Coexistence of Hypomelanosis of Ito and Focal Segmental Glomerulosclerosis: Case Report

Ito Hipomelanozu ve Fokal Segmental Glomerulosklerozu Birlikteliği

Ali Tahsin GÜNEŞ, MD,[a]
Sevgi AKARSU, MD,[a]
Mehmet TÜRKMEN, MD,[b]
Sülen SARIOĞLU, MD,[c]
Gökşen YÜCEL, MD,[a]
Emel FETİL, MD[a]

Departments of
[a]Dermatology,
[b]Pediatrics,
[c]Pathology,
Dokuz Eylül University
Faculty of Medicine, İzmir

Geliş Tarihi/*Received:* 04.03.2010
Kabul Tarihi/*Accepted:* 16.05.2010

This case report was presented as a poster at XIX[th] Prof.Dr. Lütfü Tat symposium, in 11-15 October 2009.

Yazışma Adresi/*Correspondence:*
Sevgi AKARSU, MD
Dokuz Eylül University Faculty of Medicine, Department of Dermatology, İzmir, TÜRKİYE/TURKEY
sevgi.akarsu@deu.edu.tr

ABSTRACT Hypomelanosis of Ito (HI) is a neurocutaneous disorder characterized by hypopigmented whorls, streaks and patches with irregular border along the lines of Blaschko. Although central nervous, musculoskeletal and ocular system defects are most frequent complications of HI, renal involvement has been reported less frequently. Five case reports of HI associated with renal diseases including glomerular basement membrane abnormalities, glomerulonephritis, polycystic kidney disease, glomerulocystic kidney disease or focal segmental glomerulosclerosis (FSGS) were defined in the literature. We reported a 4-year-old girl with cutaneous findings of HI who developed proteinuria in the follow-up period consistent with FSGS. Our case is presented to emphasize the necessity of following HI patients more carefully in terms of other organ defects which may develop rarely.

Key Words: Pigmentation disorders; glomerulosclerosis, focal segmental

ÖZET Ito hipomelanozu (IH) Blaschko çizgilerini takip eden düzensiz sınırlı girdapsı hipopigmante çizgilenmeler ve plaklarla karakterize nörokutan bir hastalıktır. IH'da en sık santral sinir sistemi, kas-iskelet ve göz tutulumu ile ilişkili komplikasyonlar görülmekle birlikte, renal tutulum daha az sıklıkta bildirilmiştir. Literatürde glomerular bazal membran anomalileri, glomerulonefrit, polikistik böbrek hastalığı, glomerulokistik böbrek hastalığı veya fokal segmental glomeruloskleroz (FSGS) gibi renal hastalığı olan toplam beş IH olgusu tanımlanmıştır. Burada IH'nun deri bulgularının görüldüğü ve takiplerinde proteinüri saptanması nedeniyle FSGS tanısı alan dört yaşında bir kız olgu bildirilmiştir. Olgumuz IH olan olguların nadir olarak görülen diğer organ defektleri açısından daha dikkatli izlenmesinin gerekliliğini vurgulamak amacıyla sunulmaktadır.

Anahtar Kelimeler: Pigmentasyon bozuklukları; glomeruloskleroz, fokal segmental

Turkiye Klinikleri J Dermatol 2010;20(2):106-8

Hypomelanosis of Ito (HI), also termed incontinentia pigmenti achromians, was first described in 1952 as a skin disorder characterized by cutaneous hypopigmented whorls, streaks and patches typically distributed along the lines of Blaschko. Subsequently, comprehensive reviews on the spectrum of abnormalities in other organ systems have been documented, leading to frequent characterization of HI as a neurocutaneous disorder.[1,2] Herein we present an extremely rare case of a child

with cutaneous findings of HI who developed proteinuria consistent with focal segmental glomerulosclerosis (FSGS).

CASE REPORT

A 4-year-old girl with irregular white spots on her body surface was presented to our department. She was born by caesarian section at 38 weeks gestation and her birth weight had 2900 g. The pregnancy and perinatal periods have lasted uncomplicatedly. Two months after birth, a hypopigmented rash was noted on her right leg, subsequently new lesions with irregular shape and size were seen on her extremities and trunk in the following two years. The abnormal skin lesions persisted throughout her childhood.

