



A Case Report of Twin Reversed Arterial Perfusion (TRAP)

Ayman Habib**Fetal Medicine/Obstetrician and Gynecologist, Dr Salam Jibrel Medical Center, Bahrain****Corresponding Author:** Ayman Habib, Fetal Medicine/Obstetrician and Gynecologist, Dr Salam Jibrel Medical Center, Bahrain.**Received:** July 22, 2024**Published:** June 28, 2025© All rights are reserved by **Ayman Habib**.**Abstract**

Twin pregnancy carries many types of specific complication including selective fetal growth restriction, twin-twin transfusion syndrome, and twin reversed arterial perfusion (TRAP).

In our case report we will give a presentation of a clinical case of TRAP: the ultrasound findings, follow-up, and management method. In addition, information about TRAP will be discussed.

Keywords: Twin Reversed Arterial Perfusion; Pregnancy

Introduction

TRAP or acardiac twin is a unique anomaly only seen in mono-chorionic twin, where one twin called "the pump twin" pumps the blood to the other twin which usually will be without a cardiac system [1,3].

- 1-2% of mono-chorionic twins.
- 6/100000 of all pregnancies

Ultrasound diagnosis

- Mono-chorionic twins with one normal fetus (pump twin) and another with no cardiac activity (rarely, a rudimentary heart may show slow pulsations) and variable degrees of deficient development of the head and upper limbs and hydrops (recipient twin) [2,4].
- Color Doppler in the recipient twin demonstrates reversed pulsatile flow from an umbilical arterioarterial anastomosis and venous return to the pump twin via a venovenous anastomosis.
- The size of the acardiac mass is prognostic value for the survival of the pump twin.
- About 50% of pump twins die before or after birth from congestive heart failure.

Associated abnormalities

The incidence of chromosomal abnormalities, genetic syndromes or fetal defects is not increased [2].

The case presentation

- 30-Year-old lady, Married for 7 years. G2P1, Previous vaginal delivery.
- **Medical history:** Crohn Disease, Gestational diabetes last pregnancy.
- **Surgical history:** None.

This pregnancy is spontaneous

According to history she received Dedroxyprogesteron for early vaginal bleeding.

She was seen in Fetal Medicine clinic for the first time while she was 12 weeks, 2 days with current medication of Folic Acid.

During the scan

2 gestational sacs were noticed, one contains a fetus with CRL compatible with 10 weeks, 2 days, and the second contains only a mass with perfusion. Acardiac Twin was suspected and the patient was given an appointment after 10 days for first trimester scan and EDD was corrected.

Patient was seen again after 2 weeks: A mono-chorionic- diamniotic twin, the first twin scan was normal (including NT, NB, and all other markers), only a reversed A-wave of ductus venosus was noticed, the second sac includes acardiac twin: upper body parts above the diaphragm were not formed, no cardiac structure, both lower limbs were seen, passive (reversed) vascular perfusion through the umbilical cord.

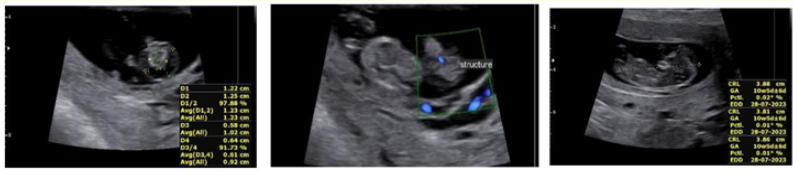


Figure 1

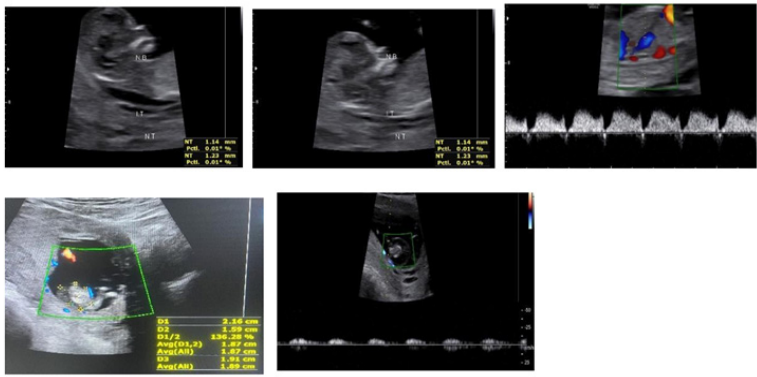


Figure 2

All findings with possible complication and management option were explained, Amniocentesis was offered.

Patient chose to go for umbilical cord occlusion of the acardiac twin which was done in another country at 16 weeks.

Patient was seen again at 18 weeks for morphology ultrasound which was normal.

Patient delivered vaginally at 36 weeks of a healthy baby.

6- Types of TRAP

It is widely classified into four subgroups morphologically [4-6].

- **Acardiac acephalic:** The fetus has developed pelvis and lower extremities. Head, arms and thoracic organs are absent. This is the most common type with a frequency of 60 - 75%. Our case is in this group.
- **Acardiac aniceps:** Body and extremities have developed. Head and face are partially formed. This type consists approximately 20% of all cases.
- **Acardiac acormus:** Only the head of the fetus has developed. It is quite rare and consists approximately 10% of all cases.

- **Acardiac amorphous:** The fetus has no identifiable organs. It is as an amorphous tissue mass and it consists approximately 5% of all cases.

Management and prognosis [2,6]

Fetal therapy

- Prenatal treatment is by occlusion of the blood flow to the acardiac twin. Several methods have been used, including ablation of umbilical cord vessels by laser or diathermy, coagulation of placental anastomoses by laser, or ablation of intrafetal vessels. When these methods are used at 16-18 weeks' gestation the survival rate of the pump twin is about 80- 85%.
- Some Authers recommend an early intervention at 12-14 weeks
- However, delay in intervention between the diagnosis of TRAP sequence at 11-13 weeks' gestation until 16-18 weeks is associated with spontaneous cessation of flow in the acardiac twin in 60% of cases and in about 50% of these there is also death or brain damage in the pump twin.

Follow up

- Intrauterine intervention: scan in 1 week to confirm that the pump twin is alive and that there is cessation of flow in the acardiac twin.
- No intrauterine intervention: scans every 2-3 weeks to monitor growth of the acardiac twin, heart function of the pump twin and amniotic fluid volume.

Delivery

Standard obstetric care and delivery.

Prognosis

Depends on method of management (intervention, No intervention), gestational age at birth.

Conclusion

It is important to confirm chorionicity early in Twin pregnancies to expect complication specific to monochorionic twin. TRAP could be detected at first trimester and a management plan should be discussed early with the family.

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