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Case Report/ Olgu Sunumu

A Rare Case That Can Be Confused with Cerebral Palsy: Incontinentia Pigmenti

Serebral Palsi İle Karışabilen Nadir Bir Olgu: Incontinentia Pigmenti

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ABSTRACT

Incontinentia pigmenti (IP), which is inherited predominantly on the X chromosome, is organ involvement arising from ectoderm and mesoderm; It is a rare disease that primarily affects the central nervous system, skin, eyes, and teeth. The neurological findings seen in this disease resemble the clinical features of Cerebral Palsy (CP) in later stages. CP is a childhood syndrome characterized by non-progressive, permanent motor impairment due to damage to the mature brain. Especially in centers focused on physical therapy and rehabilitation, some neurological diseases of different etiologies whose diagnosis is not clear are considered as CP, and perhaps for this reason patients are exposed to incorrect treatment. In this regard, we aimed to present the characteristics of the rare genetically inherited IP, which brings CP to mind in the first evaluation, different from CP and similar features to CP.

Our case, a 48-month-old baby girl, was taken to the hospital immediately after birth due to extensive wounds on her body. IP was diagnosed through detailed examination and genetic screening. The patient had motor retardation and musculoskeletal problems. The family applied to our department due to the patient's neurological findings and developmental problems. We wanted to present this case, which is rare in the literature and was confused with CP until diagnosed.

Keywords: Incontinentia Pigmenti, Cerebral Palsy, Genetic disease, Bloch-Sulzberger syndrome.

ÖZ

Incontinentia pigmenti (IP), X-kromozomuna bağlı dominant geçişli, ektoderm ve mezoderm kaynaklı organ tutulumu görülen; başta merkezi sinir sistemi olmak üzere cilt, göz ve dişleri etkileyen nadir bir hastalıktır. Bu hastalıkta görülen nörolojik bulgular ilerleyen dönemlerde Serebral Palsi'nin (SP) klinik özelliklerine benzemektedir. SP ise matür beynin hasarına bağlı, ilerleyici olmayan, kalıcı, motor bozukluk ile karakterize bir çocukluk çağı sendromudur. Özellikle fizik tedavi ve rehabilitasyon odaklı merkezlerde farklı etiyolojide tanısı netleşmeyen bazı nörolojik hastalıklar SP olarak değerlendirilmekte ve belki bu sebeple hastalar yanlış tedaviye maruz kalmaktadırlar. Bu doğrultuda ilk değerlendirmede SP'yi akla getiren, nadir görülen genetik geçişli IP'nin SP'den farklı özelliklerini ve SP'ye benzer özelliklerini sunmayı amaçladık.

Olgumuz 48 aylık kız bebek doğumdan hemen sonra vücudunda oluşmuş ciddi yaralar sebebiyle hastaneye götürülmüştür. Hastanede yapılan genetik taramayla IP tanısı konmuştu. Olgumuzda motor gerilik, kas iskelet sistemi problemleri bulunmaktaydı. Aile hastadaki nörolojik bulgular ve gelişim problemleri sebebiyle bölümümüze başvurdu. Literatürde az rastlanan ve tanı konuluncaya kadar SP ile karıştırılan bu vakayı sunmak istedik.

Anahtar kelimeler: Incontinentia Pigmenti, Serebral Palsy, Genetik hastalık, Bloch-Sulzberger sendromu.

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Introduction:

Incontinentia pigmenti (IP), was first described in 1906. It is an X-chromosome-dominant disease with organ involvement of ectodermal and mesodermal origin, affecting the skin, eyes, teeth, and central nervous system (1).Mutations in NEMO (nuclear factor-kappa-B essential modülatör) gene is located in Xq28 have been shown to cause IP. Due to X inactivation, this disease is more common in female infants and lethal in males and phenotype MIM (Online Mendelian Inheritance in Man) number is 308300, Inheritance X linked dominant, gene locus IKBKG (Inhibitor Of Nuclear Factor Kappa B Kinase Regulatory Subunit Gamma), gene MIM number 300248 (2).

The skin lesions first seen in this disease have four basic stages. In some cases these steps are not followed (3). Lesions such as erythema, vesicles and typical linear pattern appearing blisters are encountered in the first stage, papules, verrucous lesions and hyperkeratoses in the second stage, hyperpigmentation in the third stage, and hypopigmentation and skin atrophy in the last stage (4). In addition, central nervous system (CNS), musculoskeletal, cardiovascular, dental, ocular and auricular anomalies may accompany the disease. Therefore, a multidisciplinary treatment approach is required in the continuous follow-up of the patient (5). Existing neurological findings of the disease show very similar features with CP in the later stages. CP is a childhood disease characterized by non-progressive, permanent movement and posture disorder due to damage to the developing brain (6). Especially in rehabilitation oriented approaches, many diseases of different etiology are considered as CP and therefore the right treatment option cannot be applied. In this direction, we aimed to emphasize the characteristics of IP, which is a rare disease that first brought CP to mind, and distinguishes it from CP.

