Case reports

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References


First trimester fetal karyotyping in twin pregnancy

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SUMMARY Fetal chromosome analysis in a twin pregnancy during the first trimester is described. Problems of the reliability of tissue sampling are also discussed. The authors emphasise the advantage of direct cytogenetic analysis from the tissue specimens used for enzyme determination or DNA studies.

The discovery of twins at the time of fetal diagnosis complicates the counselling problem; for example, it alters the risk of finding an affected fetus or the twins may be discordant for the abnormality.1 Moreover, the inability to test both twins may occur and diagnostic procedures which are reliable in a singleton pregnancy may not be so in a twin pregnancy. We present our first experience of fetal chromosome analysis of twins during the first trimester and emphasise the importance of obtaining reliable samples from each twin.

Case report

The proband, a 42-year-old G9 P6 woman, was referred to us because of advanced maternal age. At 9 weeks' gestation ultrasound examination

FIG 2. Chromosome 2 pairs from the proband, depicting the duplication of 2q11.2→2q14.2.
revealed two normally developed fetuses in two different sacs and a single anterior placenta (figure a).

A careful study of the uterine cavity allowed us to locate the insertion of both umbilical cords (figure b, c). By transcervical aspiration, using a Portex catheter, three samplings were attempted: one near the umbilical cord insertion of the first fetus, and two others near the umbilical cord insertion of the other fetus. The amounts of chorionic villi specimens obtained were 20, 15, and 50 mg from the first, second, and third samplings, respectively.

**CYTOGENETIC ANALYSIS**

Chromosome preparations were carried out using the direct method. The aspirated samples were inspected under the inverted microscope (×50) and villi showing typical morphology were taken and washed in Hank’s saline balanced solution in a 60 mm Petri dish. The villi were then transferred into a 30 mm Petri dish containing 3 ml of medium without serum. Colcemid was added to the medium to reach a final concentration of 0.04 μg/ml and the villi were left for one hour at room temperature. The medium was then removed with a Pasteur pipette and replaced with 3 ml of 1% sodium citrate solution for hypotonic treatment (10 minutes). The hypotonic solution was removed and 3 ml of methanol-acetic acid (3:1) fixative were added for 10 minutes. The fixative was aspirated with a micropipette and replaced with 1 ml of aqueous 60% acetic acid solution to cause cell dissociation. Two to three drops of dense cell suspension were placed on slides. The suspension was distributed on the surface of the warmed slides (40 to 50°C) by means of a bent Pasteur pipette. Chromosome preparations were stained using the QFQ banding technique.

A 46,XY fetal karyotype was observed in 31 metaphases obtained from the first sample, while a 46,XX karyotype was present in 10 mitoses from the second specimen. In the third sample a mixed cell population was found in which 50 mitoses were 46,XX and 15 were 46,XY. A diagnosis of dizygotic twins of different sex with a normal karyotype was made.

To date the pregnancy is progressing normally.

**Discussion**

The study of this case prompts some comments regarding the obstetrical procedure. In order to ensure the best chance of obtaining trophoblastic tissue from both twins, it was necessary to identify the umbilical cord insertion on the surface of the placenta and to guide the tip of the aspiration catheter very near to the insertion point. Nevertheless, a mixed specimen was observed at the third attempt. In order to overcome this, we think that repeated suction movements during the withdrawal of the catheter should be avoided. If these precautions are not taken, particularly in cases of fused placentas, there is a high probability of diagnosing only one twin, a situation which must be discussed with the patient before proceeding.

At cytogenetic diagnosis no difficulties were
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Cat eye syndrome owing to tetrasomy 22pter→q11

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SUMMARY A case of tetrasomy 22pter→q11 with ocular hypertelorism, downward slanting palpebral fissures, total anomalous pulmonary venous return, and anal atresia is described. The phenotypic variability of the cat eye syndrome is emphasised along with the need for categorisation of these patients according to well characterised cytogenetic findings.

Since the original description of four patients with a small extra chromosome, the delineation of the cat eye syndrome has been hindered by both phenotypic and cytogenetic variability. Certain component defects of the cat eye syndrome, such as the ocular colobomata, preauricular tags, anal atresia, cardiac anomalies, and renal anomalies, occur in a variety of disorders including the VATER and CHARGE associations. Schinzel et al provide convincing evidence that the extra small chromosome associated with the cat eye phenotype represents trisomy or tetrasomy of 22pter→q11 rather than the phenotypically different trisomy 22, translocation 11;22, or tetrasomy 15pter→q11→q13. Syndromes caused by these distinct cytogenetic entities can now be defined and separated from non-chromosomal causes of the cat eye phenotype.

REFERENCES

1 Hunter AGW, Cox DM. Counselling problems when twins are discovered at genetic amniocentesis. Clin Genet 1979;16:34-42.

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