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SHORT COMMUNICATION

Trisomy 13 mosaicism demonstrated only in skin fibroblasts in a patient presenting psychomotor retardation, pigmentary dysplasia and some dysmorphic features

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ABSTRACT

A Brazilian female infant presented delayed psychomotor development, skin pigmentary dysplasia and some dysmorphic features. Chromosome analysis from peripheral blood culture was normal, but the karyotype from skin fibroblasts revealed mosaicism for trisomy 13. This case demonstrates the relevance of performing chromosomal analysis of skin fibroblasts in patients with mental retardation, associated with pigmentary dysplasia of the skin and a normal karyotype in peripheral blood lymphocytes. To our knowledge, it is the first report of trisomy 13 demonstrated only in skin fibroblasts.

INTRODUCTION

Trisomy 13 is characterized by multiple congenital anomalies (MCA) and early death. About 5% of all cases are mosaic and, in such instances, the phenotype tends to be less severe (Shih *et al.*, 1974).

CASE REPORT

A female infant, 19 months old, was born at term after an uncomplicated gestation and normal delivery, whose birthweight was 2900 g, length 46.0 cm, and occipitofrontal circumference (OFC) 33 cm. She was the first child of a young and non-consanguineous couple. Her psychomotor development was delayed: she held her head up at nine months of age, sat without support at 12 months and could not walk or speak at 19 months.

Physical examination at this time showed normal stature (83.5 cm) and OFC = 45.5 cm, hypertricosis on the face, epicanthal folds, pectus excavatum, one supernumerary nipple on the left (Figure 1), bilateral clinodactyly of the fifth finger, cutaneous syndactyly between the third and fourth toes on the right and between the second, third and fourth toes on the left (Figure 1) and patchy and linear hyperpigmented areas on the skin (Figure 2). A CT-scan of the brain was normal.

Analysis of 200 metaphases from a peripheral blood lymphocyte culture revealed a normal chromosomal constitution; however, 10 of the 20 G-banded metaphases from a skin biopsy fibroblast culture included an additional chromosome 13.

DISCUSSION

Chromosomal abnormalities in fibroblasts of phenotypically abnormal individuals whose lymphocyte karyotypes were normal have been reported (Pagon *et al.*, 1979; Hunter *et al.*, 1985; Turleau *et al.*, 1986;

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Thomas *et al.*, 1989). However, to our knowledge this is the first report of trisomy 13 mosaicism demonstrated only in skin fibroblast cultures.

Trisomy 13 syndrome (Patau syndrome) is characterized by holoproencephaly, scalp defects, dysplastic ears, orofacial clefting, congenital heart defects, polydactyly, severe developmental retardation and early death. In mosaic cases, the clinical picture tends to be less severe, with every degree of variation from the full pattern of malformations to a near-normal phenotype. Survival in the latter cases is usually longer. The clinical picture presented in this patient was not that of Patau syndrome and this could be explained by the mosaic state.

Association between pigmentary dysplasias of the skin and chromosomal mosaicism was related in 1985 (Flannery *et al.*, 1985; Fujimoto *et al.*, 1985; Ishikawa *et al.*, 1985; Miller and Parker, 1985). Happle (1993a) proposed a classification of four distinct major types of cutaneous patterns produced by human mosaicism. The phyloid pattern, present in our patient, has been associated with chromosomal mosaicism in some cases (Happle, 1993b; Ohashi *et al.*, 1992). Among the nine patients described by Ohashi *et al.* (1992), with pigmentary dysplasias and chromosomal mosaicism, one had trisomy 13 mosaic with hyperpigmented lines in the skin, with a phyloid pattern and a mild clinical picture (mental retardation, seizures, right hemiparesis, head asymmetry and strabismus).

Features such as skin pigmentary dysplasias, growth deficiency or body asymmetry in an individual with mental retardation are suggestive of chromosomal abnormalities (Hall, 1988; Woods *et al.*, 1994). The presence of trisomy 13 mosaicism demonstrated only in skin fibroblasts in this case emphasizes the necessity to perform this kind of study in patients who present psychomotor and/or mental retardation associated with skin pigmentary dysplasia, when peripheral lymphocytes are cytogenetically normal.

