Case Report

Received: September 29, 1995

Accepted: January 26, 1996

Dermatology 1996;193:63-64

Sporadic Hypomelanosis of Ito with Focal Hypertrichosis in a 16-Month-Old Girl

B.K.		Ballmer-Weber ^a
D.		Inaebnit ^b
Ch.U.		Brand ^a
L.R.		Braathén ^a

Departments of ^aDermatology and ^bPediatrics, Inselspital, University of Berne, Switzerland

Key Words

Hypomelanosis of Ito
Neurocutaneous disease
Mosaicism
Hypertrichosis

Abstract

We report the case of a 16-month-old girl with hypomelanosis of Ito, a relatively rare phenotype associated with neurocutaneous manifestations. The characteristic hypopigmented streaks along the Blaschko lines were associated with hypertrichosis of the genitals and shins, as well as musculoskeletal and dental anomalies. An underlying endocrinologic disorder of the hypertrichosis could be excluded. This presumes focal hypertrichosis as another phenotypic expression of mosaicism in this disease.

B.K. Ballmer-Weber, Dermatologische Klinik, Inselspital, CH-3010 Bern (Switzerland)

Introduction

Hypomelanosis of Ito, formerly called incontinentia pigmenti achromians, is a relatively uncommon phenotype associated with neurocutaneous manifestations. So far, some 120 cases have been published. Cutaneous lesions are often diagnostic. Hypopigmented areas follow Blaschko's lines in most cases, thus appearing as the negative image of the pigmented lesions of incontinentia pigmenti Bloch-Sulzberger but with no preceding history of vesicular or verrucous lesions. Neurological, musculoskeletal, dental and ocular abnormalities are associated with hypomelanosis of Ito in 70-90% [1-3].

Most cases of hypomelanosis of Ito are sporadic, but some reports of familial occurrence exist [4]. The karyotype of the patients shows mostly chromosome mosaics. Since hypomelanosis of Ito seems to be a nonspecific phenotype of chromosome mosaicism, cytogenetic evaluation is indicated in all patients with these skin findings [1].

We report on a 16-month-old girl with the characteristic skin lesions of hypomelanosis of Ito associated with hypertrichosis of the genitals and shins, musculoskeletal and dental abnormalities.

Case Report

A 16-month-old girl was referred to our department because of depigmented skin lesions and genital hypertrichosis. After a nor-

mal delivery at term the girl showed a normal psychomotor development. Shortly after birth the parents noticed a genital hypertrichosis. Because of a bilateral hip dislocation the girl was wearing an abduction bandage during the first 3 months. At the age of 2 months a herni-otomia was performed because of a left groin hernia and at 7 months the girl was hospitalized because of a gastroenteritis. At 11 months, when the girl first became sun-tanned, the parents discovered linear and curved white streaks on the trunk and extremities. There was no preceding history of vesicular, verrucous or pigmented skin lesions in these areas. Furthermore the parents became aware of an increasing agitation of the child associated with sleeplessness and an inversed day-night rhythm. The 6-year-old brother, the parents and the rest of the family were free of cutaneous or neurological symptoms.

When examined, the girl was in good shape, her body weight was 11 kg (50-75th percentile), her height 80.2 cm (75th per-centile) and the head circumference 48 cm (75-90th percentile). The hypopigmented skin lesions were bilateral and distributed along Blaschko's lines, they showed patches and linear streaks along the limbs and a curved configuration at the trunk (fig. 1). Apart from a follicular keratosis and a hypertrichosis of the genitals and over the shins there were no other alterations of the skin. These hairs were darkly pigmented and coarse. Dysmorphism of the face with asymmetry, hypertelorism, a slight epicanthus, deformed low-set ears, a salmon patch on the

forehead, dysplastic teeth and musculoskeletal alterations including bilateral genua vara, pes valgus on the right side and hypoplasia of the left buttock were also noticed. The girl presented no physical signs of precocious puberty and serum estradiol. LH, FSH, DHEA, DHEA-S were in the normal range. Neurologic evaluation including inspection of the eyes, conventional X-ray of the skull and the EEG were normal. Karyotype analysis of lymphocytes showed no anomalies.

Discussion

Hypomelanosis of Ito is a neurocutaneous disease characterized by linear, whirled, mottled, patchy, uni- or bilateral depigmentations along Blaschko's lines. The hypopigmented areas are present at birth or are recognized during the first 2 years of life, normally when the child is first exposed to sunlight. Histological examinations of the hypopigmented skin lesions show normal or reduced numbers of epidermal melanocytes, a reduced melanin content, a decrease of melanosomes and an increased number of Langerhans cells [2, 5, 6]. Skin changes may disappear in adults and may then be recognized only by Wood light examination [7]. Some authors reported a predominance of the disease in females [2], others in males [8]. In 70-90% of patients the hypopigmentations are associated with other anomalies [5, 8]. However there is no correlation of the extent or site of the hypopigmentations and the pres-

KAKGER

E-Mail kargerC<'karger.ch Fax+ 41 61 306 12 34 <http://www.karger.ch>

© 1996 S.KargerAG, Basel

1018-8665/96/1931-0063\$ 10.00/0

Fig. 1. Patchy and linear depigmentation of hypertrichosis.

