Case Report

Importance of ultrasound investigation in the early prenatal diagnosis of an Oral-Facial-Digital Syndrome Type I: a new case report

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Abstract

We report a case of a 29 year old female. Ultrasound examination showed a fetus with: cleft lip and cleft palate, ocular hypertelorism, polydactyly and polycystic kidney. Amniocentesis was performed and the fetal chromosomal analysis indicated a normal cytogenetic female, karyotype: 46XX. Further genetic investigations were done. After genetical counseling the parents decided to terminate the pregnancy. The autopsy confirmed the ultrasound findings.

Key words: Oral-Facial-Digital, syndrome, ultrasound, prenatal diagnosis, mutation.

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Introduction

The oral-facial-digital syndrome (OFD) is a congenital condition with variable anomalies of the oral, facial, and digital tissues [1]. Otto J Mohr published the first case report describing this combination of symptoms in 1941, and the condition became known as Mohr syndrome (now known as OFD II). In 1954, Jean Psaume and Éline Papillon-Léage described another OFD syndrome, now known as OFD I (Papillon-Léage-Psaume syndrome). The cause of OFD is a genetic mutation [2, 3, 4]. The cause of OFD 1, a single mutation on gene *CXORF5*, is the only one to have been identified to date [5, 6]. This gene is located on the short arm of the X chromosome (Xp22.3-22.2) and governs the production of (codes for) the protein OFD I [7, 8, 9]. This protein is essential for foetal survival and for the early development of all organs that are malformed in cases of OFD I [10, 11]. The inheritance pattern of OFD I is X-linked dominant. In most cases OFD I is caused by a new mutation. This means that the genetic mutation occurs in an individual for the first time and is not inherited from either parent. The overall incidence is unknown. OFD I affect females only, as male foetusas with the syndrome die before birth [8, 12]

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Case Report

We report a case of a 29-year-old Caucasian female, pregnant for the first time, GI PI, who was referred at 20 weeks' gestation for a routine prenatal ultrasound examination. The couple had normal general health and was not consanguineous. There was no family history of genetic disorders.

Methods

Routine ultrasound examination at 20 weeks of pregnancy, double and triple test (AFP, uE3 and hCG), selective ultrasonography for detection of fetal abnormalities, 3D and 4D live scan with Voluson Echograph E8, amniocentesis, fetal karyotype and OF-PCR were performed.

Results

Double test was found normal at that time. The biometry of the fetus was normal for his gestational age. Triple test was not sensitive to the presence of a possible trisomy.

Ultrasound examination at 20 weeks of gestation revealed a single fetus with: cleft lip (Fig. 1, Fig. 2, Fig. 3) and cleft palate (Fig. 4), ocular hypertelorism (Fig. 5) and polydactyly (Fig. 6) and polycystic kidney (Fig. 7, Fig. 8).

Amniocentesis was performed and the fetal chromosomal analysis highlighted a normal cytogenetic female, karyotype: 46, XX.

After genetical counseling the parents decided to terminate the pregnancy at 25 weeks of gestation. The autopsy confirmed the ultrasound prenatal diagnosis.

