Roberts-SC Phocomelia Syndrome (Pseudothalidomide Syndrome): A Case Report

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Abstract

A 39-year-old pregnant woman at 38 weeks of gestation was referred with labor pain to a hospital. She had consanguinity with her husband. A female newborn had multiple craniofacial anomalies and phocomelia in right upper limb. The disease locus was assigned to chromosome17q21. Four days later, infant died of cardiopulmonary arrest.

Keywords: Phocomelia, Cleft Lip & Cleft Palate, Autosomal Recessive

Introduction

A 39-year-old woman, gravid 4 and para 3, was referred to a hospital at 38 weeks of gestation with uterine contractions. She had a history of 3 prior cesarean sections. She was a known case of diabetes mellitus from 6 years ago, injecting insulin during pregnancy. She had no history of hypertention, heart or kidney diseases. Three other children in this family didn't have any congenital anomalies. On initial examination the following symptoms were observed: afebrile, stable vital signs, and regular intensive contractions with duration of 30 seconds

Stat blood sugar, blood urine nitrogen (BUN), and creatinine were 119 mg/dL, 5 mg/dL, and 0.7 mg/dL, respectively.

Emergent cesarean section was performed. A female fetus was born with an APGAR score of 8 at the first minute and a 9 at fifth minute. Her weight, length and head circumference are 3800gr, 51cm and 36 cm, respectively.

The newborn had multiple anomalies, such as cleft lip and palate , phocomelia of the right upper limb , reduction of the long bones in left upper limb, and only a finger in left hand (Fig 1). Blood sugar and ca in newborn were 50 mg/dL and 10.5 mg/dL, respectively. Four days later, infant died of cardiopulmonary arrest. The disease locus was assigned to chromosome17q21.

Discussion

This disorder has an autosomal recessive transmission (1-3) with marked variability of

phenotypic expression. Cytogenetic study of affected patients has shown chromosomal

abnormalities involving heterochromatic regions around the centromeres and nucleolar

organizers (2). The hemochromatin of the long arms of the Y chromosome is often widely separated in metaphase (1,2,4).

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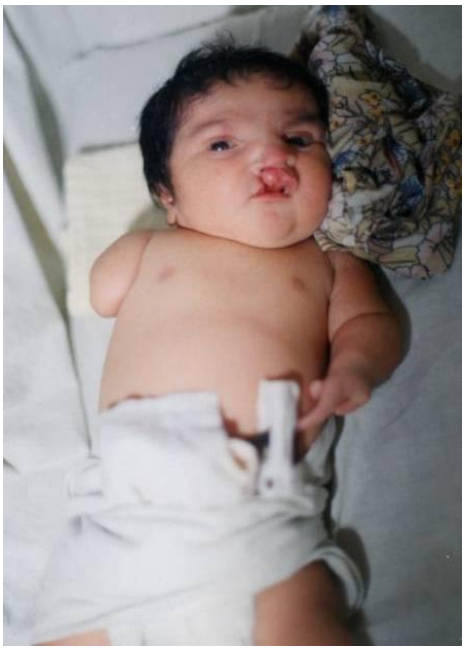

Fig 1: Roberts-SC-phocomelia syndrome
"Cleft lip & cleft palate – phocomelia- limb reduction-eyes hypertelorism"

As a result of presence of "repulsion" or "puffing"and the absence of the primary constriction at the heterochromatic regions around the centromeres and nucleolar organizers, a "railroad track" appearance may be displayed in many chromosomes (5) The incidence of recurrent this syndrome is 25%(1,3).The presence of mid-facial clefts (lip & palate), nose and ears abnormalities, facial hemangioma, hypertelorism with prominent eyes and corneal clouding, microcephaly, symmetric limb abnormality, severe growth, and mental retardation are very suggestive of the Roberts syndrome (1,2,4,6). Less common findings were included oligo dactyly, micrognathia, cryptochidism, oligohydramnios, renal anomalies (polycystic or dysplastic kidney), and heart defects (in particular artrial septal defect and patent ductus arteriosus) (1,4,6). Sonographic detection of these features is highly indicative of the Roberts syndrome (1,7). Prenatal diagnosis has been reported as early as 11 weeks of gestation in a pregnancy at risk with characteristic, like fusion abnormalities of both upper and lower extremities and a large cystic hygroma over the lower back (9). Clinical findings and cytogenic studies make the diagnosis after birth (1). Chorionic villus sampling (CVS) is generally performed at 10 to13 weeks. CVS and amniocentesis are invasive procedures for antenatal diagnosis. We can diagnose chromosomal and genetic abnormalities of fetal material. Subsequently, it was shown that limb-reduction defect were associated with CVS performed earlier in gestation, typically around seven weeks. Thus, when CVS is performed by an experienced operator after10 weeks, the incidence of limb-reduction defects is the same as background what? (3).

To date, *ESCO2* is the only gene whose mutations cause documented the autosomal recessive Roberts syndrome (RBS) (8) and all individuals with a cytogenetic diagnosis of RBS also show mutations in *ESCO2*.

Cytogenetic diagnosis of RBS is based on premature centromere separation and 'splitting' of the Y chromosome heterochromatic region through C-banding of metaphase chromosomes (8) Identification of mutations in two ESCO2 alleles is important to diagnose this syndrome.

It is also possible to test the carriers and at-risk relatives in case of prior identification of the disease causing mutations in the family. It is noted that heterozygote carries of this genetic disorder don't develop the anomalies (9).

Newborns with less craniofacial anomalies and limb defect with more than37 cm length have better prognosis. Newborns with less than 37 cm of birth length and severe anomalies have Stillborn (1).

However, survival beyond the infancy is infrequent. Survivors have marked growth abnormalities, and some have severe mental deficiency (1,7).

When detected before viability, termination of pregnancy can be offered. After viability, standard obstetrical management is not altered (1). For those families previously affected, chorionic villi sample for cytogenetic studies during the first trimester must be offered (1). Because the signs of the disorder are similar to those caused by the ingestion of thalidomide by pregnant woman, the term "pseudo-thalidomide" is frequently used (7).

Finally, prenatal diagnosis for at-risk pregnancies is recommended and requires either prior identification of the disease-causing mutations in the family or ultrasound examination combined with cytogenetic testing. Carrier status cannot be determined by cytogenetic analyze.

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