Hypopigmented Lesions: An Unusual Initial Presentation of Infantile Langerhans Cell Histiocytosis

Suthassa Sithitool MD,
Karaked Chantawarangul MD,
Therdpong Tempark MD,
Susheera Chatproedprai MD MSc,
Siriwan Wananukul MD MSc,
Jade Wititsuwannakul MD.

ABSTRACT:

SITHITOOL S*, CHANTAWARANGUL K **, TEMPARK T, CHATPROEDPRAI S**, WANANUKUL S**, WITITSUWANNAKUL J*. HYPOPIGMENTED LESIONS: AN UNUSUAL INITIAL PRESENTATION OF INFANTILE LANGERHANS CELL HISTIOCYTOSIS. THAI J DERMAOLO 2022;38:29-35.**

**DIVISION OF DERMATOLOGY DEPARTMENT OF MEDICINE, CHULALONGKORN UNIVERSITY, BANGKOK, THAILAND.*

***DIVISION OF PEDIATRIC DERMATOLOGY DEPARTMENT OF PEDIATRICS, CHULALONGKORN UNIVERSITY, BANGKOK, THAILAND.*

From: Division of Dermatology, Department of Medicine Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.
Corresponding author: Jade Wititsuwannakul MD., E-mail: jademdcu@yahoo.com

Received: 30 November 2021 Revised: 2 March 2022 Accepted: 7 March 2022

Langerhans cell histiocytosis is a rare neoplasm. Patients are typically presented with small, translucent, yellowish crusted papules on the trunk, intertriginous areas, and scalp. However, previous literature has reported hypopigmented lesions as an unusual cutaneous presentation, emphasizing the need for clinician awareness to aid a prompt diagnosis. Herein, we present a case of langerhans cell histiocytosis, whose cutaneous presentations were multiple hypopigmented lesions and yellowish crusts–an uncommon manifestation of langerhans cell histiocytosis.

Key words: Langerhans cell histiocytosis, LCH, hypopigmentation

Introduction

Langerhans cell histiocytosis (LCH) is a rare disorder with clonal proliferation of CD207+ myeloid dendritic cells[1]. The annual incidence is approximately 0.7 to 4.1 cases per 1 million children younger than 15 years of age[2].

LCH is classified into single system and multisystem LCH, depending on the number of organ involvement. In single system LCH, only one organ system is involved. The most commonly involved organs, in order of frequency, are bone, skin, lymph nodes, lungs, and central nervous system (CNS). In multisystem LCH, it is important to determine whether high-risk organs are involved. The hematopoietic system, liver, and spleen are defined as high-risk organs[3].

Seborrheic dermatitis-like and eczematous eruption located mainly on the scalp and trunk are common manifestations of LCH[4].

Histopathology and immunophenotypic examination are required for a definite diagnosis[5]. Typical immunohistochemical markers of LCH are CD1a, S100B, and CD207 (Langerin).

Treatment options depend on the extent and localization of the disease and the age of the patient. In single system, LCH can be treated with local therapies, such as topical corticosteroid and nitrogen mustard. Lesions should be assessed every 2 to 4 weeks during high disease activity and continuously monitored for signs of multisystem involvement. In general, single system LCH shows the best prognosis[6]. Nonetheless, it is recommended that patients be followed every six months for at least five years after complete regression[7].

Here, we report a case of uncommon cutaneous manifestations of LCH, presenting with multiple hypopigmented lesions.

Case report

A 5-month-old Thai infant presented with multiple hypopigmented lesions on the trunk and scalp for 4 days. He did not have a history of polyuria or polydipsia. He was a normal term newborn despite an uneventful delivery. Postnatal complications were neonatal jaundice

from blood group incompatibility. Physical examination showed multiple discrete hypopigmented macules interspersed with few erythematous papules on the trunk, along with hypopigmented papules and macules with yellowish and hemorrhagic crusts on the scalp. There was no lymphadenopathy, hepatosplenomegaly, or proptosis. (Figure 1-2)

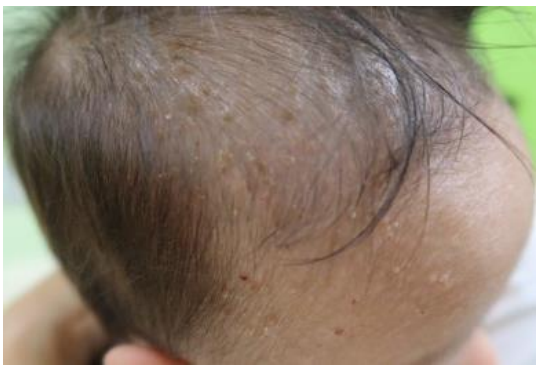

Figure 1 Clinical images show hypopigmented papules and macules, yellowish and hemorrhagic crusts.

