

CASE REPORT

TRAP SYNDROME: A RARE ENTITY

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ABSTRACT: TRAP (Twin Reversed Arterial Perfusion) sequence is a rare complication of monozygotic twin pregnancy. It is due to defect in early pregnancy where there is defective arterial anastomosis in placenta. This results in a fetus with an absent heart (acardiac twin). This acardiac twin has a poorly developed upper body and head also. The pump twin (with a normal heart) is also at a risk of heart failure and problems related to preterm birth¹.

KEYWORDS: Monoamniotic twin, Arterial anastomosis, Pump twin.

INTRODUCTION: TRAP sequence is known as acardius or "chorioangiopagus parasiticus". It is a rare complication of monoamniotic twins. It affects about 1% of monozygotic twins. Its prevalence is 1 in 35,000 pregnancies.²

TRAP is characterized by structurally normal pump twin perfusing an anomalous recipient twin via an artery - to -artery anastomosis in a reverse direction.

We report a case of primigravida with TRAP sequence.

The aim to present the case is to highlight TRAP sequence and emphasize its clinical presentation and management.

CASE REPORT: A 22 years old primigravida came to ANC OPD at 30 weeks of gestation. She had USG report which showed:

- a) Twin pregnancy.
- b) Monochorionic Diamniotic Live Pregnancy 30.5 weeks gestational age.
- c) F1 -> Acardiac foetus (amorphous mass) 10 x 6 cm size. Differentiation of foetal parts not possible. Lower limbs appreciated.(figure 1)
- d) F2 -> Normal appearance for 30.5 weeks of gestation with evidence of mild oligohydramnios +. IUGR +. AFI = 7 cm.

Her LMP was - 23/6/12 and EDD was - 31/3/13.

Her vitals were stable.

On per abdominal examination, fundal height was 32 weeks, vertex presentation, FHS + regular, 140 bpm, uterus well relaxed:

- Parents were counselled about the possibility of TRAP sequence and prognosis of the surviving twin was explained.
- Doppler studies were done. A reversed arterial flow was noted on Doppler study coming from apparently normal twin to abnormal twin, fig (2) Diagnosis of TRAP sequence made.
- Patient was followed carefully till 35 weeks of gestation.
- At 35.4 weeks of gestation emergency LSCS done for loss of foetal movements. Procedure uneventful.

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- Neonatal outcome.
 1. Female, Apgar 8/10 at 5 min. 1.8 kg
- Ponderal Index =2.5
- No e/o congenital malformation, admitted in NICU for further evaluation. fig (3).
- Baby (2) amorphous mass of 12 x 6 cm with lower limbs, no identifiable foetal parts, weight = 150 gm Fig (4).

Placenta & cord of normal and abnormal baby was examined. Post natally, the surviving twin had no anomaly and went home with mother. Post op period uneventful. Fig (5)

DISCUSSION: TRAP sequence is the most extreme manifestation of twin – twin transfusion. Usually one twin has acardia (recipient) and the other is structurally normal (donor twin). The donor twin pumps deoxygenated blood via vascular anastomosis to acardiac twin. This blood flow is characterized by reversed arterial perfusion (hence TRAP).³

The pathogenesis of TRAP is controversial two hypothesis are proposed.

1. Deep placental anastomosis in early embryogenesis causes malformation of acardiac twin. The early pressure flow in one twin exceeds that of other and leads to reverse circulation in twin who exhibits perfusion.
2. A primary defect in embryogenesis in one twin leads to failure of cardiac development. The normal twin then perfuses the acardiac twin via artery – artery anastomosis. However, the anastomosis is not responsible for cardiac anomaly.³
3. The foetal treatment is available for elect patients in whom the normal twin shows e/o heart failure, or acardiac twin is increasing in size as compared to the normal twin. In these cases, a fetoscope guided by USG is inserted in the abdomen to identify both the umbilical cords. The cord supporting acardiac twin is occluded to stop flow of blood. Use of USG guided thermo coagulation and endoscopic laser coagulation is preferred modalities that can be used.
4. Endoscopic laser coagulation and USG guided umbilical cord ligation are preferred modalities of treatment.⁴
5. Alternative radiofrequency ablation is being used for treatment of TRAP sequence very effectively.⁵ The success rate of RFA is greater than 90 %.

In our case, the acardiac foetus was very small in size (150 gm) and hence the need to pump large volumes of blood to this acardiac foetus was not necessary. It is known that the ratio of weight of the recipient twin to weight of donor twin is above 70%, then CCF (donor twin) and preterm labor are seen. In our case, the perinatal morbidity and mortality and complications of donor twin were also low. This is solely due to the low birth weight of the acardiac twin. Otherwise, the PNM rate of donor twins is 50 to 70 %. CCF, preterm labour and severe IUGR are the main causes of PNM in donor twin¹. PNM of recipient twin is 100%.

CONCLUSION: High index of suspicion helps in establishing early diagnosis in TRAP sequence. The weight ratio of the twins decides the favorable or unfavorable outcome in TRAP. In select cases minimally invasive treatment modalities may be required to improve the outcome of pump twin.

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Figure 1



Figure 2



Figure 3

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Figure 4



Figure 5

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