

A CASE REPORT ON TWIN- TWIN TRANSFUSION SYNDROME

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ABSTRACT

BACKGROUND : The twin to twin transfusion syndrome is a serious complication of monochorionic twins. Where one twin blood transfused into other through arterio-arteriolar of placental vascular anastomosis.

CASE CHARACTERISTICS : A 22 years old lady with 32weeks period of twin gestation and previous history of cesarean section 2 years back was referred from area hospital to Konaseema institute of medical sciences(KIMS) with USG report showing Twin to twin transfusion syndrome(TTTS).

CONCLUSION : We propose that, it should be possible to predict the underlying placental anatomy by frequent detailed ultrasound scanning including full biometry, as soon as monochorionicity is established.

KEYWORDS :**INTRODUCTION :**

The twin to twin transfusion syndrome is a serious complication of monochorionic twins. Where one twin blood transfused into other through one of the kind of placental vascular anastomosis. Blood is transfused from a donor twin to its recipient sibling such that donor may eventually become anemic and its growth may be restricted. In contrast the recipient becomes polycythemic and may develop circulatory overload manifest as hydrops. Similarly one portion of placenta often appears pale compared with the remainder.

CASE REPORT :

A 22 years old lady with 32weeks period of twin gestation and previous history of cesarean section 2 years back was referred from area hospital to Konaseema institute of medical sciences(KIMS) with USG report showing Twin to twin transfusion syndrome(TTTS).

Patient had regular antenatal check ups at local area hospital, Amalapuram. Booked case. No history of pregnancy induced hypertension, anemia, cervical incompetence.

USG report in first trimester showing " A viable intrauterine diamniotic monochorionic twins with gestational age around 11 weeks 5 days".

On examination: Pedal edema present.

PER ABDOMEN EXAMINATION:

uterus corresponds to 36 weeks gestation(over distended) multiple fetal parts present. One fetal heart rate is audible

ON USG :FETUS 1 :**BPD :**

80 mm corresponding to 32weeks 2days

HC : 294mm corresponding to 32 weeks 2 days

AC : 361mm corresponding to 40 weeks 1 days

FL : 65mm corresponding to 33 weeks 4 days

EFW : 3163 gms

Presentation : breech

Cardiac activity absent

AFI : 18 cm

Placenta position: fundal anterior , grade 2 maturity

FETUS 2 :

BPD : 73 mm corresponding to 29 weeks 2 days

HC : 208 mm corresponding to 30 weeks 2days

AC : 208 mm corresponding to 25 weeks 3days

FL : 56 mm corresponding to 29 weeks 6 days

EFW : 1095 gms

Presentation : Cephalic

Cardiac activity : 148 beats /min.

AFI: 6 to 7 cm.

IMPRESSION :

1] intrauterine diamniotic monochorionic twins.

FETUS 1 :

Intrauterine fetal death with calvarial, thoracic and abdominal wall subcutaneous edema with moderate ascites and bilateral moderate pleural effusion s/o hydrops fetalis with gestational age 32 weeks with polyhydramnios.

FETUS 2 :

live fetus with cardiac activity gestational age 28 to 29 weeks with mild IUGR with oligohydramnios and AFI 6 to 7 cm.

2 doses of beta methasone given.

Elective LSCS was done, a dead macerated female baby of around 3 kgs in weight was delivered in breech extraction. Second female twin of weight 1.08 kg was delivered in vertex with APGAR 6/10 after 1 minute and 7/10 after 5 minute. Baby was admitted in NICU with low birth weight. Baby was treated and discharged later. Follow up of baby done for 6 months, has attained milestones according to age.



After delivery of placenta, placenta was examined. 2 amniotic sacs, single placenta, 2 cords was identified. Incidentally one cord was VELAMENTOUS PLACENTA.