A punch biopsy of the hypopigmented macule on abdomen revealed an aggregation of lymphocytes and histiocytes with kidney-shaped nuclei in the papillary dermis. Extravasated erythrocytes and eosinophils were noted (Figure 3). The immunohistochemical staining for CD1a, S100B, and Langerin (CD207) were positive (Figure 4-6).

The complete blood count was normal, as were results of liver function tests and bone survey. Ultrasonography of the abdomen showed normal size of liver and spleen, and no evidence of a space-taking lesion.

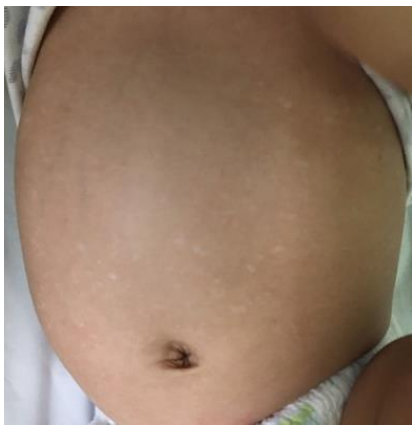

Figure 2 Clinical images show hypopigmented macules

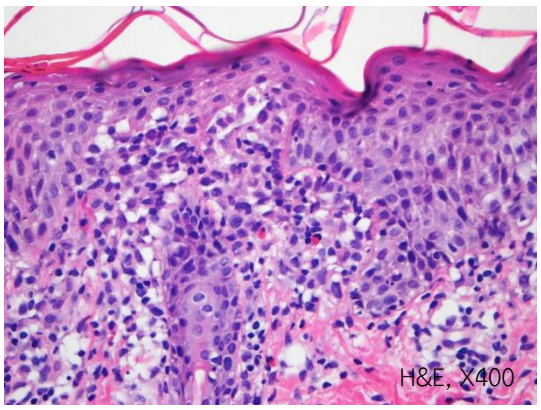

Figure 3 Histological examination (H&E, X400) shows aggregate of lymphocytes and histiocyte with kidney-shaped nuclei in the papillary dermis

