Hydrops fetalis with deletion of macro domain containing 2

Uzun I, Sayin C, Gurkan H, Aladağ Çiftdemir N, Atlı E, İnan C, Erzincan S, Sutcu H, Vatansever U, Varol F
Trakya University, Faculty of medicine, Department of Perinatology, Edirne-Turkey, Turkey

Objective

To report a case of prenatally diagnosed non-immune hydrops fetalis associated with deletiom in the 20p12.1 region affecting Macro Domain Containing 2 (MACRO D2) gene. MACRO D2 gene is a gene from macro family which is highly expressed in the ventriculer zone of the brain during embriyonic development.

Methods

This is a case report.

Results

A 33 years old multiparous woman (gravida 3 - para 2) was referred due to fetal hydrops at 18 weeks of gestation. On ultrasound examination, there were generalized subcutaneous oedema, bilateral pleural effusion and accompanying ascites noted. The nuchal fold measured 9,5 mm. On fetal echocardiography no structural or functional cardiac abnormality could be seen. The patient's blood group type was A Rh (D) negative, but indirect coombs test was negative. The Doppler indices of middle cerebral artery, namely peak systolic velocity, were also in normal ranges, raising no suspicion of fetal anemia. TORCH antibody screening tests and parvovirus antibody were all negative. After performing amniocentesis, G- banding revealed 46 XX karyotype. Termination of pregnancy was offered to the family due to widespread hydrops, but declined. At 32 weeks the fetal growth was normal, amniotic fluid was increased (AFI: 23cm), however signs for hydrops completely regressed. Elective cesarean section was performed at 39 weeks of gestation. A female infant weighing 3490 g and measuring 48 cm in length was delivered with Apgar scores of 3, 6 and 7 at the 1st, 5th and 10th minute, respectively. At the newborn examination, low set ears, flattened nose bridge and Simian line at the left hand were analyzed. Oxygen therapy was introduced for three days with a diagnosis of transient tachypnea of the newborn. The abdominal ultrasound was normal. Patent ductus arteriosus (1.3 mm) was seen at echocardiogram. The newborn was consulted with medical genetics department for other possible genetic and metabolic disorders, thereafter discharged ont he 8th day following delivery. The infant was referred to the neonatology unit with coughing, irregular respiration, cyanosis, tachypnea and nasal flaring one month later. The infant was dehydrated. There were costal and sternal retractions. Respiratory acidosis was detected and mechanical ventilation was necessitated. Antibiotic therapy was initiated for broncopneumonia. On the 15th day in the critical care unit, the infant died due to sepsis and respiratory failure. Postnatal genetic analysis from peripheral venous blood for CFTR mutation, SMN1-SMN2 deletion-duplication was all negative. In array-CGH analysis we detected 401 kb microdeletion including MACROD2 gene [arr cgh(hg 19) 20p12.1 (14,817,836- 15,219,086)x1].

Conclusion

Deletion in MACRO D2 gene has been associated with autism spectrum disorders and also with Kabuki-syndrome which is a well described congential anomaly syndrome. Hydrops fetalis associated with Kabuki-syndome has also been reported as case reports. Since the symptoms will become evident during childhood, clinical diagnosis of these syndromes is not possible in the early infant period. Deletion of MACRO D2 gene may be associated with transient hydrops fetalis.