A case of interstitial deletion of 10q25.2→q26.1

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SUMMARY A de novo interstitial deletion of chromosome 10, del(10)(pter→q25.2::q26.1→qter), was detected in a newborn female with facial anomalies, failure to thrive, and subsequent developmental delay. This case is compared with 10 previous reports of monosomy 10q within the q25→qter region.

Case report

The proband (fig 1) was the first child of unrelated parents, both in their twenties and from large families with no history of congenital malformation. The pregnancy was uneventful except for a varicella infection at six weeks, and labour was induced five days after term producing a liveborn, 2960 g female. Respiratory effort was poor with Apgar scores of 3 at one minute, 6 at five minutes, and 9 at 10 minutes. There was some meconium staining of the liquor.

The baby was noted to be of unusual appearance: microcephalic, and brachycephalic. She also had poor muscle tone. Facial features included hypertelorism, prominent, broad nasal bridge, thin, bow-shaped upper lip, long philtrum, long, narrow face, and poorly developed jaw angles. The only other abnormal finding was bilateral, flat, hypoplastic labia majora. The baby failed to thrive for 10 days after birth.

Later review at six months of age showed that...
blood lymphocyte cultures 12 days after birth. Giemsa banded preparations showed an interstitial deletion of chromosome 10 (fig 2) from q25.2 to q26.1. Parental karyotypes were normal. The full karyotype was designated 46,XX,del(10)(pter→q25.2::q26.1→qter).

Discussion

There have been several published reports of partial monosomy 10q.1-14 However, comparisons between them have so far failed to show sufficient consistent features to suggest a recognisable syndrome. Some of these reports describe derivative chromosomes from familial rearrangements,8 10-12 and therefore some inconsistencies may arise from the comparison of these double aneusomies with the true de novo deletions. Thus, a collation of data from cases of true 10q- should provide more uniform information with which to reappraise the possibility of a syndrome. Until now there have been very few such reports.

The present case represents the 11th case of true partial monosomy 10q within the q25→qter region, although it is, to our knowledge, the first interstitial deletion to be described.

The principle features described by previous authors together with those seen in our proband are summarised in the table. The data have been separated according to breakpoints, either q25 or q26, to highlight any phenotypic differences that may be attributable to the loss of a specific chromosome region.

There appears, however, to be little difference between features associated with the two breakpoints although it is difficult to draw conclusions on so few data. It would seem that the q25 deletion may increase the tendency to brachycephaly, rotated ears, widely spaced nipples, anomalies of the hands and feet, anogenital defects in females, and congenital heart defect. However, not all of these are found in our interstitial deletion case, so these features may result from an additive effect of losing q25 and the q26→qter regions rather than from loss of q25 itself.

Two authors5 6 draw attention to the recent localisation to 10q25.3 of the human GOT1 (glutamate oxaloacetate transaminase) structural gene.13 In both cases the deleted segments were from q26, and in both cases GOT1 activity was normal. Evans-Jones et al5 also tested PGAMA (phosphoglycerate mutase) activity and this too was normal. These data confirm that the two loci are proximal to q26. The interstitial deletion of q25.2→q26.1 in our case would presumably affect activity of these two enzymes if the loci are within this region, and it is

while the weight remained just below the 10th centile, both the length and biparietal diameter were below the 3rd centile. Developmental assessment put her at the three month level.

At two years she was achieving developmental skills at approximately half her chronological age, with the benefit of the Portage scheme of developmental stimulation. Socially she is withdrawn and slow to smile, but she has no other features suggestive of autism.

CYTOGENETIC STUDIES

Chromosome analysis was performed on peripheral
intended that such tests will be performed on our patient.

Conclusion

Despite comparison of karyotypically uniform data, the features associated with deletions in the 10q25→10qter region are still too non-specific for a recognisable syndrome to emerge.

References


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