DISCUSSION :

Twin to twin transfusion syndrome occurs in multiple gestations and involves the chronic flow of blood from one twin to its co-twin. The syndrome usually occurs in monochorionic twins, who themselves have a very high rate of complications including severely preterm delivery, IUGR, fetal death. Vascular connections in the placenta between both twins are necessary for twin to twin transfusion syndrome to develop. TTTS results from unidirectional flow through arterio venous anastomoses. Deoxygenated blood from a donor placental artery is pumped into a cotyledon shared by the recipient. Clinically important TTTS frequently is chronic and results from significant vascular volume differences between the twins. TTTS typically presents in mid pregnancy when the donor fetus becomes oliguric from decreased renal perfusion. This fetus develops oligo hydramnios, and the recipient fetus develops poly hydramnios, presumably due to increased urine production. Virtual absence of amniotic fluid in the donor sac prevents fetal motion, giving rise to the descriptive term stuck twin or polyhydramnios-oligohydramnios syndrome- 'poly-oli syndrome. " Fetal Brain Damage, Cerebral palsy, microcephaly, porencephaly, and multi cystic encephalomalacia are serious complications associated with placental vascular anastomoses in multi fetal gestation. The exact pathogenesis of neurological damage is likely caused by ischemic necrosis. The donor twin, ischemia results from hypotension, anaemia, or both. In the recipient, ischemia develops from blood pressure instability and episodes of profound hypotension. If one twin of an affected pregnancy dies, cerebral pathology in the survivor probably results from acute hypotension. With the death of one twin, acute twin-twin anastomotic transfusion from the high-pressure vessels of the living twin to the low resistance vessels of the dead twin leads rapidly to hypovolemia and ischemic antenatal brain damage in the survivor. If the death occurred between 28 and 33 weeks' gestation, monochorionic twins had an almost eightfold risk of neurodevelopmental morbidity compared with dichorionic twins of the same gestational age. With fetal death after 34 weeks, the likelihood dramatically decreased-odds ratio 1.48. Even with delivery immediately after a co twin demise is recognized, the hypotension that occurs at the moment of death has likely already caused irreversible brain damage as such, immediate delivery is not considered beneficial in the absence of another indication.

DIAGNOSIS :

The criteria used to diagnose and classify varying severities of TTTS have dramatically changed. Previously, weight discordancy and haemoglobin differences in monochorionic twins were calculated. However, in many cases, these are late findings.

TTTS is diagnosed based on two sonographic criteria. First, a monochorionic diamniotic pregnancy is identified. Second poly hydramnios defined by a largest vertical pocket > 8 cm in one sac and oligo hydramnios defined by a largest vertical pocket < 2 cm in the other twin is found.

QUINTERO STAGING

Stage I-discordant amniotic fluid volume, but urine is still visible sonographically within the bladder of the donor twin.

Stage II-criteria of stage I, but urine is not visible within the donor bladder.

Stage III-criteria of stage II and abnormal Doppler studies of the umbilical artery, ductus venosus, or umbilical vein.

Stage IV-ascites or frank hydrops in either twin

Stage V-demise of either fetus.

OTHER SONOGRAPHIC FINDINGS THAT MAY PROVE TO BE OF PROGNOSTIC SIGNIFICANCE INCLUDE

1. The presence of a hypertrophied, dilated heart with absence or reversal of flow in the ductus venosus during

atrial contraction. In the donor, the heart may be dilated, the bowel may be hyper echogenic, and there is absent end diastolic flow in the umbilical artery.

2. Disparity in the size or number of vessels within the umbilical cord.
3. Umbilical artery systolic/diastolic ratio difference of greater than 0.4.

MANAGEMENT AND PROGNOSIS:

The prognosis for multifetal gestations complicated by TTTS is related to Quintero stage and gestational age at presentation. More than three fourths of stage I cases have been reported to remain stable or regress without intervention. Conversely, outcomes in those identified at stage III or higher are much worse.

SEVERAL THERAPIES ARE AVAILABLE FOR TTTS AND INCLUDE

1. amnioreduction (to control polyhydramnios in the recipient twin).
2. laser ablation of vascular placental anastomoses.
3. selective feticide (the smaller twin has got better outcome).
4. septostomy (making a hole in the dividing amniotic membrane).

CONCLUSION :

We propose that, it should be possible to predict the underlying placental anatomy by frequent detailed ultrasound scanning including full biometry, as soon as monochorionicity is established. Serial USG should be considered for all twins with MCDA placentation, beginning at around 16 weeks and continuing about every 2 weeks until delivery. Screening for congenital heart diseases is warranted in all monochorionic twins, in particular those complicated by TTTS.

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