

Title: Monochorionic Twin Pregnancy Complicated by TRAP Sequence with Acardiac Twin and Transient Elevations of Pump Twin MCA Dopplers

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Background: Monochorionic twins occur spontaneously in 0.3% of the general population. Twin reversed arterial perfusion (TRAP) sequence occurs in approximately 1% of monochorionic twins, with an overall incidence of 1 in 35,000 pregnancies (1). TRAP sequence refers to a rare complication in which a severely anomalous twin with absent or rudimentary heart (“acardiac twin”) is perfused by its typically normal co-twin via aberrant arterio-arterial anastomoses (2). Left untreated, this vascular arrangement may result in anemia, cardiac failure and demise of the pump twin in 50-75% of cases (3). Other complications include polyhydramnios, preterm labor and premature delivery (4).

Case Report: The patient is a 28-year-old healthy female, gravida 3 para 0020 at 16 weeks EGA who presented to the High-Risk OB Clinic for evaluation of a twin pregnancy with suspected early demise of 1 embryo. A monochorionic twin gestation with TRAP sequence was diagnosed. Based upon the acardiac twin size, overall pregnancy risks appeared to be minimal. A 2nd opinion was performed at the Children's Hospital of Philadelphia. No fetal surgical intervention was recommended. The 2nd trimester of pregnancy progressed uneventfully with normal MCA Doppler screening to assess for fetal anemia and BPP testing. The pump twin grew normally throughout pregnancy. The patient was noted to have elevated MCA Dopplers of the pump twin at 30 weeks EGA and she was admitted to the hospital for fetal observation, a course of magnesium, and IM steroids in anticipation for a preterm delivery. MCA Dopplers improved and the patient was scheduled for delivery at 36 weeks EGA per ACOG guidelines. The patient had a failed induction of labor and a cesarean delivery for arrest of descent. The pump twin was healthy, weighing 2605 g. The acardiac twin displayed classic features of this condition. The patient had an uneventful post-operative course.

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