Abnormal Dopplers in Monochorionic Twins-Is TAPS or Maternal Anemia at Play?

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Abstract

Abnormal middle cerebral artery peak systolic velocities (MCA-PSV) in monochorionic twins raise concern for twin twin transfusion syndrome (TTTS) and twin anemia-polycythemia sequence (TAPS) as well as other causes of fetal anemia, including infectious and alloimmunizing etiologies. Rarely is severe maternal anemia considered the culprit behind the abnormal dopplers. We present a case of a 32 year old primigravida with monochromic diamniotic twins found to have an elevated MCA-PSV of initially one and then both twins, with no other ultrasonographic evidence suggestive of TAPS. Her workup was negative for parvovirus infection and alloimmunization but remarkable for severe maternal iron deficiency anemia. Treatment with IV iron was initiated, and the MCA-PSV'S normalized. A comparison of hemoglobin levels of the twins following delivery did not fulfill TAPS post-natal criteria. The significance of this case report is that presents a unique case, not before described in the literature, of severe maternal iron deficiency anemia resulting in abnormal fetal MCA-PSV's. The fetus may not be as impervious to maternal iron deficiency anemia as has long been believed, but these effects appear to be reversible with treatment.

Images

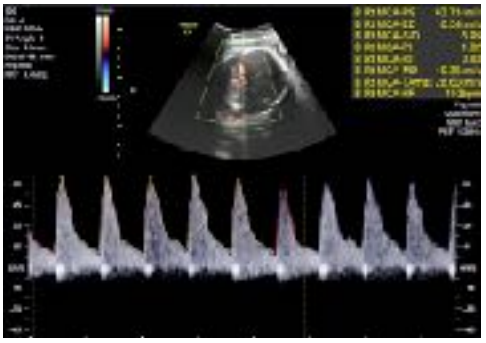


Image 1: Abnormal MCA-PSV in Twin A

Images continued

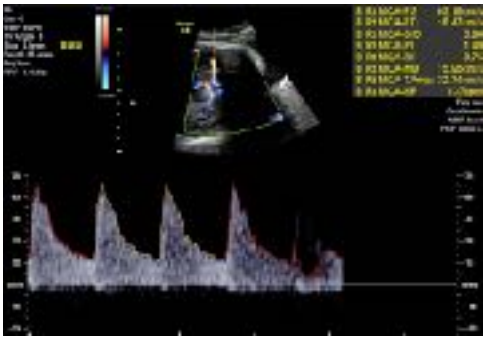


Image 2: Abnormal MCA-PSV in Twin B

Recent Publications

1. Couck, I., & Lewi, L. (2016). The Placenta in Twin-to-Twin Transfusion Syndrome and Twin Anemia Polycythemia Sequence. Twin Research and Human Genetics, 19(3), 184-190
2. Mari G, Norton ME, Stone J, Berghella V, Sciscione AC, Tate D, Schenone MH. (2015). Society for Maternal-Fetal Medicine (SMFM) Clinical Guideline #8: The fetus at risk for anemia-diagnosis and management. American Journal of Obstetrics and Gynecology;212(6):697-710.
3. Sananès N, Veujoz M, Severac F, Barthoulot M, Meyer N, Weingertner A, -S, Kohler M, Guerra F, Gaudineau A, Nisand I, Favre R. (2015). Evaluation of the Utility of in utero Treatment of Twin Anemia-Polycythemia Sequence. Fetal Diagn Ther; 38:170-178
4. Tollenaar, L., Slaghekke, F., Middeldorp, J., Klumper, F., Haak, M., Oepkes, D., & Lopriore, E. (2016). Twin Anemia Polycythemia Sequence: Current Views on Pathogenesis, Diagnostic Criteria, Perinatal Management, and Outcome. Twin Research and Human Genetics, 19(3), 222-233.
5. Woodman, A. G., Care, A. S., Mansour, Y., Cherak, S. J., Panahi, S., Gragasin, F. S., & Bourque, S. L. (2017). Modest and Severe Maternal Iron Deficiency in Pregnancy are Associated with Fetal Anaemia and Organ-Specific Hypoxia in Rats. Scientific Reports, 7, 46573



Biography

Dr. Ola Hadaya is currently a second year resident in Obstetrics and Gynecology at Rutgers Robert Wood Johnson Medical School. She graduated magna cum laude from Rutgers University where she obtained her Bachelor of Arts degree and then proceeded to obtain her Doctorate of Medicine from Wayne State University School of Medicine.

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