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UNUSUAL PRESENTATION OF MONOCHORIONIC DIAMNIOTIC TWIN GESTATION WITH TWIN-TO-TWIN TRANSFUSION SYNDROME WITH FETOSCOPIC LASER PHOTOCOAGULATION: A CASE REPORT

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ABSTRACT Monochorionic twin pregnancy results from cleavage of a single fertilised egg, during 4-8 days of fertilisation, incidence being 13-14% among all twin pregnancies and around 2/3rd of all monozygotic pregnancies. Twin-to-twin transfusion syndrome is the most common serious complication of monochorionic twins, with perinatal mortality rates being upto 90% if untreated. Treatment of include fetoscopic laser ablation, cord resection, selective septostomy, serial amnioreduction. Here we are presenting a case of monochorionic diamniotic twin pregnancy with twin-to-twin transfusion syndrome and its successful management with fetoscopic laser ablation.

KEYWORDS : fetoscopic laser photocoagulation, monochorionic diamniotic twins, twin-to-twin transfusion, vascular anastomosis

INTRODUCTION:

Twin-Twin Transfusion Syndrome (TTTS) is a condition that can affect twin gestations that share one placenta. Twin to twin transfusion syndrome is a complication in approximately 5-15%[1], of monochorionic pregnancies, with 90% perinatal mortality. Because of such high mortality, it is important to determine the chorionicity and amnionicity for all twin gestations, which will influence management. To diagnose TTTS prenatally, an ultrasound must show a single placenta, one twin with oligohydramnios (maximum vertical pocket (MVP) of < 2 cm,), and other twin with polyhydramnios(MVP of > 8 cm). Several treatments such as amnioreduction, septostomy and fetoscopic laser ablation have been suggested, and among all, fetoscopic laser ablation, only method reversing its pathophysiology, is considered as the first choice of treatment between 15 to 26weeks.

Case Report:

Here we are presenting a case of 24 year old primigravida who came at 8 months of amenorrhoea with complaint of reduced perception of fetal movements since 2 days, there is no pain abdomen, per-vaginal watery leak or bleeding, Patient conceived after 3 years of marriage by in-vitro fertilisation techinque with mono-chorionic di-amniotic twin gestation.

She underwent her regular antenatal checkups.Anomaly scan was done at 18 weeks gestation and showed: twin-to-twin transfusion syndrome with quintero stage I, twin1-recipient, in lower pole with central cord insertion, single umbilical artery deepest vertical pocket -9.8, and twin2- donor with marginal cord insertion with placenta at right lateral side of the uterine wall, anhydramnios.

Patient explained regarding this complication and opted for laser photocoagulation. Under spinal anaesthesia, three anastomosis were identified and fetoscopic laser coagulation performed.

Post procedure: twin 1(ex-recipient) dopplers: umbilical artery 0.87/0.58 ductus venosus-0.5, Middle cerebral artery- 1.2/2. Twin2(ex-donor) dopplers: umbilical atery-1.3/0.76, ductus venosus-0.64, middle cerebral artery-1.05, Cervical length-38mm

Further course of pregnancy was uneventful, now she came with above mentioned complaints.

Course in hospital:

growth scan was done which was normal, relevant investigations were sent, steroid prophylaxis was given and was planned for termination of pregnancy. She underwent elective cesarean section at 33+4 days of gestation. Both babies were healthy and were mother's side. On post-operative day 0, patient developed severe pre-eclampsia, was started on antihypertensives and MgSO4 prophylaxis was given. Regular blood pressure monitoring done and was discharged on day 7th post-operative day.

DISCUSSION:

All monochorionic placentae likely share some anastomotic connections. Superficial vascular anastomoses are most frequent and are identified on the chorionic surface of the placenta in up to 75% of monochorionic twin placentas. In contrast, deep artery-to-vein communications can extend through the capillary bed of a given villus. These deep unidirectional arteriovenous anastomoses create a common villous compartment or "third circulation.This may result in several clinical syndromes that include twin-twin Transfusion syndrome (ttts), twin anemia polycythemia sequence (taps), and acardiac twinning.

Twin-twin transfusion syndrome

In this syndrome, blood is transfused from a donor twin to its recipient sibling such that the donor may eventually become anemic, oliguric from decreased renal perfusion and growth restricted,. In contrast, the recipient develops polyhydramnios, polycythemic and may develop circulatory overload manifesting as hydrops. Classically, the donor twin is pale, and its recipient sibling is plethoric, may have heart failure due to circulatory overload and severe hypervolemia and hyperviscosity. Occlusive thrombosis is another concern. Finally, polycythemia in the recipient twin may lead to severe hyperbilirubinemia and kernicterus.

Diagnosis:

TTTS is diagnosed based on two sonographic criteria. First, a monochorionic diamniotic pregnancy is identified. Second, polyhydramnios in one sac and oligohydramnios in the other twin is found. To aid earlier identification of amniotic fluid abnormalities and other complications of monochorionic twins, these examinations begin at approximately 16 weeks' gestation, and subsequent studies are considered every 2 weeks. Once identified, is typically classified by the quintero (1999) staging system:

stage i—discordant amnionic fluid volumes as described with urine visible within the donor bladder

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 recipient twin
stage v—demise of either fetus.

Management:

There are multiple management options available once TTTS is diagnosed. These include expectant management, amnioreduction, intentional septostomy, fetoscopic laser photocoagulation, selective reduction, and voluntary pregnancy termination. Amnioreduction is typically performed to correct the polyhydramnios to < 8 cm, can be performed at any point > 14 weeks, and can be performed once or serially. Selective reduction is typically not considered unless the TTTS has reached stage III or IV. Fetoscopic laser photocoagulation is performed under ultrasound guidance typically between 15 to 26 weeks of gestation with the goal of creating "two chorions," each supplying one twin.

Management recommendations differ based upon the stage of TTTS and gestational age and are outlined below.

Stage I: Expectant management is recommended due to similar outcomes. Weekly ultrasound checks can be considered. Additionally, only about 25% of Stage I TTTS progresses in stage, and with expectant management, the survival of at least one twin occurs in most pregnancies.[2]

Stage II, III, IV: Fetoscopic laser photocoagulation is recommended at these stages at gestational age < 26 weeks.[3]
Stage V: No interventions have been evaluated at this stage

Survival rates after fetoscopic laser surgery have significantly increased over the last 25 years. High volume centers report up to 70% double survival and at least one survivor in >90%.[4]

CONCLUSION:

TTTS is associated with an increased risk of perinatal morbidity and mortality. Quintero staging system is currently used for the assessment of TTTS severity. Currently, fetoscopic LASER surgery has become the primary treatment, with the intention to increase the chance of survival of at least one twin. In severe untreated cases, the mortality rate is as high as 90%. Hence early diagnosis and management is crucial for the reducing perinatal morbidity and mortality.

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