

Acquired Right Ventricle Outflow Tract Obstruction in Twin-Twin Transfusion Syndrome

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INTRODUCTION:

Twin-Twin Transfusion Syndrome (TTTS) complicates 4 to 26% of diamniotic monochorionic twin gestations. The majority of deaths associated with TTTS are due to cardiovascular compromise from congestive heart failure. Right ventricle outflow tract obstruction (RVOTO) may occur in the recipient twin in at least 9% of pregnancies complicated by TTTS. The etiology is not completely understood. RVOTO can potentially progress in utero and may worsen neonatal outcome.

METHODS:

Retrospective review of all cases of TTTS treatment at our hospital between March 2008-November 2010. Demographic dates, fetal echocardiograms, perinatal and postnatal outcome and catheterization records were reviewed.

RESULTS:

Fifty-two pregnancies complicated by TTTS were identified. 6 recipient twins (11,53%) had RVOTO prenatal diagnosis. None of the donor twins had structural heart disease, and no major additional structural heart disease was identified in the recipient twins.

Gestational age range was 16-23 weeks at RVOTO diagnosis. 5/6 cases reviewed photocoagulation (83%).

Fetal echocardiography showed right ventricle hypertrophy, moderate to severe tricuspid regurgitation and dysplastic pulmonary valve in 5/6 cases. Retrograde ductus flow was documented in all cases.

3 of 6 cases (50%) progressed to more severe obstruction during gestation. Delivery was between 29-38 weeks and none was indicated for RVOTO. Weight was between 1380 to 2340 gr.

Neonatal echocardiograms confirmed RVOTO in all cases and prostaglandin infusion was necessary in 5 of 6 cases (83%).

Percutaneous pulmonary valvuloplasty was performed 1 to 75 days after birth. Pericardial tamponade requiring surgical drainage complicated one procedure.

Muscular subvalvular obstruction was predominant in one case and another case had combined valvular and supra-valvular obstruction due to calcification of the main pulmonary artery and required surgery at 2 months of life.

CONCLUSIONS:

RVOTO complicates 11,5% of TTTS pregnancies. Diagnosis and possibility of progression does not differ from structural RVOTO. None of our cases suffered fetal hemodynamical compromise and no neonatal deaths occurred despite all patients needing neonatal catheterization. The high incidence of duct dependency underlines the importance of prenatal diagnosis and highlights the indication of echocardiography evaluation in all pregnancies complicated by TTTS.