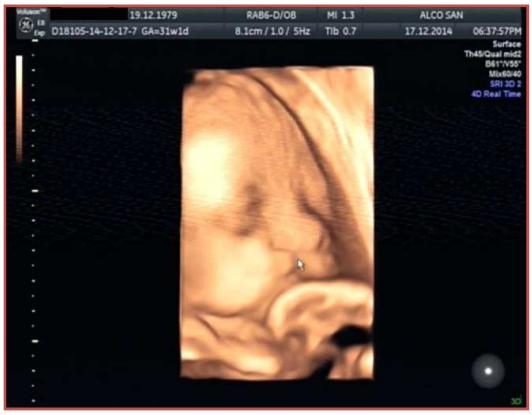

Fig. 1: Cleft lip

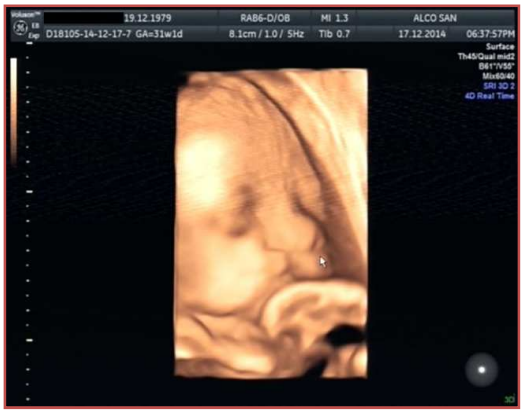

Fig. 2: Cleft lip

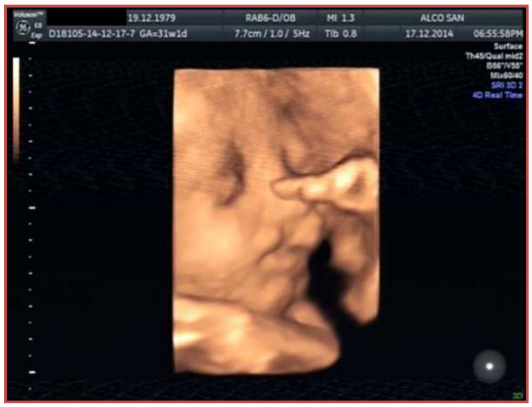

Fig. 3: Cleft lip

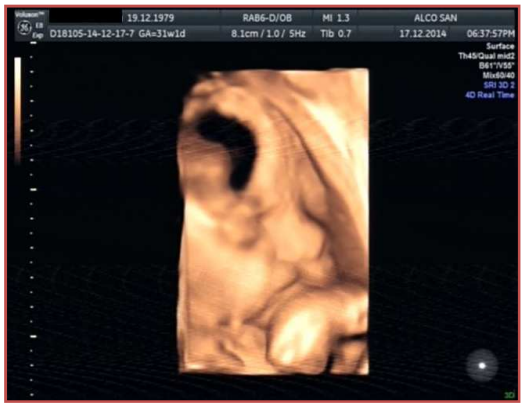

Fig. 4: Cleft lip and Cleft palate

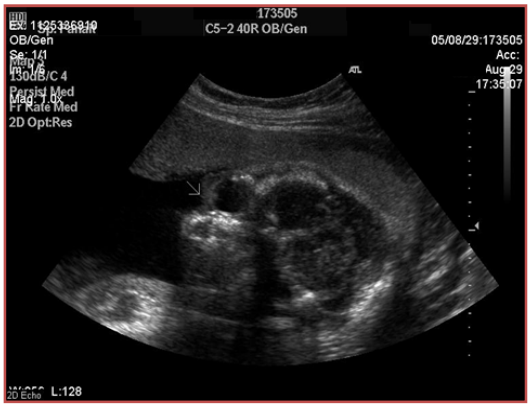

Fig. 5: Ocular Hypertelorism

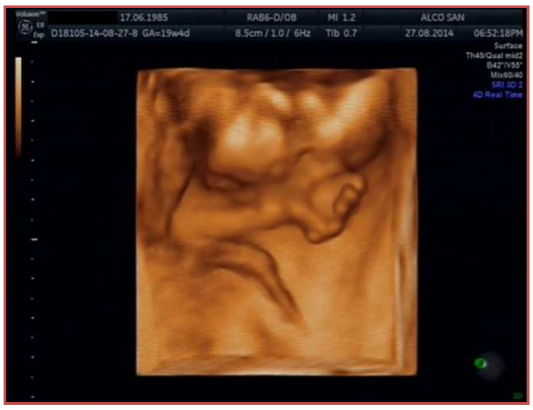

Fig. 6: Polydactyly

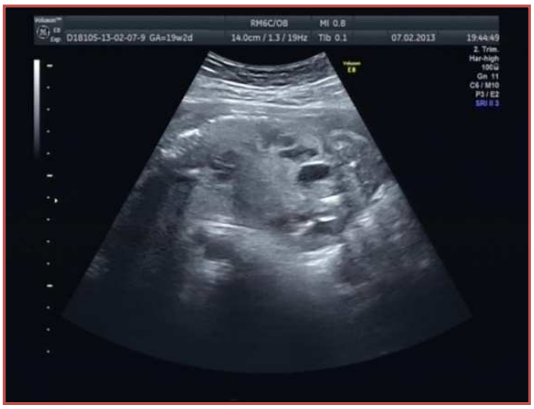

Fig. 7: Polycystic kidney

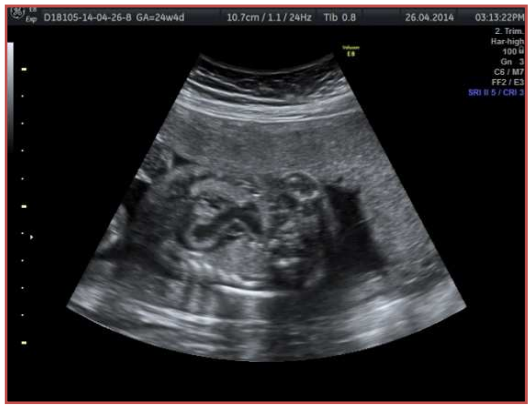

Fig. 8: Polycystic kidney

Discussion and Conclusions

A sporadic case with an Oral-facial-digital syndrome type I, as the result of a de novo gene mutation was described. Approximately 75% of affected females are simplex cases (i.e., occurrence of OFD1 in a single family member) [13, 14].

Recommendations for the evaluation of the mother of a pro band with an apparent de novo mutation include clinical evaluation and molecular genetic testing if the mutation in the pro band has been identified. If the mother meets the diagnostic criteria for OFD 1 or if she has another affected relative, she is an obligate carrier of an *OFD1* mutation [15].

Ultrasound examination in pregnancies of a female with OFD1, which are at 50% risk, prenatal ultrasound examination may detect structural brain malformations (e.g., porencephaly) and/or duplicated hallux. Ultrasound examination in pregnancies not known to be at increased risk for OFD1, the findings of structural brain anomalies and unilateral polydactyly of the great toe (duplicated hallux) should lead to consideration of OFD1. In such instances, it is appropriate to evaluate the mother for manifestations of OFD1 [16, 17, 18].

Prenatal ultrasound examination was very useful in the management, prognosis and detection of this case. The prenatal diagnosis is necessary for the detection of fetal abnormalities to all pregnancies and especially for the risk categories.

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