Cutaneous examination revealed hypopigmented maculae with linear streaks and whorls involving the trunk and extremities (Figure 1). General physical examination revealed only strabismus. The diagnostic tests for identifying another organ involvement included; routine hematological, biochemical and urinalysis tests, cranial computed tomography, radiographs of the chest and extremities, abdominal ultrasound, electrocardiography and echocardiography were performed. The only abnormality detected was cerebellar hypoplasia screened by cranial computed tomography. Neurologic examination was normal except for mild dysmetria at tandem walking; this finding was not consistent with HI. Denver Developmental Screening Test also indicated normal findings in all developmental parameters. A genetic examination, yielding normal results (46,XX), was performed to exclude a chromosomal deviation.

During follow up, persistent nephrotic proteinuria (47.4 mg/m^2/h) with a normal glomerular filtration rate were documented. Abdominal ultrasound showed grade 1 hyperecogenic kidneys. A percutaneous kidney biopsy was performed and light microscopy showed segmental sclerosis in 4 of 15 glomeruli with moderate interstitial fibrosis and mild tubular atrophy consistent with FSGS (Figure 2). Following histopathologic diagnosis captopril treatment was initiated.

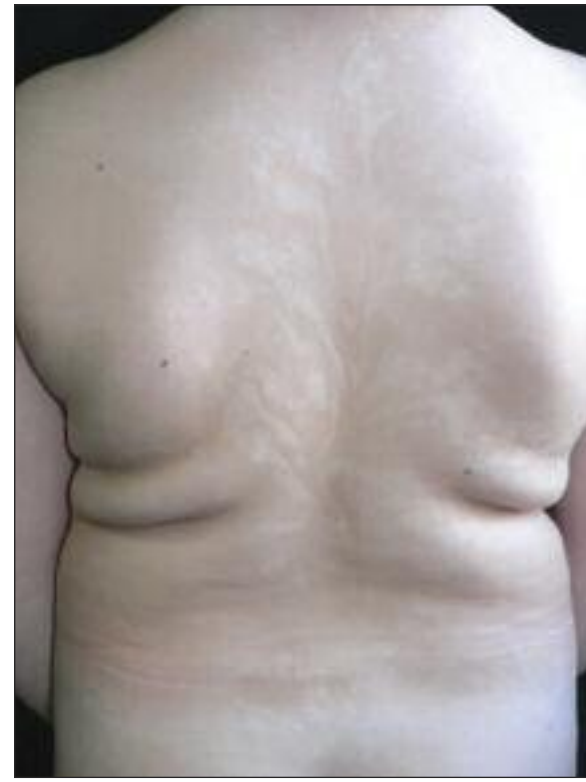

FIGURE 1: Sharply demarcated hypopigmented maculae with a whorled pattern on the back.

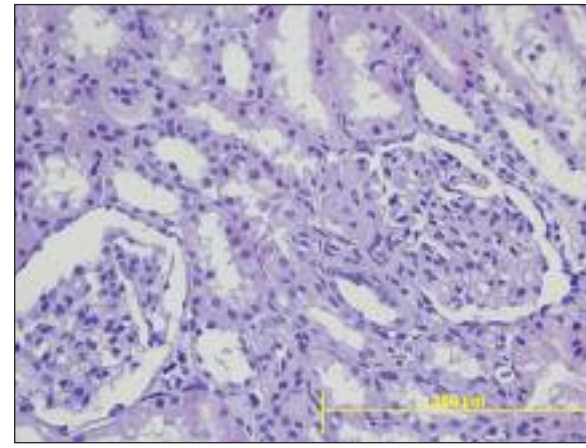

FIGURE 2: Segmental sclerosis adjacent to the glomerular vascular pole (H&E, original magnification x40).