ence or severity of associated anomalies [2]. Fibroma, aplasia cutis, angiomatous nevi, hair and nail dystrophy, dry skin and follicular keratosis were reported as associated cutaneous lesions [5, 8]. In our patient, a hypertrichosis of the genitals and the shins was present since birth. An endocrinological cause of the genital hypertrichosis was excluded. Facial or generalized hypertrichosis was previously described [3, 9], and Dau-beney et al. [10] reported 2 cases of hypomelanosis of Ito associated with growth of pubic hair at 3 months and 7 years, respectively [10]. In both patients, however, other signs of precocious puberty, e.g. breast development or vaginal bleeding, were encountered. Our patient, however, presented growth of pubic hair without other signs of precocious puberty and serum estradiol, LH, FSH, DHEA, DHEA-S were in the normal range. This constellation presumes focal hypertrichosis as another phenotypic expression of mosaicism. Neurological alterations are the most frequent extracutaneous anomalies in this phenotype. Mental retardation has been reported in 60-70% and seizures in 40-50% of patients [5]. Also, cerebellar alterations and mental

the thighs and genital

changes with psychotic behavior were described [6]. MRI findings of the brain may reveal presence of heterotopic gray matter, hemimegalencephaly, cerebral atrophy and cerebellar hypoplasia [11]. In our patient, hyperactivity was the only sign of a possible CNS anomaly. EEG findings, however, were normal. Esquivel et al. [12] reviewed the EEG findings in 15 children with hypomelanosis of Ito and related them to clinical and CT scan data. They could not find a characteristic pattern of EEG anomalies in this syndrome, nor could they find any relation between the clinical presentation of the patients and their EEGs.

Ocular anomalies, e.g. epicanthus and multiple musculoskeletal anomalies, e.g. hypertelorism, genua vara, luxatio coxae, hypoplasia of the buttock and dental dysplasia as encountered in the present case, have been previously reported [3, 5, 9, 13].

In our patient no karyotype anomalies were found in lymphocytes. Lenzini et al. [14] reported on cytogenetic results of 6 patients with hypomelanosis of Ito and reviewed the literature on chromosome aberrations [14]. While karyotypes of fibroblasts and lymphocytes were normal in all his 6 patients – as in

the present case – 18 of 44 patients in the literature so far reported showed an abnormal karyotype and cellular mosaicism was found in 17 of 18 cases. Thus a review of the literature revealed no specific chromosomal abnormalities but a clear association between mosaicism and hypomelanosis of Ito.

In conclusion, we here report the case of a 16-month-old girl with hypomelanosis of Ito presenting the characteristic hypopigmentations along Blaschko's lines, musculoskeletal, ocular and neurological anomalies associated with hypertrichosis of the genitals and shins but no other signs of precocious puberty.

References

Ritter CL, Steele MW, Wenger SL, Cohen BA: Chromosome mosaicism in hypomelanosis Ito. *Am J Med Genet* 1990;35:14-17.

Glover MT, Brett EM, Atherton J: Hypomelanosis of Ito: Spectrum of the disease. *J Pediatr* 1989;115:75-80.

Takematsu H, Sachiko S, Igarashi M, Makoto S: Incontinentia pigmenti achromians (Ito). *Arch Dermatol* 1983;119:391-394.

Grosshans EM, Stoebner P, Bergoend H, Stoll C: Incontinentia pigmenti achromians (ITO). Etude clinique et histo-pathologique. *Dermatologica* 1971;142:65-78.

Ruiz-Maldonado R, Toussaint S, Tamayo L, Laterza A, del Castillo V: Hypomelanosis of Ito: Diagnostic criteria and report of 41 cases. *Pediatr Dermatol* 1992;9:1-10.

Montagna P, Procaccianti G, Galli G, Ripamonti L, Patrizi A, Baruzzi A: Familial hypomelanosis of Ito. *Eur Neurol* 1991;31: 345-347.

Ardinger HH, Bell WE: Hypomelanosis of Ito. Wood's light and magnetic resonance imaging as diagnostic measures. *Arch Neurol* 1986;43: 848-850.

Castroviejo IP, López-Rodríguez L, de la Cruz Medina Maria, Salamanca-Maesso Cipriano, Roche Herrero Carmen: Hypomelanosis of Ito. Neurological complications in 34 cases. *Can J Neurol Sci* 1988;15:124-129.

Jelinek JE, Bart RS, Schiff GM: Hypomelanosis of Ito ('incontinentia pigmenti achromians'). *Arch Dermatol* 1973;107:596-601.

Daubeney PEF, Pal K, Stanhope R: Hypomelanosis of Ito and precocious puberty. *Eur J Pediatr* 1993;152:715-716.

Kimura M, Yoshino K, Maeoka Y, Suzuki N: Hypomelanosis of Ito: MR findings. *Pediatr Radiol* 1994;24:68-69.

Esquivel EE, Pitt MC, Boyd SG: EEG findings in hypomelanosis of Ito. *Neuropediatrics* 1991; 22:216-219.

Cambazard E, Hermier C, Thivolet J, Perrot H: Hypomélanose de Ito. Revue de la littérature à propos de 3 cas. *Ann Dermatol Vénéréol* 1986; 113:15-23.

Lenzini E, Bertoli P, Artifoni L, Battistella PA, Baccichetti C, Pescerico A: Hypomelanosis of Ito: Involvement of chromosome aberrations in this syndrome. *Ann Génét* 1991;34:30-32.