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Case Report

Hypomelanosis of Ito with neurological involvement

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Abstract Hypomelanosis of Ito is also known as Incontinentia pigmenti achromians because the distribution of depigmented lesions is the negative image of hyperpigmented streaks of Incontinentia pigmenti. We report an infant of 9 months with hypopigmented macules along blaschkoid lines, developmental delay, macrocephaly and seizures. MRI brain revealed white matter atrophy and prominent temporal horns of lateral ventricles. This case report highlights the coexistence of Hypomelanosis of Ito with neurological involvement and thus the need to differentiate it from other similar conditions presenting with Blaschkoid dyspigmentation.

Key words
Hypomelanosis of Ito, Incontinentia Pigmenti Achromicans, neurocutaneous syndrome, white matter atrophy.

Introduction

Hypomelanosis of Ito (HI) is a rare disorder, which is considered as the hypopigmented counterpart of incontinentia pigmenti and thereby, also known as incontinentia pigmenti achromians.[1] Ito first described the syndrome in 1951 with only cutaneous findings. Hypomelanosis of Ito is characterized by the presence of hypopigmented macules arranged in a linear and whorled pattern along the Blaschko lines, mainly over trunk and extremities. Around three-fourth of the patients with typical skin lesions have multisystem involvement with the central nervous system, musculoskeletal system and ocular involvement being the most common.

Case report

A nine months old male baby presented with chief complaints of hypopigmented macules over body since 1 month of age and afebrile seizures for last 3 months. Seizures occurred suddenly with twitching and jerking of limbs and lasted for 1-2 minutes and were associated with loss of consciousness, passage of urine and post-ictal sleep. Mother also complained of slow hair growth and patchy hair loss. There was no history of consanguinity of marriage in parents. There was no history of similar complaints in other family members. Baby was born at full term by normal uneventful delivery.

Gross and fine motor skills, language and cognitive developmental milestones were delayed. He was not able to hold neck, bidextrous grasp and bisyllable speech were not attained at the time of examination but social smile was present. On anthropometric measurement, weight of the baby was 9.2kg (66th percentile), length was 73.2 cm (71st percentile) and head circumference was 51cm (>3SD) with frontal bossing suggesting macrocephaly.

Scalp and eyebrow hair were thin, dull, brown in colour with trichoptilosis seen in many hairs on

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Figure 1 Hypopigmented macules over body in a linear and whorled fashion along the Lines of Blaschko

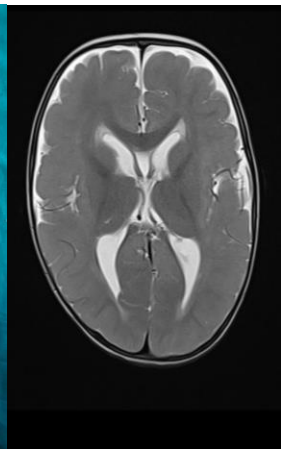

Figure 2 MRI image of the brain showing white matter atrophy and mildly prominent temporal horns of the lateral ventricles

light microscopy and occipital alopecia was noted. Nails and teeth showed no abnormalities. Hypertelorism was noted on ocular examination. Rest of the systemic examination was within normal limits.

Cutaneous examination revealed multiple, symmetrical, well-defined, sharply marginated hypopigmented macules arranged in a linear and whorled pattern following blaschkoid lines over the trunk and all four extremities. Few hypopigmented macules were also present over bilateral palms **(Figure 1)** On Woods lamp examination, hypopigmented macules were enhanced. A 3mm punch biopsy was taken from hypopigmented macule which showed decreased number of melanosomes in basal layer of epidermis. MRI brain showed atrophy of the white matter and mildly prominent temporal horns of the lateral ventricles **(Figure 2)** Karyotyping for chromosomal abnormalities was normal. A diagnosis of hypomelanosis of Ito with multisystem involvement was made. Phenobarbitone syrup was started after consulting paediatrician. Parents were counselled regarding the course of disease and were advised for regular follow up.

Discussion

HI is an uncommon disorder with reported incidence of 1:7540 births and the prevalence of 1:82000 in general population.[1] It is more commonly seen in females (female:male= 2.5:1). The exact etiopathogenesis of hypomelanosis of Ito is still unknown. Majority of cases are associated with chromosomal mosaicism and sporadic gene mutations.

Cutaneous lesions are characterized by the presence of multiple, asymmetrical or symmetrical hypopigmented macules arranged in whorls and linear streaks along the lines of Blaschko as seen in this case. These lines are non-random developmental lines (V-shaped on the back and S- shaped on the abdomen); and represent ectodermal cell migration pathway during the process of embryogenesis. Trunk and extremities are frequently involved; and palms, soles and mucous membranes are usually spared. In contrast to Incontinentia Pigmenti, they are not preceded by vesicobullous lesions. Anonychia, nail dystrophy, dental abnormities, alopecia or variation in hair color and texture can be observed. On histopathological examination, there are decreased number and size of melanosome in stratum basale. Minor skin abnormalities such as cafe`-au-lait macules, mongolian spots, nevus of Ota, cutis marmorata, angiomatous nevi, ichthyosis, and morphea are found in 40% of cases.[2]

Studies have reported a 33-94% association with multiple extracutaneous manifestations, mainly involving anomalies of nervous system, musculoskeletal system, eye, cardiac, renal and teeth leading to frequent characterization as a neurocutaneous disorder[3,4] as was seen in this case. Pascual-Castroviejo et al.[3] described the full spectrum of associated neurological abnormalities. The most frequent alterations in nervous system are mental retardation, seizures,

developmental delay, poor school performance and autistic-like behaviour. Seizures seen in hypomelanosis of Ito are usually associated with cerebral cortex abnormalities like hemimegalencephaly, pachygyria, cortical dysplasia, abnormal neuronal morphology and brain abscess etc.[5,6] No definitive treatment exists and only symptomatic treatment can be given. In majority of cases, seizures are controlled by anti-epileptics but 30% patients have refractory epilepsy.

The commonest skeletal abnormalities associated with hypomelanosis of Ito are limb-length discrepancy, joint contractures and kyphoscoliosis.[7] Facial dysmorphism, macrocephaly, orbital hypertelosrism, inner epicanthal folds, microphthalmia, pinpoint pupil, heterochromia irides etc have been reported.[8]

Ruiz-Maldonado et al. retrospectively studied 41 cases of hypomelanosis of Ito and proposed diagnostic criteria with neurological and musculoskeletal abnormalities being a major criteria.[9] However, the strength of systemic abnormalities in other diseases presenting with pigmentary abnormalities along the lines of Blaschko is not that strong. Cohen et al. studied 36 cases of blaschkoid dyspigmentation and found extracutaneous findings in only 5 (13.9%) children. They proposed that detailed evaluation for systemic abnormalities be carried out only if physical evaluation warrants the same.[10]

Our patient had constellation of symptoms and signs including hypopigmented streaks among blaschkoid lines and also on palms, macrocephaly, frontal bossing, ocular hypertelorism, sparse hair, delayed developmental milestones and seizures. All features are consistent with diagnosis of Hypomelanosis of Ito. MRI showed features of white matter atrophy. We present the case to highlight that patients of hypomelanosis of Ito should be differentiated with other similar diseases presenting with Blaschkoid dyspigmentation and subjected to thorough physical examination to look for systemic abnormalities, which shall help guide further management.

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