

Placental Chorioangioma as the Cause of Non-Immunologic Hydrops Fetalis; a Case Report

Eduardo Alfredo Duro, MD, MPH; Ines Moussou, MD

1. Department of Pediatrics, Facultad de Medicina, Universidad de Morón, Argentine
2. Hospital Zonal General de Agudos "Magdalena V. de Martínez", Buenos Aires, Argentine

Received: Apr 29, 2010; Final Revision: Jun 05, 2010; Accepted: Jun 14, 2010

Abstract

Background: Chorioangiomas are the most common benign tumors of the placenta originating from primitive angioblastic tissues. It comprises near 1 percent of placental tumors. Clinical manifestations in the newborn are rare and usually associated with tumors greater than 5 cm in diameter and consist of polyhydramnios, fetal anemia, massive edema with pleural effusion, ascites and intrauterine growth retardation. We present a case with large chorioangioma as the cause of non-immunologic hydrops fetalis with a successful outcome.

Case Presentation: The patient was a female newborn with history of polyhydramnios, symptoms of congestive heart failure and associated anemia, thrombocytopenia and coagulopathy. The pathophysiology and management of the complications of hydrops fetalis with chorioangioma are discussed.

Conclusion: Chorioangioma of the placenta has potentially serious perinatal risks and so the pregnancy needs to have regular surveillance. The chance of developing complications is directly related with the tumor size.

Iranian Journal of Pediatrics, Volume 21 (Number 1), March 2011, Pages: 113-115

Key Words: Placental Disease; Tumor; Chorioangioma; Hydrops Fetalis; Anemia; Fetus; Heart Failure

Introduction

The term non-immunologic hydrops fetalis (NIHF) defines an edematous fetus with fluid collections in some or all serous cavities that does not have erythroblastosis fetalis from isoimmunization. In 1943 Dr Edith Potter published the first description of NIHF^[1]; now over 80 conditions are known to be associated

with hydrops with very high perinatal mortality ranging from structural heart disease, fetal arrhythmias, chromosomal anomalies, intra-uterine infections and larger chorioangiomas of the placenta^[2-5]. In most countries with low rhesus-negative rates in the population, non-immune causes are more prevalent; the incidence depends on the region and also varies seasonally in relation to parvovirus B19 epidemics.

* Corresponding Author;

Address: Farias 30 (B1662AYB) Muñoz Republica Argentina.

E-mail: eduro@unimoron.edu.ar

We describe a newborn in whom cardiac enlargement and congestive heart failure were caused by a vascular shunt through a large placental chorioangioma, emphasizing the importance of the anatomical study of the placenta for the correct diagnosis, managing the neonatal care and evolution of the newborn.

Case Presentation

A 2.120g preterm female newborn, product of a non consanguineous marriage was born from a primigravida by emergency cesarean section at 32 weeks of gestation because ultrasound examination revealed cardiomegaly with abnormal umbilical flow and signs of vascular fetal insufficiency. Physical examination at birth revealed 1 minute Apgar score 8, anasarca, poor respiratory effort with bilateral wet rales, hepatosplenomegaly with ascites and no reflexes. Coombs test in cord blood and the infant's blood was negative. The initial chest radiograph obtained 2 hours after birth showed soft tissue edema, cardiomegaly and pleural effusion compatible with congestive heart failure. Abdominal radiography showed ascites with soft tissue edema, and hepatosplenomegaly.

The newborn was put on mechanical ventilation for the first few days of life. Serial electrocardiograms showed low voltage complexes with right ventricular hypertrophy. Echocardiogram showed a dilated right ventricle with pericardial effusion.

Laboratory data included hypoproteinemia and hypoalbuminemia, anemia (hematocrit 31%; hemoglobin 10.3mg/dl) and hyponatremia (Na 125 mEq/l), thrombocytopenia (platelets $41 \times 10^9/l$) and deranged coagulation profile (prothrombin time 19 seconds, activated partial thromboplastin time 120 seconds). Cultures of blood, urine, and ascitic fluid were negative. Serologic studies for infectious diseases related to NIHF were also negative.

The infant's cardiorespiratory status gradually improved with water restriction, conventional respiratory assistance and inotropic drugs which resulted in 29 percent decrease in weight compared to her birth weight.

Pathology of the placenta showed edema without signs of placental infarction and a big tumoral mass measuring $10 \times 4 \times 3$ cm (Fig. 1). Microscopic examination revealed large fusiform vessels in a fibrotic stroma with focal edema and clusters of myxoid cells (Fig. 2).

Discussion

Placental chorioangioma is a benign vascular tumor detected in 1 percent of placentas after systematic examination. Only 10% of these are macroscopically visible. Most of these tumors are small and discovered only by microscopic examination and have no adverse impact on the fetus. Larger tumors are rare and when above 5 cm in diameter, they are associated with serious complications. These tumors are found accidentally by ultrasound examination^[6].