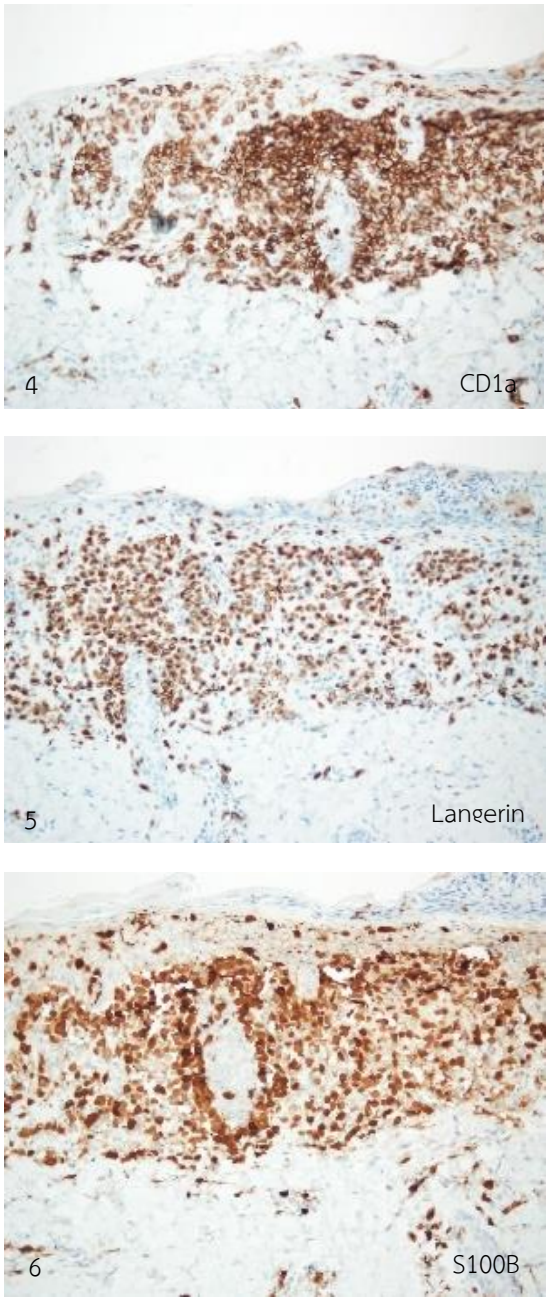

Figure 4-6 Immunohistochemistry shows positive CD1a, S100 and langerin of the tumor cells (X400)

Discussion

Typical cutaneous lesions of LCH are small translucent yellowish crusted papules on the trunk, intertriginous areas, and scalp, presenting in conjunction with eczematous scaling[4]. The less frequent findings are petechiae and hemorrhagic lesions[3].

Hypopigmentation is usually a consequence following the healing of nodular lesions, especially in congenital self-healing LCH. However, hypopigmented lesion as an initial manifestation is considered rare[8,9] as only limited cases have been reported– like our patient[6,8-14]. A review of literature of hypopigmented lesions of LCH is shown in Table A. Only hypopigmented skin lesion were found by Mori, Longaker, Parimi, and Uaratanawoung, like in our patient[10,12-14]. Hypopigmented lesions coexisting with lytic bone lesions were reported in three cases regarding previous literature[6,8,11]. Additionally, Proptosis and diabetes insipidus were found in two cases reported by Feroze and Kaddu[8,9].

Interestingly, LCH patients with bone lesions in the mastoid, sphenoid, orbit, clivus or temporal bone were associated with an increased risk of developing diabetes insipidus or neurodegenerative CNS[9]. Thus, the pituitary gland and eyes examinations may be necessary in such cases.

Case	Author	Age	Clinical presentation	Duration of skin lesion	Systemic involvement	Treatment	Follow up
1	Lozano and colleagues[11]	6-month-old male infant	Hypopigmented papules	4 months	Multiple bone involvement on parietal, frontal, humerus and femur	Treated with systemic corticosteroid and Vinblastine	No relapse on 1-year follow-up
2	Mehta and colleagues[6]	18-month-old boy	Hypopigmented papules	4 months	Bone involvement on sphenoid bone	Treated with systemic corticosteroid and Vinblastine	None
3	Feroze and colleagues[8]	3-year-old boy	Hypopigmented macules and skin-coloured papules	6 months	Bone involvement on skull, proptosis, diabetes insipidus	Treated with systemic corticosteroid and Vinblastine	None
4	Kaddu and colleagues[9]	7-year-old boy	Hypopigmented macules	5 years	Proptosis	Spontaneous regression	None
5	Mori and colleagues[10]	5-week-old male newborn	Hypopigmented macules	Since birth	None	Spontaneous regression	No relapse on 1-year follow-up
6	Mori and colleagues[10]	10-month-old female infant	Hypopigmented macules and papules with erythematous plaques and erosions	3 months	none	Spontaneous regression	Decrease in size and number after 6 months of follow-up.
7	Longaker and colleagues[12]	3-month-old male newborn	Vesicle, pustular and crusted lesions followed by hypopigmented macules	Since birth	None	Spontaneous regression	None
8	Parimi and colleagues[13]	4-month-old female infant	Multiple hypopigmented macules and red-brown papules	Since birth	None	Spontaneous regression	None
9	Uaratanawoung and colleagues[14]	2-month-old female newborn	Multiple hypopigmented flat-topped papules	2 weeks	None	Spontaneous regression	No relapse on 4-month follow-up
10	Our case	5-month-old male infant	hypopigmented macules and papules with hemorrhagic crusts	4 days	None	Spontaneous regression	No relapse on 5-month follow-up

A hypopigmented variant of LCH may be underreported because the lesions may resolve spontaneously. Hence, a comprehensive history taking and timing of the biopsy are essential[10]. Furthermore, because cutaneous presentation and histopathology cannot distinguish between disease subtypes, multiorgan evaluation should be performed in all cases to determine the extent of the disease[11] such as bone, lymph nodes, lungs, CNS, hematopoietic system, liver, and spleen. At baseline, suggested work-ups are complete blood count, liver function test, coagulation studies, chest radiography, skeletal surveys, urine osmolality, and abdominal ultrasonography[15]. Given the association between hypopigmented lesions in LCH and bone involvement, imaging studies may be necessary[11].

