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Research Letter

Low-level mosaic tetrasomy 18p at amniocentesis can be associated with a favorable pediatric outcome: The follow-ups of three consecutive cases

Chih-Ping Chen ^{a, b, c, d, e, *}^a Department of Obstetrics and Gynecology, MacKay Memorial Hospital, Taipei, Taiwan^b Department of Medical Research, MacKay Memorial Hospital, Taipei, Taiwan^c School of Chinese Medicine, College of Chinese Medicine, China Medical University, Taichung, Taiwan^d Institute of Clinical and Community Health Nursing, National Yang-Ming University, Taipei, Taiwan^e Department of Obstetrics and Gynecology, School of Medicine, National Yang-Ming University, Taipei, Taiwan

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Dear Editor:

We previously reported three consecutive cases of low-level mosaic tetrasomy 18p at amniocentesis [1–3]. Recently, the three children were followed up again at the age of 8 years and 2 months, 6 years and 9 months, and 3 years and 7 months, respectively.

The first case was a 41-year-old woman, and amniocentesis at 18 weeks of gestation revealed a *de novo* supernumerary isochromosome 18p in two of 14 colonies of cultured amniocytes, or 47,XY,+i(18)(p10) [2]/46,XY[12] [1]. Repeated amniocentesis at 22 weeks of gestation revealed a karyotype of 47,XY,+i(18)(p10) [3]/46,XY[23]. Simultaneous interphase fluorescence *in situ* hybridization (FISH) on uncultured amniocytes at repeat amniocentesis detected four 18p11.32-specific probe signals in 3/53 cells (5.7%), and array comparative genomic hybridization (aCGH) analysis and multiplex ligation-dependent probe amplification (MLPA) P095 test kit detected no genomic imbalance. Prenatal ultrasound findings were normal. The pregnancy was carried to 38 weeks of gestation, and a healthy 3120-g male baby was delivered without phenotypic abnormalities. The cord blood had a karyotype of 46,XY. FISH analysis on the newborn urinary cells revealed 9.4% (3/32 cells) mosaicism for tetrasomy 18p. The child was followed up at the age of 8 years and 2 months. He was a grade 2 elementary student with a body weight of 24.9 kg (15–50th centile) and a body height of 137 cm (50–85th

centile). He had good academic performance at school and was intelligent and normal in psychomotor development at this writing.

The second case was a 39-year-old woman, and amniocentesis at 18 weeks of gestation revealed a karyotype of 47,XY,+i(18)(p10) [4]/46,XY[29] [2]. Repeat amniocentesis at 24 weeks of gestation revealed a karyotype of 47,XY,+i(18)(p10)[8]/46,XY[38]. aCGH on amniotic fluid revealed arr 18p11.3p11.1 (0–13,884,871) × 2–3. Cord blood sampling at 26 weeks of gestation revealed a karyotype of 46,XY in 100/100 lymphocytes. The woman underwent a third amniocentesis at 27 weeks of gestation, and the cultured amniocytes revealed a karyotype of 47,XY,+i(18)(p10)[9]/46,XY [18]. Simultaneous interphase FISH analysis on uncultured amniocytes showed four 18p11.32-specific probe signals in 6/84 cells (7.1%), and aCGH analysis detected gene dosage increase of 18p11.32p11.21 (0–15,310,000) × 2.13 with a log₂ ratio of 0.091. Prenatal ultrasound findings were normal. The pregnancy was carried to term, and a 3450-g healthy male baby was delivered without phenotypic abnormalities. Interphase FISH analysis on newborn urinary cells revealed four 18p11.32-specific probe signals in 5/97 cells (5.2%). The child was followed up at the age of 6 years and 9 months. He was a kindergarten student with a body weight of 22 kg (15–50th centile) and a body height of 122 cm (50–85th centile). He was intelligent and normal in psychomotor development at follow-ups.

The third case was a 40-year-old woman, and amniocentesis at 17 weeks of gestation revealed a karyotype of 47,XX,+i(18)(p10)[8]/46,XX[31] [3]. Simultaneous aCGH analysis on uncultured amniocytes revealed arr 18p11.32p11.21 (148,963–14,081,887) × 2–3. Repeat amniocentesis at 20 weeks of gestation revealed a karyotype of 47,XX,+i(18)(p10) [2]/46,XX[12]. Simultaneous interphase FISH analysis on uncultured amniocytes showed four 18p11.22-specific probe signals in 12/103 cells (11.7%), and aCGH analysis detected no genomic imbalance on the DNA extracted from uncultured amniocytes. Prenatal ultrasound findings were normal. The pregnancy was carried to 38 weeks of gestation, and a 2742-g healthy female baby was delivered without phenotypic abnormalities. The cord blood had

* Department of Obstetrics and Gynecology, MacKay Memorial Hospital, 92, Section 2, Chung-Shan North Road, Taipei, 10449, Taiwan. Fax: +886 2 25433642, +886 2 25232448.

E-mail address: cpc_mmh@yahoo.com.

a karyotype of 46,XX. Postnatal interphase FISH analysis on 21 uncultured urinary cells revealed normal signals in all cells and no mosaic tetrasomy 18p. The child was followed up at the age of 3 years and 7 months with a body weight of 15 kg (50th centile) and a body height of 98 cm (20–50th centile). She was intelligent and had normal psychomotor development at follow-ups.

Our postnatal observations and follow-ups of three consecutive cases of low-level mosaic tetrasomy 18p at amniocentesis provide evidence that low-level mosaic tetrasomy 18p at amniocentesis can be associated with a favorable pediatric outcome. This information is very useful for genetic counseling of the parents especially who have very advanced maternal age, who have experienced very difficult assisted reproductive technologies to conceive precious babies, and who wish to keep the babies under such a circumstance.

Declaration of competing interest

The author has no conflicts of interest relevant to this article.

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