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Research Letter

Prenatal diagnosis of mosaicism for trisomy 15 in a single colony at amniocentesis with a favorable fetal outcome

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Dear Editor,

We previously reported prenatal diagnosis of low-level mosaicism for trisomy 15 at amniocentesis with a favorable pregnancy outcome [1]. Here, we present an additional case of mosaicism for trisomy 15 in a single colony at amniocentesis with a favorable fetal outcome.

A 35-year-old, gravida 3, para 0, woman underwent amniocentesis at 18 weeks of gestation because of advanced maternal age. She had experienced two abortions. Her husband was 40 years of age, and there was no family history of congenital malformations. Amniocentesis revealed a karyotype of 47,XY,+15[1]/46,XY[22]. Among the 23 colonies of cultured amniocytes, only one colony had the karyotype of 47,XY,+15, whereas the other 22 colonies had the karyotype of 46,XY. The single colony with trisomy 15 contained two metaphase cells, and both had the karyotype of 47,XY,+15. Prenatal ultrasound findings were unremarkable. At 20 weeks of gestation, the woman underwent repeat amniocentesis. Interphase fluorescence *in situ* hybridization (FISH) and array comparative genomic hybridization (aCGH) were performed on uncultured amniocytes, and conventional cytogenetic analysis was performed on cultured amniocytes. Polymorphic DNA marker analysis by quantitative fluorescent polymerase chain reaction (QF-PCR) was performed on DNAs extracted from uncultured amniocytes and amniotic fluid and parental blood samples. aCGH analysis of the DNA extracted from uncultured amniocytes using Roche ISCA Plus Cytogenetic Array (Roche NimbleGen, Madison, WI, USA) showed no genomic imbalance. Interphase FISH analysis on 97 uncultured amniocytes using a chromosome 15q11.2-specific probe of RP11-441B20 (chr.15q11.2; 25,253,957-25,522,314; spectrum green, fluorescein isothiocyanate) showed three green signals in three cells, indicating 3.09% (3/97) mosaicism for trisomy 15. QF-PCR analysis using the informative markers such as D15S643 (15q21) and D15S1513 (15q12) excluded uniparental disomy (UPD) 15. The father had a karyotype of 46,XY. The mother had a karyotype of 46,XX. The cultured amniocytes at repeat amniocentesis had a karyotype of 46,XY in 26/26 colonies. The parents elected to continue the pregnancy, and a 3354-g healthy male baby was delivered uneventfully at 39 weeks of gestation. The cord blood lymphocytes had a karyotype of 46,XY in 40/40 cells. Postnatal interphase FISH analysis on 20 uncultured urinary cells revealed no trisomy 15. The baby was phenotypically normal during follow-up at age 18 months.

Prenatal diagnosis of mosaic trisomy 15 at amniocentesis remains a challenge for both clinicians and genetic counselors [1–3]. Mosaic trisomy 15 in liveborn children has been reported to be associated with intrauterine growth restriction, congenital heart defects, multiorgan malformaitons, and craniofacial dysmorphism [1,4–5]. Mosaic trisomy 15 may also be associated with maternal UPD 15 and Prader–Willi syndrome because of trisomy rescue by reduction to disomy [6]. In a review of 16 cases with mosaic trisomy 15 at amniocentesis, Chen et al [1] reported a correlation between a higher trisomy 15 mosaicism level and an abnormal fetal outcome. The present case provides evidence that prenatal diagnosis of mosaicism for trisomy 15 in a single colony at amniocentesis without UPD 15 and abnormal fetal ultrasound can be associated with a favorable fetal outcome. The present case also

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demonstrates the usefulness of analyses of uncultured amniocytes by interphase FISH and aCGH for rapid confirmation of low-level mosaic trisomy 15 at repeat amniocentesis and by QF-PCR for rapid exclusion of UPD 15.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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