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SHORT COMMUNICATIONS

Rapid DNA quantification in the prenatal diagnosis of fetal triploidy

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Subjects and methods

Ultrasound examination demonstrated fetal defects in two pregnant women. The first was a 22 year old and gestation, calculated from her last menstrual period, was 17 weeks. There was a molar placenta, and the fetus was growth-retarded with cerebral ventriculomegaly, nuchal oedema, hyperechogenic kidneys and exomphalos. The second woman was 35 years old and of 19 weeks gestation calculated from her last menstrual period. The fetus had asymmetrical growth retardation, atrio-ventricular septal defect, syndactyly and talipes. The mothers gave informed consent to cordocentesis and fetal blood (1·5 ml) was collected for karyotyping, full blood count and DNA quantification.

A single cell suspension of nucleated cells was prepared and the DNA was stained with propidium iodide (Ormerod 1990). Flow cytometric analysis was carried out (FACScan and Cellfit software, Becton Dickinson, Oxford, UK), and a minimum of 10 000 cells were acquired to calculate the DNA index. Since there is a linear relationship between propidium iodide fluorescence and the amount of DNA in the cell nucleus, in triploid cells the mean fluorescence is 1·5 times the normal.

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Results

The DNA index in both fetuses was 1·5 times that of a chromosomally normal control (Fig. 1), consistent with the diagnosis of triploidy. The mean corpuscular volume was 159 fl in the first fetus (95% CI for 17 weeks = 127–167 fl) and 183 fl in the second fetus (95% CI for 19 weeks = 122–152 fl). Both fetal karyotypes were confirmed as being triploid by cytogenetic analysis of cultured fetal blood lymphocytes.

Discussion

Triploidy occurs in approximately 2% of fetuses and rarely is seen in livebirths (Jones 1988). Prenatally, the diagnosis is suspected by the ultrasonographic demonstration of the Swiss cheese appearance of a molar placenta. However, more commonly the condition presents as severe asymmetrical growth retardation at 18–26 weeks gestation (Snijders 1992). Since this is also the presentation of potentially viable, chromosomally normal, hypoxaemic, growth-retarded fetuses, it is imperative that the correct diagnosis is made to help decide the appropriate time and mode of delivery.

Recent studies have proposed that the degree of macrocytosis in fetal blood is a good marker for karyo-

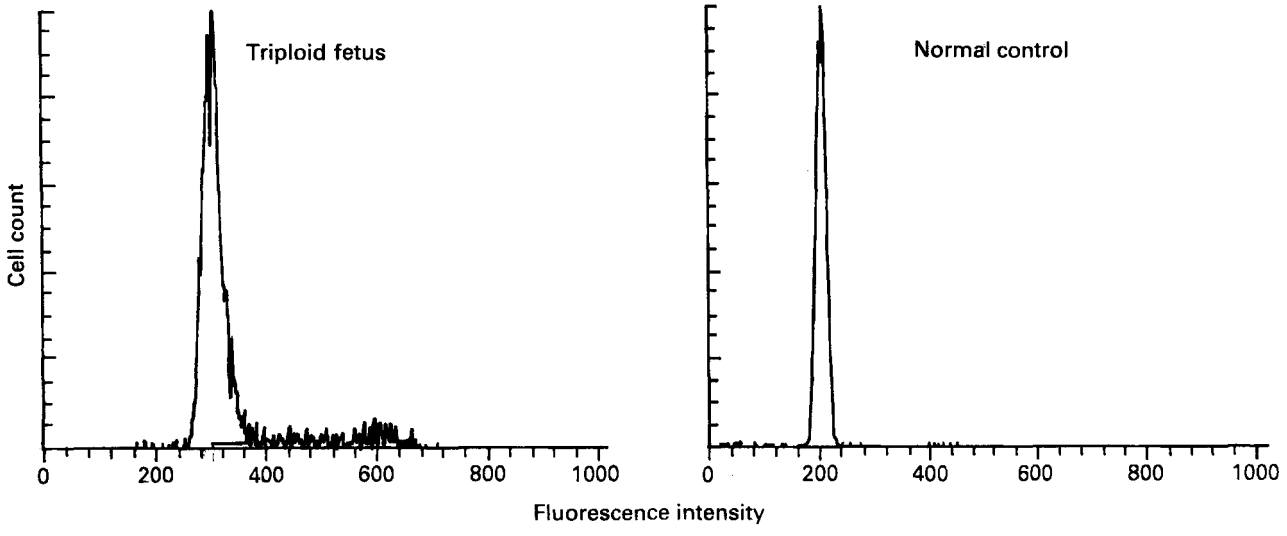

Fig. 1. The distribution of nuclear staining in a fetus with triploidy showing a peak with a mean fluorescence intensity at 300; in a chromosomally normal fetus the peak is at 200.

typic abnormalities in early onset severe growth retardation (Fisk *et al.* 1989; Nicolaides *et al.* 1989; Sipes *et al.* 1991). However, since there is an overlap in mean corpuscular volume between triploid and chromosomally normal growth-retarded fetuses (Nicolaides *et al.* 1989) it is necessary that the diagnosis is confirmed by cytogenetic analysis which usually takes 7–10 days. Using flow cytometry and standard DNA quantification techniques, which are now widely used in the clinical management of haematological and other neoplasias, it is possible to diagnose fetal triploidy from fetal blood, within 1 h of sampling.

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A prospective randomised controlled trial of perineal repair after childbirth, comparing interrupted chromic catgut to subcuticular prolene for skin closure

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Perineal repair following childbirth is the commonest operation performed in the UK, and continues to have considerable morbidity. Grant's (1989) review found that chromic catgut was the commonest material used in the UK, but there was evidence that dexon (polyglycolic acid) may reduce short term pain. He concluded that the frequent need for removal meant that dexon was not the ideal material for perineal repair, and a technique using an inert subcuticular suture may offer some decrease in morbidity. We report the results of a prospective randomised controlled trial comparing subcuticular prolene with chromic catgut for skin closure following obstetric perineal trauma.

Subjects and methods

Women with perineal trauma following childbirth who required a surgical repair were allocated to one of two groups by sealed prerandomised envelopes. The two groups were:

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1. Standard chromic catgut repair, involving closure of the vaginal defect using continuous chromic catgut, with two layer repair of the perineum using interrupted chromic catgut to close the skin. The skin suture was not removed routinely in these patients.
2. The standard chromic catgut repair was used as far as the perineal skin, then a 3/0 subcuticular prolene suture was used to close the perineal skin. The prolene suture was tied in a loop over the perinium and removed after five days.

Assessments took place at 3 days, 10 days and 3 months and took the form of a structured questionnaire giving patients and midwives several answer choices for each question. The woman was asked about the degree of pain from her perineum, any exacerbating factors of which she was aware and her analgesic requirements. In addition, on the three-month form the woman was asked about resumption of sexual intercourse and any problems she had experienced or was now experiencing. The midwife caring for the woman, in either the community or hospital, was asked about the condition of the perineum in the third and tenth day questionnaires. The three-month questionnaire was sent by mail with a prepaid envelope for return.