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Twin-Twin Transfusion Syndrome; A Case Report Of Quintero Stage V Fetus

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Abstract

The risks of fetal morbidity and mortality are higher in multiple gestations than in single gestations. As the number of fetuses increases, the risks are progressively greater. Twin-Twin Transfusion Syndrome (TTTS) is a complication seen in monochorionic pregnancies due to unbalanced vascular anastomosis in placenta. TTTS results in high perinatal mortality, inspite of its low incidence of 1-3 per 10,000 births. Monochorionic twins have a risk of developing a Twin-to-twin transfusion syndrome (TTTS) between 10 and 15%. The pathogenesis of the twin-to-twin transfusion syndrome is still unknown, and the mortality reaches 80-90% if not treated.

TTTS is characterized by the presence of multiple vascular placental anastomoses. If left untreated, TTTS is associated with very high perinatal mortality and morbidity rates, due to a combination of fetal and obstetric complications. A case of Quintero stage V fetus with TTTS is presented in a 32 years old hypothyroid female in her second pregnancy with gestational age of 28 weeks 3 days of gestation. The case showed presence of monochorionic diamniotic pregnancy with polyhydramnios in the recipient twin and oligohydramnios in the donor twin.

Keywords: Twin twin transfusion syndrome, monochorionic, placenta.

Introduction

Twin-Twin Transfusion Syndrome (TTTS) is a complication seen in monochorionic pregnancies due to unbalanced vascular anastomosis in placenta. It results in high perinatal mortality, thereby, warranting an early diagnosis. It has an incidence of 1-3 per 10,000 births.[1]

Monochorionic twins account for about 10 - 20% of twin pregnancies. A monochorionic pregnancy occurs when a single fertilised ovum splits into identical twins after 3 days of ova fertilisation.[2] This condition has an increased risk of perinatal morbidity and mortality compared to dichorionic twin pregnancies. The abnormality of a single placenta serving two twins can lead to: Twin to Twin Transfusion Syndrome (TTTS), Twin Anemia-Polycythemia Sequence (TAPS), selective intrauterine growth restriction or Twin Reversed Arterial Perfusion sequence (TRAP).[3]

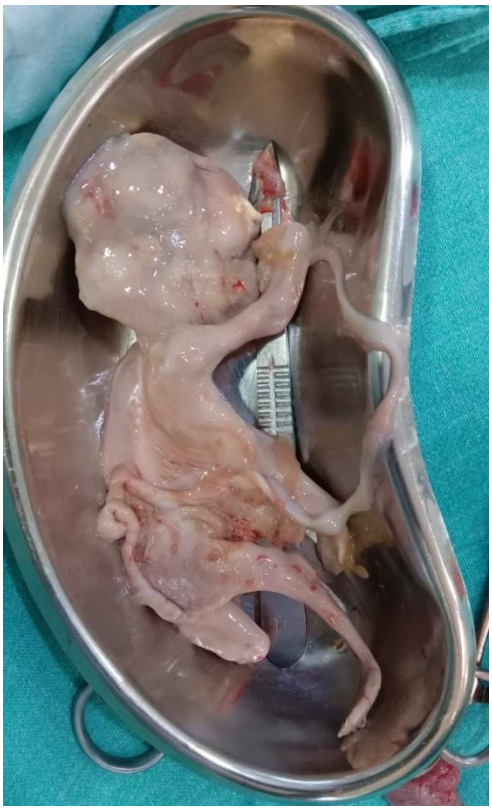
Case Report

A 32 year old hypothyroid obese woman, on her second pregnancy diagnosed with twin to twin transfusion syndrome delivered a male baby. The mother had her first child delivered uneventfully by caesarean section 3 years back. On her second pregnancy, routine antenatal ultrasound revealed monochorionic diamniotic intrauterine live twins.

The donor twin had oligohydramnios and was much smaller than the recipient twin on routine ultrasound examination. The donor twin had absence of cardiac activity at 28 weeks 3 days of gestation whereas the recipient twin had normal cardiac activity. Delivery of the twins was done uneventfully at 38 weeks 4 days of gestation. The donor twin weighed 150gm, it

was found to be anaemic and hypovolemic. The recipient twin weighed 2200gm which accounts to a difference of 2050gm in weight.

Figure 1: Donor twin weighing 150gm



Discussion

Twin-twin transfusion syndrome (TTTS) is diagnosed prenatally by ultrasound. The diagnosis requires 2 criteria: the presence of a monochorionic diamniotic (MCDA) pregnancy; and the presence of oligohydramnios. The most commonly used TTTS staging system was developed by Quintero et al[4] in 1999, and is based on sonographic findings. The TTTS Quintero staging system includes 5 stages, ranging from mild disease with isolated discordant amniotic fluid volume to severe disease with demise of one or both twins .The primary etiologic problem underlying TTTS is thought to lie within the architecture of the placenta, as intertwin vascular connections within the placenta are critical for the development of TTTS. Virtually all MCDA placentas have anastomoses that link the circulations of the twins, yet not all MCDA twins develop TTTS. There are 3 main types of anastomoses in monochorionic placentas: venovenous (VV), arterioarterial (AA), and arteriovenous (AV). AV anastomoses are found in 90-95% of MCDA placentas, AA in 85-90%, and VV in 15- 20%.[5] Mortality is highest in the absence of AA and lowest when these anastomoses are present (42% vs 15%). However, the presence of AA is not completely protective, as about 25-30% of TTTS cases may also have these anastomoses. The imbalance of blood flow through the placental anastomoses leads to volume depletion in the donor twin, with oliguria.[6]

Conclusion

Twin twin transfusion syndrome(TTTS) is a rare but severe condition occuring in monochorionic diamniotic twins. The architectutre of the anastomoses of the placental vessels plays a key role in deciding the fate of the twins. Early detection of TTTS by routine antenatal investigations can prevent further pregnancy complication. Antenatal ultrasonography remains the most preferred investigation to improve the mortality and morbidity outcome associated with TTTS.

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Volume 5, Issue 6; November-December 2022; Page No 183-185

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Volume 5, Issue 6; November-December 2022; Page No 183-185