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Case Report

A rare complication of monochorionic twin pregnancy: Twin-reversed arterial perfusion (TRAP) sequence

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ARTICLE INFO

Article history:

Received 3 November 2012

Accepted 23 June 2013

Available online 24 September 2013

Keywords:

Monochorionic twins

TRAP

Rare complications of twins

failure of any recognizable structure to form is acardius amorphous. We report a case of acardius amorphous.

Case report

22-years-old female patient gravida 2 para1 live1 lady at 36 weeks 1 day period of gestation with diamniotic monochorionic twin gestation with one dead twin was referred to us from a peripheral hospital with labor pains. She had conceived spontaneously and her ultrasound at 16 weeks 3 days POG revealed diamniotic monochorionic twin gestation with demise of one twin. The dead twin had multiple congenital anomalies which were monoventricle with fused thalami suggestive of holoprocencephaly, fused lower extremities & absent upper extremity with gross subcutaneous edema. A repeat ultrasound after one week had confirmed the findings.

She went into labor spontaneously at 36 weeks 01 days. Her labor progressed well and she delivered 1st twin with normal Apgar and birth weight of 1.79 kg. Second baby was stuck at the pelvic brim and decompression of the presenting part had to be done. 400 ml of clear fluid drained to make it possible for it to deliver vaginally. This amorphous fetus weighed 2 kg. It was grossly dysmorphic with no head, thorax, abdomen or pelvic differentiation. Hair was present at one end but had no face, eyes, nose, ears. One fused lower limb with 8 toes was present and there was no upper limb or limb buds. No external genitalia was present and a dimple was present at anal site (Fig. 1). Umbilical cords of both twins showed one artery and one vein. Placenta was single and weighed 500 g.

The other twin had flat chest on left side and chest radiograph revealed cardiomegaly with normal lung fields

Introduction

The twin-reversed arterial perfusion (TRAP) sequence, also known as acardiac twinning, is an anomaly unique to monochorionic multiple pregnancies that affects approximately 1 of 35,000 pregnancies and 1% of monochorionic twins.¹ In TRAP, blood flows from an umbilical artery of the pump twin in a reverse direction into the umbilical artery of the perfused twin, via an arterioarterial anastomosis. The perfused (or acardiac) twin is a true parasite. Its blood is poorly oxygenated, and the hypoxemia contributes to variable degrees of deficient development of the head, heart, and upper limb structures. The lower half of the body is usually better developed, which may be explained by the mechanism of transfusion of the acardiac twin. Failure of head growth is called acardius acephalus; a partially developed head with identifiable limbs is called acardius myelacephalus; and

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<http://dx.doi.org/10.1016/j.mjafi.2013.06.008>

Fig. 1 – Acardius amorphus twin.

(Fig. 2). Echocardiography revealed patent ductus arteriosus which resolved by day 13 of life and the baby was discharged on day 22 from the NICU. Histopathological examination of the amorphous fetus was done. On cut section, small tubular structure resembling intestine and few solid organs could be identified. Microscopy revealed colon, single fetal kidney with renal dysgenesis, and adrenal gland with extramedullary hematopoiesis.

Discussion

The incidence of one twin vanishing before 2nd trimester has been found to be as high as 20 to 60 percent in spontaneous

Fig. 2 – Chest radiograph of normal twin revealing cardiomegaly.

twin conceptions.² In monochorionic twins, the “vanishing” can be prevented by the occurrence of persistent, yet reversed, flow to the chromosomally abnormal twin via the vascular anastomoses. Therefore, whenever intra uterine fetal demise is suspected in monochorionic twins on a first-trimester scan, the differential diagnosis or development of TRAP should be kept in mind. The diagnosis can be reliably made on ultrasound scan in the first-trimester.³ TRAP sequence is characterized by a grossly abnormal fetus that grows, may even show movements, but has no functional cardiac activity of its own. Rarely, a rudimentary heart may show pulsatility. Doppler studies reveal pathognomonic features of reversed arterial perfusion through an arterioarterial anastomosis.

Risks for the pump twin include heart failure secondary to the strain of perfusing the acardiac twin and extreme premature birth associated with hydramnios. The natural history of TRAP is poorly documented due to the rarity of the disorder. Reported perinatal mortality rates for the pump twin vary between 35% and 50%.^{4,5} The goal of in utero treatment of acardiac twinning is interruption of aberrant vascular communication between the twins. Of these methods, 90-percent survival rate was found with radiofrequency ablation, which cauterizes umbilical vessels in the malformed recipient twin so as to terminate blood flow from the donor.^{6,7}

Conflicts of interest

All authors have none to declare.

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