DISCUSSION

Hypomelanosis of Ito is a neurocutaneous disorder including pigmentary anomalies and defects of other organs. The skin lesions of HI appear at or shortly after birth, in about 70% of patients within

the first year of life. The lesions may be unilateral or bilateral and appear anywhere on the body with the exception of the palms, soles, scalp, and mucous membranes.[1]

Extracutaneous abnormalities have been demonstrated in about 75% of HI patients. The most frequent complications are related to central nervous, musculoskeletal and ocular system involvement. Central nervous system disorders consist of mental retardation, epilepsy, ataxia, autistic-like behavior and electroencefalographic changes. Cranial computed tomography and magnetic resonance images can demonstrate focal or generalized cerebral atrophy, white matter changes and cerebellar atrophy or hypoplasia. Musculoskeletal defects include scoliosis, thoracic deformity, hypotonia, limb and finger anomalies. Ophtalmological abnormalities consist of strabismus, nystagmus, myopia, cataract, retinal degeneration and optic atrophy. The spectrum of abnormalities in other organ systems are hair, teeth, nail, sweat gland, craniofacial, congenital cardiac and gastrointestinal defects.[1,2]

Renal involvement has been reported only exceptionally. Only few cases of HI with renal disease described in the literature.[3-7] Chevalier et al. described a 4-year-old male of HI with glomerulonephritis and glomerular basement membrane abnormalities, as the first report.[3] Subsequently, a male patient with HI, tuberous sclerosis, polycystic kidney disease and α-thalassemia trait was reported by Eussen et al.[4] The authors speculated that these findings could be at least partly explained by a contiguous gene syndrome (e.g. affecting loci on chromosome 8 and 16) and either chromosome might contain a "HI" gene.[4] In addition, a 13- year-old girl of HI with structural anomalies of the kidneys, including macroscopic and microscopic cysts, foci of tubular atrophy and interstitial fibrosis was reported by Coward et al.[5] Recently, Vergine et al. described a male infant with a glomerulocystic kidney disease with HI.[6] The association of HI and FSGS has been previously reported by Gatter et al. in an 8-year-old girl who developed proteinuria. She had also deafness and skeletal defects such as short stature, scoliosis, finger anomalies and facial asymmetry.[7] In our patient, who had cerebellar atrophy and strabismus, proteinuria developed in the follow-up period and treatment was initiated immediately following histopathological diagnosis. Determination of proteinuria is regarded as coincidentally because she was asymptomatic. However, early diagnosis and treatment might prevent renal failure due to FSGS in our patient.

In conclusion, we believe that HI might be a hallmark of a wide range of concomitant alteration of the different organ systems. Therefore, the patients of HI should be followed more carefully in terms of other organ defects which may develop less frequently.

REFERENCES

1. Ruggieri M, Pavone L. Hypomelanosis of Ito: clinical syndrome or just phenotype? J Child Neurol 2000;15(10):635-44.
2. Glover MT, Brett EM, Atherton DJ. Hypomelanosis of Ito: spectrum of the disease. J Pediatr 1989;115(1):75-80.
3. Chevalier C, Colon S, Faraj G, Bouvier R, Pinçon JA, Cochat P. Glomerulopathy and hypomelanosis of Ito. Nephrologie 1997;18(4):125-7.
4. Eussen BH, Bartalini G, Bakker L, Balestri P, Di Lucca C, Van Hemel JO, et al. An unbalanced submicroscopic translocation t(8;16)(q24.3;p13.3)pat associated with tuberous sclerosis complex, adult polycystic kidney disease, and hypomelanosis of Ito. J Med Genet 2000;37(4):287-91.
5. Coward RJ, Risdon RA, Bingham C, Hattersley AT, Woolf AS. Kidney disease in hypomelanosis of Ito. Nephrol Dial Transplant 2001;16(6):1267-9.
6. Vergine G, Mencarelli F, Diomedi-Camassei F, Caridi G, El Hachem M, Ghiggeri GM, et al. Glomerulocystic kidney disease in hypomelanosis of Ito. Pediatr Nephrol 2008;23(7):1183-7.
7. Gatter N, Hoppe B, Nützenadel F, Waldherr R, Querfeld U. A cutaneous disease with multisystem involvement: hypomelanosis of Ito may be associated with proteinuria, focal segmental glomerulosclerosis and end-stage renal disease. Nephrol Dial Transplant 2007;22(6):1796-8.