Treatment of LCH depends on the type of clinical classification. Our patient was classified as single system LCH and was treated with mild strength of topical corticosteroid. His skin lesion was resolved within two months after treatment initiation, and there was no disease relapse at 5-month follow-up.

Acknowledgement

We are grateful to Amatanun Tangthanapalakul, MD, and Puneyavee Aikphaibul, MD, for the information on this case.

References

1. Allen CE, Merad M, McClain KL. Langerhans-Cell Histiocytosis. N Engl J Med 2018;379:856-68.
2. Ribeiro KB, Degar B, Antoneli CB, Rollins B, Rodriguez-Galindo C. Ethnicity, race, and socioeconomic status influence incidence of Langerhans cell histiocytosis. Pediatr Blood Cancer 2015;62:982-7.
3. Poompuen S, Chaiyarit J, Techasatian L. Diverse cutaneous manifestation of Langerhans cell histiocytosis: a 10-year retrospective cohort study. Eur J Pediatr 2019;178:771-6.
4. Stein SL, Paller AS, Haut PR, Mancini AJ. Langerhans cell histiocytosis presenting in the neonatal period: a retrospective case series. Arch Pediatr Adolesc Med 2001;155:778-83.
5. Haupt R, Minkov M, Astigarraga I, et al. Langerhans cell histiocytosis (LCH): guidelines for diagnosis, clinical work-up, and treatment for patients till the age of 18 years. Pediatr Blood Cancer 2013;60:175-84.
6. Mehta B, Amladi S. Langerhans cell histiocytosis presenting as hypopigmented papules. Pediatr Dermatol 2010;27:215-7.
7. Krooks J, Minkov M, Weatherall AG. Langerhans cell histiocytosis in children: History, classification, pathobiology, clinical manifestations, and prognosis. J Am Acad Dermatol 2018;78:1035-44.
8. Feroze K, Unni M, Jayasree MG, Seethalekshmy NV. Langerhans cell histiocytosis presenting with hypopigmented macules. Indian J Dermatol Venereol Leprol 2008;74:670-2.
9. Kaddu S, Mulyowa G, Kovarik C. Hypopigmented scaly, scalp and facial lesions and disfiguring exopthalmus. Langerhans cell histiocytosis (LCH). Clin Exp Dermatol 2010;35:e52-3.
10. Mori S, Adar T, Kazlouskaya V, Alexander JB, Heilman E, Glick SA. Cutaneous Langerhans cell histiocytosis

presenting with hypopigmented lesions: Report of two cases and review of literature. Pediatr Dermatol 2018;35:502-6.

11. Lozano Masdemont B, Gómez-Recuero Muñoz L, Villanueva Álvarez-Santullano A, Parra Blanco V, Campos Domínguez M. Langerhans cell histiocytosis mimicking lichen nitidus with bone involvement. Australas J Dermatol 2017;58:231-3.
12. Longaker MA, Frieden IJ, LeBoit PE, Sherertz EF. Congenital "self-healing" Langerhans cell histiocytosis: the need for long-term follow-up. J Am Acad Dermatol 1994;31:910-6.
13. Parimi LR, You J, Hong L, Zhang F. Congenital self-healing reticulohistiocytosis with spontaneous regression. An Bras Dermatol 2017;92:553-5.
14. Uaratanawong R, Kootiratrakarn T, Sudtikoonaseth P, Issara A, Kattipathanapong P. Congenital self-healing reticulohistiocytosis presented with multiple hypopigmented flat-topped papules: a case report and review of literatures. J Med Assoc Thai 2014;97:993-7.
15. Battistella M, Fraitag S, Teillac DH, Brousse N, de Prost Y, Bodemer C. Neonatal and early infantile cutaneous langerhans cell histiocytosis: comparison of self-regressive and non-self-regressive forms. Arch Dermatol 2010;146:149-56.