Case reports

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Prenatal diagnosis of inv(X)(q12q28) in a male fetus

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SUMMARY Amniocentesis and prenatal chromosome analysis were performed for advanced maternal age. The fetus was male with a paracentric inversion in the long arm of the X chromosome. The mother and a brother also carried the inversion. The pregnancy continued to term and the infant is developing normally at one year of age.

Case report

Amniocentesis was performed on a 39 year old G5, P2, A2 Hispanic female at 17 weeks' gestation because of advanced maternal age. Chromosome analysis showed the fetus to be male with a large paracentric inversion in the long arm of the X chromosome. Subsequent chromosome analysis of the parents and their two sons showed that the mother and a 13 year old son were also inv(Xq) carriers (figure). No other family members were available for study.

The parents were told that the fetus had what appeared to be the same inv(Xq) as the mother and his phenotypically normal brother. Ultrasound examination showed no abnormalities. Therefore, we believed that the inversion would probably cause no harmful effect.

We were not able to obtain a second blood specimen from the mother for X inactivation study, which may have indicated whether or not the inv(Xq) was balanced. The patient continued the pregnancy and delivered a clinically normal 3660 g infant at 41 weeks' gestation by caesarean section. The Apgar scores were 9 at one and five minutes. The infant is developing normally at one year of age.

Discussion

Paracentric Xq inversions are extremely rare and no

FIGURE Sex chromosome complements of the fetus (top) and mother (bottom). Arrows indicate breakpoints on inv(X) chromosomes.

similar published cases could be found. Our concern was that a small duplication or deficiency might be present in the fetal inv(Xq). Extra or deleted material could be present in the inv(Xq) carried by the mother, or in the fetal inv(Xq) resulting from recombination in the mother during meiosis. Males with probable duplications or deficiencies of their single X chromosome have been reported and these have been associated with mental retardation and congenital abnormalities.¹⁻³ None of these cases, however, resulted from recombination in an inversion carrier parent. Furthermore, in a recent review of all documented paracentric inversion carriers, most of which were autosomal, Venter *et al* concluded that the risk for a balanced carrier producing recombinant offspring is not high. According to these authors, a total of 89 paracentric inversion carriers has been reported, and only six infants out of 71 liveborns (our count) had

recombinant chromosome originating from a carrier parent. Mules and Stamberg⁵ also found the risk for liveborn recombinants to be low.

No cytogenetic information was available on the fetal tissue from the mother's two spontaneous abortions in our case. Mules and Stamberg,⁵ however, reported that paracentric inversion carriers seem to be at some risk of pregnancy wastage. Their data indicate that about one third of these pregnancies ended in spontaneous abortion.

In conclusion, it is advisable for all paracentric inversion carriers to have prenatal chromosome analysis performed on every pregnancy, even though the risk of recombination may be low. X chromosome inactivation studies are also recommended for inv(X) female carriers. The commonly accepted theory for inactivation of X chromosomes with duplications or deficiencies of material is that the abnormal X is inactivated to avoid genetic imbalance. Therefore, non-random inactivation of an inv(X) may indicate whether or not the rearrangement is balanced, and be a significant factor in counselling parents of a carrier male fetus.

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A recognisable short stature syndrome with premature aging and pigmented naevi

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SUMMARY We report the progress up to the age of seven years of a small for dates baby whose face and neck are strikingly devoid of subcutaneous tissue and who has, in addition, multiple pigmented naevi.

In 1975 Mulvihill and Smith¹ published a short case report which they entitled 'Another disorder with prenatal shortness of stature and premature aging'. There had been one previous report by Shepard² in 1971 with a review of the same patient by Elliott³ in 1975. Both publications appeared in the *Birth Defects* series which is not easily accessible to many clinicians. A case recently seen, now the third, has prompted us to make the condition more widely known. The diagnosis was made using the London Computerised Dysmorphology Database by asking

for the retrieval of all the syndromes with short stature, naevi, and premature aging.

Case report (figs 1 to 4)

The proband, a male, was the first born child of a healthy, 34 year old mother and an unrelated 36 year old father after a normal pregnancy apart from intrauterine growth retardation. They have since produced a normal girl. The fetus grew poorly and weighed 1.88 kg after 39 weeks' gestation. His length was 43 cm and his head circumference 31 cm, both below the 3rd centile. The facial appearance with its lack of subcutaneous tissue was striking in infancy but the features have become accentuated over the years. The lower jaw remains small and the ears are somewhat prominent with deficient lobules. The trunk, though profoundly small, is well covered with subcutaneous tissue.

Fig 5 portrays his progress until the age of seven years. His voice is high and piping and speech, though perfectly constructed, is difficult to follow.