Case Report

Our case is a 48-months-old baby girl. The weight of her was 16.7 kg and her height was 98 cm. After she was born, she applied to the hospital due to intense wounds on her body; a diagnosis of IP was made with a detailed examination and genetic screening. The patient's arms and legs were linearly located, hyperkerotatic papules and plaques on the erythematous background, and erythematous papules on the face were found. On subsequent examination of the patient, hyperpigmented macular lesions following Blaschko's lines on the trunk; hypopigmented macular lesions in the middle surrounded by a hyperpigmented ring were seen on the extremities (Figure 1). As a result of the skin analysis, incontinentia pigment was found to be compatible with stage 1. IKBKG gene mutation analysis and DNA isolation was made in the peripheral blood sample of the patient. IKBKG gene encoded 1-10. Exon and exon-intron boundary regions were analyzed by PCR-DNA sequencing method. As a result, c.1056-6t>c homozygous was found. In the gene screening performed on the parents, it was determined that the mother carried this gene as heterozygous. There was no consanguinity between the mother and father. She had a history of 2 miscarriages before.The family applied to us because of the neurological findings in the patient. At first, the patient was thought to be a typical CP case. However, as a result of detailed evaluations, it was understood that it was IP.

The patient had stiffness in the left lower and upper extremities and the right lower extremities. Head control was poor; supported sitting had just begun. Her turning skill was incomplete, her grasping skills were quite weak. In our case, skin findings compatible with the disease were noticeable. Her hair was quite sparse and there was a lot of shedding in places. Her teeth were misshaped and dysfunctional, although they had erupted very late.

On intraoral examination, there were one tooth in the upper jaw and two teeth in the lower jaw. The teeth were pointed and misshapen. The hair had alopecia, dullness, coarse and brush-like appearance. Strabismus in the eyes was among the findings.

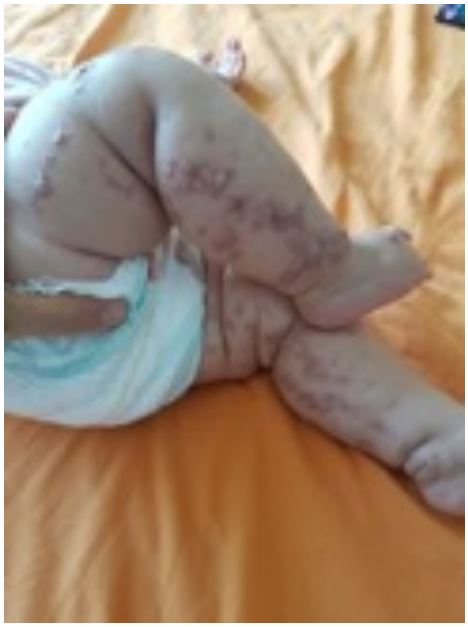

Figure 1: Wound condition on the patient's body when she was 1 month old

Discussion

In our study, the clinical findings and symptomatic treatment methods of a 48-month-old female baby diagnosed with IP were evaluated. Our case had clinical features consistent with the literature. However, we aimed to introduce this case to the literature, as it can be evaluated as CP at first glance due to some physical, mental and cognitive skill problems.

IP, a rare disease that affects ectoderm-derived organs and tissues such as skin, teeth, hair, eyes and central nervous system, which was first described in 1903 and seen in infancy, takes its name from the morphological changes seen in the skin when examined under a microscope (7,8). Its incidence is 1/40 000 and more than 95% of patients are girls, since it is fatal in boys (8).

Our case was also a 48-month-old baby girl. In a study, a 40-year-old patient was also reported and the patient's daughter also had the same problems (9).

The first noticed findings in the disease are usually skin findings. Skin manifestations are present at birth in most patients or occur within the first 2 weeks of life (4). In our patient, intense wounds on her body were remarkable.

Symptoms such as mental retardation, eye findings, shed or weak hair, and misshapen teeth or no teeth at all can also be seen in this disease (7). In a study, it was seen that the patient had 4 wedge-shaped teeth, 2 in the upper and 2 in the lower jaw (8). In our case, although the hair was weak, the number of teeth was three and abnormally shaped.

Although clinical findings are very important in the diagnosis, skin biopsy, family history and genetic examination of first-degree relatives may be required for diagnosis. In addition, detailed neurological examination, eye examination and general examinations should be performed. Although microbiological

examinations, radiological examinations and EEG evaluations are important in the diagnosis, the definitive diagnosis is confirmed by genetic screening (10).

Skin lesions in IP usually progress in stages. The first stage is the vesiculobullous stage, which is usually seen at birth and is observed in the first weeks of life. Our patient also had these lesions at birth. Verrucous stage in the form of hyperkeratotic papules and verrucous plaques after a few weeks or months; so the second phase follows. First and second stage lesions regress at 4 and 7 months on average. Some cases may continue into adulthood (11). The third stage usually occurs between the 12th and 26th weeks and is characterized by brown or gray patches that follow the blaschko lines. Stage 4 of IP is characterized by linear or reticulated hyperpigmented atrophic lesions. However, it may not always follow the order, it can start directly in the 3rd phase. In our patient, the skin lesions present at birth started with stage 1 and passed to stage 4 by the 10th month (7).

In a previous study, no findings were found in the physical and neurological examination of the patient (4). In our case, there were signs of epilepsy and mental retardation accompanied by neurological involvement.

A multidisciplinary approach is very important in the diagnosis and treatment of IP patients. Some treatment programs can be applied in order to prevent conditions that may occur later in the treatment of organs such as skin, teeth, hair and eyes for early diagnosis (12). The late emergence of neurologic findings should not make one forget the possibility that IP may be confused with other diseases, especially CP.

Conclusion

With this case report, we first wanted to emphasize that the IP case suggestive of CP had skin, teeth and hair findings unlike CP, and that the disease should be investigated and treated with a multidisciplinary approach since it affects many different systems.

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