'Deletion rescue' by mitotic 11q uniparental disomy in a family with recurrence of 11q deletion Jacobsen syndrome

Abstract

We describe a family with recurrent 11q23-qter deletion Jacobsen syndrome in two affected brothers, with unique mosaic deletion 'rescue' through development of uniparental disomy (UPD) in the mother and one of the brothers. Inheritance studies show that the deleted chromosome is of maternal origin in both boys, and microarray shows a break near the ASAM gene. Parental lymphocyte chromosomes were normal. However, the mother is homozygous in lymphocytes for all loci within the deleted region in her sons, and presumably has UPD for this region. In addition, she is mosaic for the 11q deletion seen in her sons at a level of 20-30% in skin fibroblasts. We hypothesize that one of her #11 chromosomes shows fragility, that breakage at 11q23 occurred with telomeric loss in some cells, but 'rescue' from the deletion occurred in most cells by the development of mitotic UPD. She apparently carries the 11q deletion in her germ line resulting in recurrence of the syndrome. The older son is mosaic for the 11q cell line (70-88%, remainder 46,XY), and segmental UPD11 'rescue' apparently also occurred in his cytogenetically normal cells. This is a novel phenomenon restoring disomy to an individual with a chromosomal deletion.

Johnson JP, Haag M, Beischel L, McCann C, Phillips S, Tunby M, Hansen J, Schwanke C, Reynolds JF. 'Deletion rescue' by mitotic 11q uniparental disomy in a family with

recurrence of 11q deletion Jacobsen syndrome. Clin Genet. 2014 Apr;85(4):376-80. doi: 10.1111/cge.12164. Epub 2013 May 28. PMID: 23586500.