In our case, the placental tumor measured more than 10cm and led to cardiomegaly with abnormalities in the umbilical flow and signs of vascular fetal insufficiency. The vascularization of the tumor is a determinant factor of perinatal outcome. Where the tumor is avascular, no specific complications should be expected.

When the tumor is vascularized, and in particular if it contains numerous large vessels, serial ultrasound and Doppler examinations are warranted to detect early features of fetal congestive heart failure^[7].

Two hypotheses are proposed for formation of congestive heart failure in this condition: The left



Fig. 1: Placental chorioangioma: Tumoral mass measuring $10 \times 4 \times 3$ cm

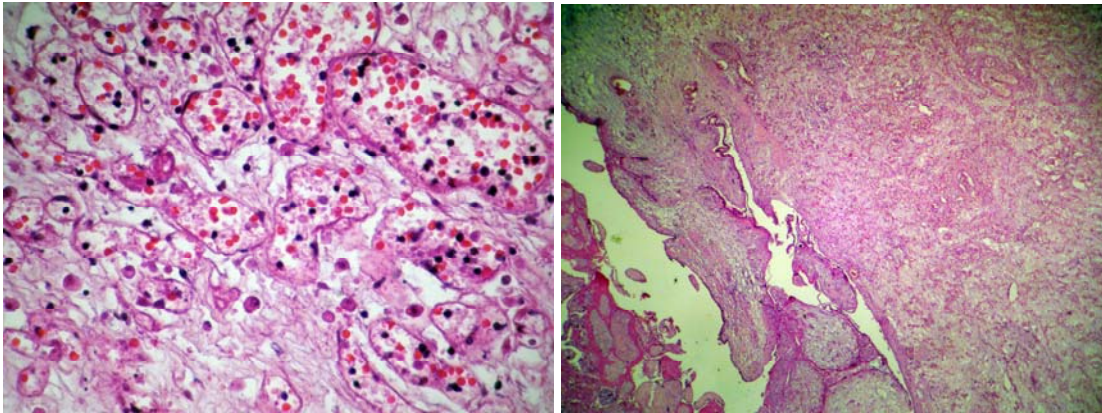


Fig. 2: Placental chorioangioma: Large fusiform vessels in a fibrotic stroma with focal edema and clusters of myxoid cells

to right shunt as a result of intra tumoral arteriovenous shunting and chronic fetal hypoxia secondary to insufficient placental function or anemia and thrombocytopenia^[8,9]. Anemia is sometimes secondary to fetomaternal hemorrhage, or blood sequestration in the tumor.

The detection of ultrasound findings of heart failure or suggestive signs of anemia as cardiomegaly, enlargement of the liver and abnormal umbilical vein. Doppler sonography may be useful for diagnostic purposes before NHF developed signs and symptoms.

Large placental chorioangiomas are rare and the prognosis is bad when a big tumor causes fetal hemodynamic changes with NIHF, but treatment of heart failure may be promising in these newborns and complete recovery is achieved in some cases.

Conclusion

Chorioangioma of the placenta has potentially serious perinatal risks and so the pregnancy needs to have regular surveillance. The chance of developing complications is directly related with the tumor size.

Acknowledgements

We would like to thank P. Gonzalez for his kind assistance in preparing photographs of this article.

References

1. Potter EL. Universal oedema of the fetus unassociated with erythroblastosis. *Am J Obstet Gynaecol* 1943;46:130-4.
2. Santolaya J, Alley D, Jaffe R, et al. Antenatal classification of hydrops fetalis. *Obstet Gynecol* 1992;79(2):256-9.
3. Benson PF, Joseph MC. Cardiomegaly in a newborn due to placental chorioangioma. *Br Med J* 1961;1(5219):102-4.
4. Daniel SJ, Cassady G. Non-immunologic hydrops fetalis associated with a large hemangio-endothelioma. *Pediatrics* 1968;42(9):828-33.
5. Bauer CR, Fojaco RM, Bancalari E, et al. Microangiopathic hemolytic anemia and thrombocytopenia in a neonate associated with a large placental chorioangioma. *Pediatrics* 1978; 62(4):574-7.
6. Hirata GI, Masaki DI, O'Toole M, et al. Color flow mapping and Doppler velocimetry in the diagnosis and management of a placental chorioangioma associated with nonimmune fetal hydrops. *Obstet Gynecol* 1993;81(5):850-2.
7. Vaisbuch E, Romero R, Kusanovic JP, et al. Three-dimensional sonography of placental mesenchymal dysplasia and its differential diagnoses. *J Ultrasound Med* 2009;28(3):359-68.
8. Hadi HA, Finley J, Strickland D. Placental chorioangioma: Prenatal diagnosis and clinical significance. *Am J Perinat* 1993;10(2):146-9.
9. Mancuso A, DiAnna R, Corrado F, et al. Large placental chorioangioma. *Acta Obstet Gynecol Scand* 2001;80(10):965-6.