Two hearts, one rhythm: monochorionic diamniotic twins

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ABSTRACT

Monochorionic diamniotic (MCDA) twins are a unique type of twin pregnancy because they have separate amniotic sacs but share a single placenta. Typically, this occurs when a single zygote (blastocyst) separates at approximately 4–8 days after development, the result is an MCDA pregnancy. These foetuses have two yolk sacs, two amniotic sacs, and one chorionic sac in common. A trophoblast has already developed at this point, producing a single placenta. The twins are referred to as "identical" by laypeople. In actuality, they share the same gender and are phenotypically similar. It mostly accounts for about 20–30% of twin pregnancies. There are benefits and drawbacks related to MCDA twins.

Keywords: Monochorionic diamniotic twins, Multiple pregnancy, Twin pregnancy

INTRODUCTION

MCDA twins are monozygotic, developed when a single egg is fertilized and divides into two distinct natural clones. Because monozygotic twins are rare in the animal kingdom, the precise reason for embryonic splitting is yet unknown.[1] Monochorionic diamniotic (MCDA) twins usually have successful pregnancies, but the coexistence of intermetal anastomoses (rescue transfusion) and hemodynamic instability in MCDA twins, which results from their unequal placenta sharing, could put the entire pregnancy at risk.[2]

Monochorionic-diamniotic twins (also known as "MoDi") often have two amniotic sacs, although monoamniotic twins (also known as "MoMo") can have one shared amniotic sac. Monoamniotic twins develop when separation occurs after the ninth day succeeding fertilization. With a few rare exceptions where the blastocysts have merged, monochorionic-diamniotic twins are virtually exclusively monozygotic.[3]

The incidence is approximately 1 in 80 in India, with the highest rate in Nigeria (1 in 20) and the lowest rate in countries in the far east (1 in 200). Incidence of monozygotic twins is roughly stable over the world at 1 in 250.Twins occur once every 80 pregnancies, triplets once every 802, quadruplets once every 803, and so on, according to Hellin's (1895) guidelines.[4]

Epidemiology

Despite making up just about 30% of all twin pregnancies, it accounts for the great majority (70–75%) of monozygotic twin pregnancies. 1 in 400 pregnancies are thought to be the incidence.[5]

Diagnosis

The mother with MCDA might have history of previous use of ovulation-inducing medications and multiple pregnancies in the family. An experienced parous mother may notice an unusual rate of abdominal growth and excessive foetal movements. Increased nausea and vomiting in the early months. Cardiorespiratory embarrassment, which is evident in the later months, such as palpitations or shortness of breath. Greater swelling of the legs, varicose veins, and haemorrhoids. On general examination it was found that anaemia is more common than during singleton pregnancy. An essential trait is

unusual weight gain that cannot be attributed to obesity or pre-eclampsia. Pre-eclampsia evidence (25%) is a frequent relationship.[4]

On abdominal examination Inspection reveals that the abdomen is excessively swollen and that the elongated shape of a typical pregnant uterus has been converted to a more "barrel shape." Widespread foetal movement is observed, fresh striae graviderum, polyhydramnios is frequently seen. On palpation the height of the uterus is greater than the amenorrhoeic period. The abdomen's circumference at the umbilicus is wider than the typical range at term (100 cm).

The size of the foetal head appears to be proportionally smaller than the foetal bulk. The excessive palpation of foetal organs. The clinical diagnosis is almost certain when two foetal heads or three foetal poles are discovered. Auscultation of foetal heart sounds (FHS), when detected by two observers at two different locations with a silent space in between, may assist to identify twins if the heart rate difference is at least 10 beats per minute.[4]

CASE REPORT

A 25-year-old mother came to gynae casualty. She was gravida 1, Para 0, Live 0 with 40 weeks of gestation and a monochorionic diamniotic twins. The diagnosis was confirmed by ultrasound which revealed two fetus one in cephalic and other in breech presentation, with placenta of grade III located anteriorly. The placenta accreta was not ruled out as the myometrium layer was very thin.