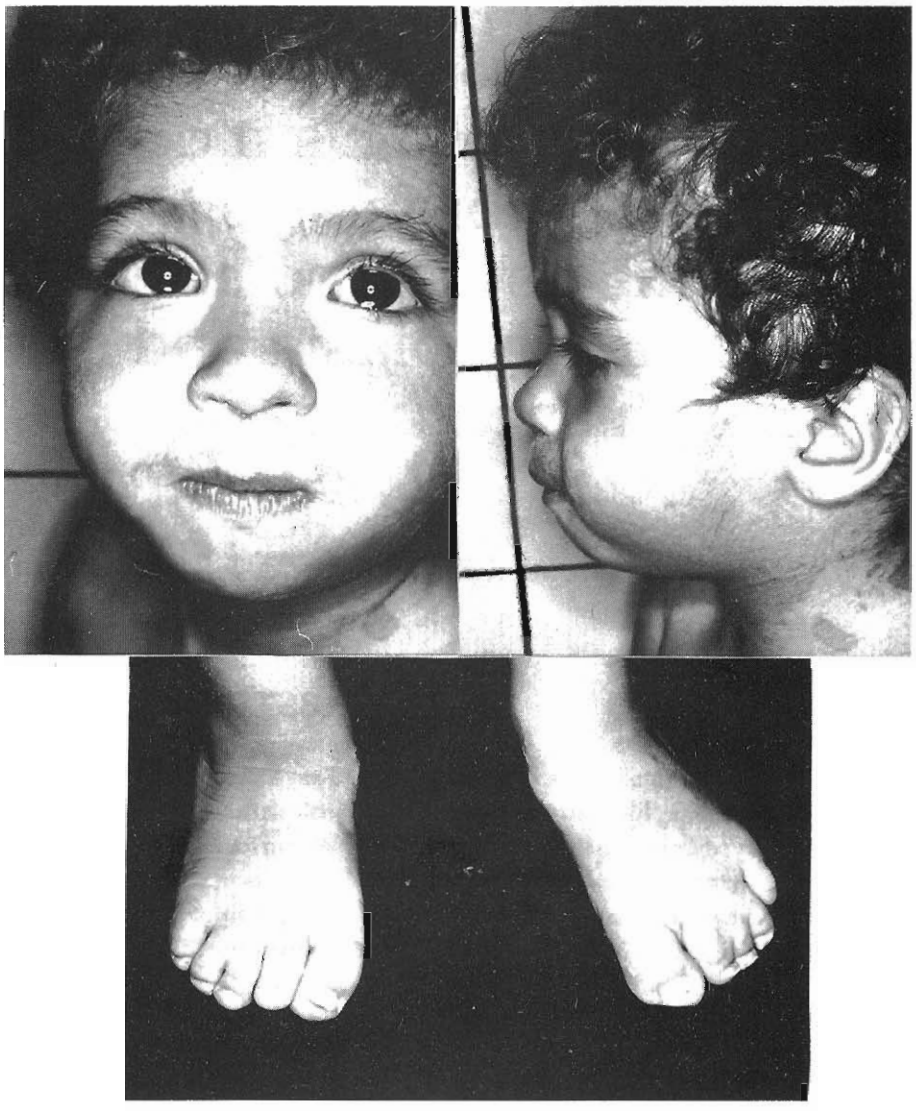

Figure 1 - *Top left*, Hypertrichosis and epicanthal folds. *Top right*, Hypertrichosis. *Bottom*, Syndactyly between toes.

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RESUMO

Os autores descrevem uma criança do sexo feminino com atraso do desenvolvimento neuropsicomotor, manchas hipercrômicas na pele e algumas características dismórficas. O cariótipo em linfócitos de sangue periférico foi normal e a cultura de fibroblastos a partir de biópsia de pele revelou trissomia do cromossomo 13 em 50% das metáfases

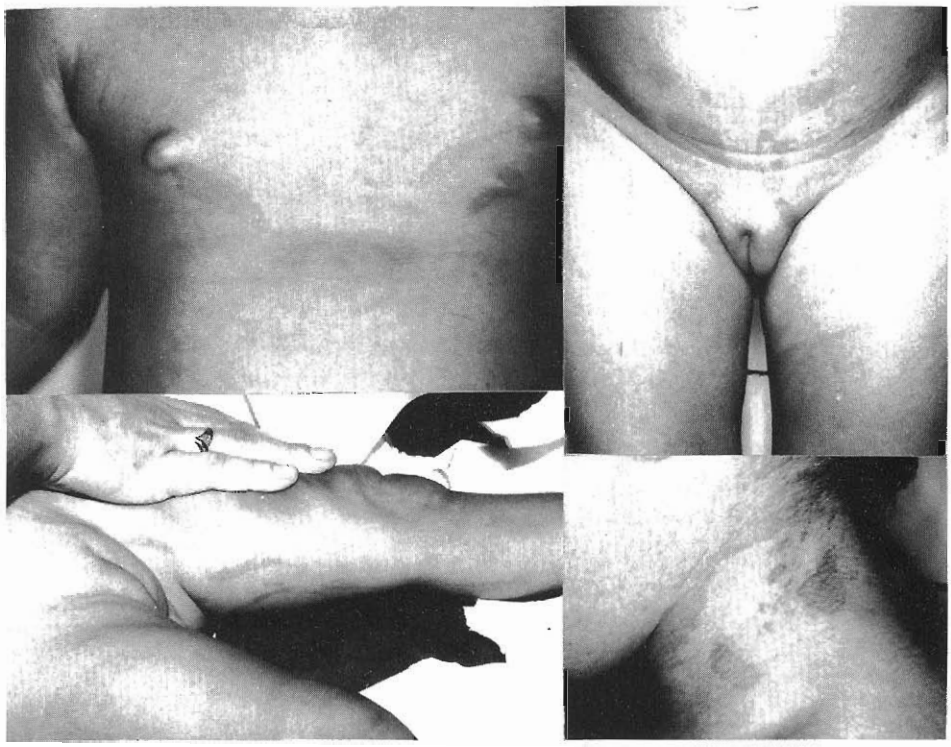

Figure 2 - *Top left*, Supernumerary nipple and hyperpigmented macules. *Bottom left*, Hyperpigmented lines on the lower limbs. *Top right* and *bottom right*, Hyperpigmented patches on the abdomen and neck, respectively.

analisadas. Enfatizam a importância do cariótipo de pele nas situações clínicas em que o retardo psicomotor ou mental está associado com displasia pigmentar de pele e cromossomos normais nos linfócitos.

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