



## ORIGINAL RESEARCH PAPER

## Gynaecology

## ACARDIAC ACEPHALIC TWIN -CASE REPORT AND REVIEW OF LITERATURE

**KEY WORDS:** Acardiac  
Acephalic Twin: Case Report and  
Review of Literature

Dr. Anita Kumari

M.D Consultant Gynaecologist, Mahavir Vatsalya, Patna- 800010, Bihar.

## ABSTRACT

Acardiac twinning has an incidence of approximately 1 in 35,000 deliveries<sup>1</sup>. One twin is usually normal while the other has body like tissue with malformed leg and lower body with absent upper body or heart. The abnormal blood vessels on the placental surface allow the normal twin to pump blood to tissue of abnormal twin. As normal twin has to pump blood for two, there is high chance of heart failure and death of normal twin. We present here a rare case of acardiac acephalic twin in a 19 year old primigravida patient.

## Introduction

Acardiac twinning or twin reversed arterial perfusion (TRAP) sequence is a rare condition resulting from artery to artery anastomosis early in the first trimester. It represents an extreme manifestation of the twin transfusion syndrome and has an incidence of approximately 1 in 35,000 deliveries<sup>1</sup>. It occurs in 1% of monozygotic conceptions. The acardiac twin is transfused by the normal co-twin by means of reversal of circulation through large vein to vein and artery to artery anastomosis and has no direct communication with placenta. The acardiac twin presents with many bizarre anomalies thought to be due to low oxygen tension and alterations in the fetal physiology<sup>1</sup>. Complications in the pump twin of an acardiac fetus include congenital heart failure, polyhydramnios, preterm labour and death in 50-70% of the cases. We present a case of acardiac acephalic twin in a lady who was admitted for observation as a case of twin pregnancy with one dead fetus.

## Case Report

A 19 year old primigravida was admitted on 06/02/2015 with complaints of less fetal movement at 19 weeks gestation with an ultrasound report documenting twin pregnancy with one fetus of 19 weeks and other fetus of 17 weeks gestation without cardiac activity. Liquor was excess in amount with AFI >20. Her clinical examination revealed a 32-34 weeks size, tense distended uterus with one FHR audible. She was admitted for observation as a case of twin pregnancy with one dead fetus. Repeat ultrasonography with colour Doppler was done which showed two fetuses inside the uterus. There was a single placenta with absence of amniotic membranes suggestive of monozygotic monoamniotic twin pregnancy.

breach at 1.30 am and the 2nd preterm baby of birth weight 750gms by vertex at 1.36 am. The only recognizable parts in the malformed twin were lower limbs that too deformed. On gross examination the proximal part of the fetus was multilocular cyst filled with a transparent fluid, covered with a gelatinous swollen skin. There were malformed right upper limbs with no head and neck with normal lower limbs and left upper limb. The patient refused autopsy. Single placenta was delivered with single amniotic membrane and two cords inserted side by side, one of them was very small and attenuated which belonged to the Acephalic twin. Postnatal period was uneventful and the 2nd baby was premature and expired 1 hour after birth. The patient was discharged on 3rd postnatal day in satisfactory general condition.

## Discussion

Twin reversed arterial perfusion (TRAP) first defined by Greenwald in 1942, is probably responsible for acardiac fetus. The pathogenesis in TRAP sequence include<sup>2</sup>.

1. Deep placental anastomoses in early embryogenesis cause malformation of the acardiac twin. The early pressure flow in one twin exceeds that of other leading to the reversal of flow in the umbilical artery of the co-twin.
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 anastomoses. The donor twin or the pump twin provides circulation for itself and recipient acardiac twin. The used arterial blood reaching the recipient twin preferentially goes to the iliac vessels leading to disruption or deterioration of growth and development of the upper body as seen in our case. The pump twin, though structurally normal, may develop congestive cardiac failure and hydramnios associated with preterm labor. Mortality is 50 to 70% in pump twin, and survival rate can be improved by early detection of monozygotic twinning with acardia on USG and Doppler and treatments like radiofrequency or fetoscopic laser ablation of anastomotic vessels<sup>3</sup>. Prenatal diagnosis is done using Gray-scale and color Doppler USG. TRAP syndrome is suspected when a twin gestation presents with discordance and bizarre malformations with retrograde blood flow in acardiac twin demonstrated by pulsed/colour flow Doppler<sup>4</sup>. Twin to twin transfusion syndrome (TTTS) cannot be prevented but an early diagnosis of this disorder in an identical twin pregnancy can possibly save one or both babies

This can be detected in the early stage of pregnancy by ultrasound scanning and Doppler velocimetry. Lewi et al<sup>5</sup> studied the outcome of acardiac twins diagnosed in the first trimester. They found that 33 percent of the pump twins spontaneously died between diagnosis and planned intervention. Spontaneous flow arrest and persistent flow toward the acardiac twin were found at percentage of 21 and 46, respectively, during 16-18 weeks of pregnancy. The optimal management of acardiac twin pregnancies is controversial. The treatment of acardiac anomaly presently relied on maximizing the term delivery's chance, prevention, CHF treatment in the healthy pump twin and interruption of the twin vascularization<sup>6</sup>.

**Conflict of interest** – Nil

**Compliance with Ethical standards**- Cleared

**Informed consent** - Present





### References

1. Cunningham FG, Leveno KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, Casey BM, Sheffield JS, editors. *Williams obstetrics*. 24th ed. New York: McGraw-Hill Education, 2014. Section 11; Chapter 45, Multifetal pregnancy; p. 908-909.
2. Athwal S, Millard K, Lakhoo K. Twin reversed arterial perfusion (TRAP) sequence in association with VACTERL association: A case report. *J Med Case Rep* 2010 22; 4:411
3. Hartog M, Toolenar T, Jacquenyn Y. Late presentation of acardiac twin: a case report and review of literature. *Open J Obstet Gynecol* 2014 May; 4(7):379-382.
4. Wu CJ, Ding DC, Ren SS, Chang CC, Weng JT, Hwang KS. Prenatal diagnosis and management of twin reversed arterial perfusion (TRAP) syndrome. *Taiwan J Obstet Gynecol*. 2008; 47:126-8
5. Lewi L, Valencia C, Gonzalez E, Deprest J, Nicolaides KH. The outcome of twin reversed arterial perfusion sequence diagnosed in the first trimester. *Am J Obstet Gynecol* 2010; 203: 213- 214.
6. Tongta Nanthakomon MD, Athita Chanthasanon MD, Charintip Somprasit MD, Sakol Manusook MD, Densak Pongrojapaw MD, Komsun Suwannarurk MD. Twin Reversed Arterial Perfusion (TRAP) Sequence: A Case Report and Review of Treatment. *J Med Assoc Thai* 2015; 98 (3) S 132-S 140.