The mother was informed about the present condition and risk to mother and baby as well and was made agreed for caesarean section. The family member gave the consent for operation. The mother was prepared for the emergency caesarean section and was brought to operation theatre. Small incision was made and 1st baby delivered in breech presentation and 2nd baby was delivered in cephalic.

Cord was clamped and cut. Placenta was expelled out completed with uterus intact. After placenta delivery there was increased profuse bleeding with was non-stoppable. When diagnosed uterus was not contracted; immediately Bakri balloon was inserted and inflated with 330 ml of Normal Saline for 24 hours and roller gauze was used to manage the atonic PPH.

She was kept under close observation in high dependency unit. Her general condition was fair, pulse was 72 /min, blood pressure was 116/80 mmHg, SpO2 was 99%. Mother was kept NPO. On her 2nd post operative day the Bakri Ballon was deflated to 150 ml and bleeding was normal. After assessing the vital status on her 3rd post operative day Bakri Ballon was deflated, and mother was observed and it was found that there was no bleeding per vagina. She was allowed to start oral fluids and mother was encouraged to pass urine and leg movement.

DISCUSSION

Multiple pregnancy comprises of 1-2% of overall pregnancies. Its occurrence has been increased due to increase in maternal age and assisted reproductive technology. It has been compromised of several maternal and fetal complication so it is made sure that while planning for the twin pregnancy risk of PPH should be considered, as it more frequents in multiple pregnancy than in singleton. This may be associated with uterine overdistension, which can impair myometrial contractility during delivery and raise the risk of uterine atony, which in turn is the main factor causing obstetric haemorrhage and accounts for up to 80% of PPH cases. Obesity, white or Hispanic race, polyhydramnios, preeclampsia, anaemia, chorioamnionitis, and multiple pregnancies are risk factors for uterine atony. This can be related to this case as the mother had atonic PPH after the caesarean section.[6]

One in every 400 births results in monochorionic diamniotic (MCDA) twin placentation, which is marked by interfetal transfusion due to placental vascular anastomoses. Compared to dichorionic (DC) twins, MCDA twins have a 3- to 5-fold higher rate of prenatal morbidity and mortality, making them high risk. The primary causes of this include discordant intrauterine growth restriction (IUGR), which complicates an additional 25% of MCDA twin pregnancies, and twin-twin transfusion syndrome (TTTS), which affects 15%–20% of MCDA twin pregnancies. In addition, there is a 40%–50% chance that the co-twin will die or suffer neurological impairment in the event of an intrauterine death (IUD) of one twin. Additionally, a 2- to 4-fold higher risk of structural defects makes a negligible contribution to the likelihood of MCDA twin pregnancies.[7]

Multiple pregnancies are known to result in more maternal complications (abortion, preterm labour, preterm pre-labor membrane rupture, hypertension during pregnancy, anaemia, ante and post-partum haemorrhage, malpresentation, and caesarean section) as well as foetal complications (malformations, intrauterine foetal growth restriction, and prematurity-related complications). This can be contrasted with the study as the mother was not having any sign of complication.[8]

Monozygotic twins arise from the fertilization of a single egg and early cleavage into two parts that develop independently. Depending on how long passed between fertilization and cleavage, monozygotic twins can be conjoined, dichorionic diamniotic, monochorionic diamniotic, or mono-chorionic monoamniotic. Cleavage takes place by the third day of fertilization in 30% of monozygotic twins, resulting in dichorionic diamniotic pregnancy. Mono-chorionic diamniotic twins are the

result of 70% of cleavages that take place between the fourth and eighth day. Rarely, after the ninth day, cleavage occurs, resulting in monochorionic monoamniotic twins. If division occurs even later, after the formation of the embryonic disc, cleavage is insufficient and conjoined twins are produced. Dizygotic twins are produced when two separate eggs are fertilized by two spermatozoa, and they each have their own placenta and amniotic sac (dichorionic diamniotic). A variety of pregnancy problems are more likely to occur in monochorionic twin pregnancies, but they can be reduced by early antepartum identification and therapy.[9]

CONCLUSION

Monochorionic diamniotic twins is the very rare and fatal condition which have several maternal and fetal complication. Early detection can help to manage the complication in early stage and helps to identify the method of termination of pregnancy.

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