UNIMED
REVISTA CIENTÍFICA ESTUDIANTIL

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

CLINIC CASES OPEN ACCESS

Langerhans cell histiocytosis. About a case

Histiocitosis de células de Langerhans. A propósito de un caso

José Alfredo Gallego Sánchez [1], **Camila García Gallego** [2], **Arismel Hernández Peña** [2]

1University of Medical Sciences Dr. Zoilo E. Marinello. Las Tunas. Cuba
2Medical Sciences Branch of Puerto Padre. University of Medical Sciences Dr. Zoilo Enrique Marinello Vidaurreta. Las Tunas. Cuba

Received: 27/11/2023
Accepted: 18/02/2024
Published: 28/03/2024

Keywords: Cancer; Langerhans cells; Histiocytosis; Infant; Treatment.

Palabras clave: Cáncer; células de Langerhans; Histiocitosis; Lactante; Tratamiento.

Quote as: Gallego Sánchez JA, García Gallego C, Hernández Peña A. Histiocitosis de células de Langerhans. A propósito de un caso. UNIMED [Internet]. 2024. [cited access date]; 6(1). Available from: https://revunimed.sld.cu/index.php/revestud/article/view/340

ABSTRACT

Langerhans cell histiocytosis is a disease that can present with a wide variety of clinical manifestations, depending on the multiorgan involvement. The diagnosis is established through a biopsy, and the prognosis is related to the stage and histological type of the disease. Therefore, the objective is to describe a case of grade III Langerhans cell histiocytosis in a 9-month-old infant, who was admitted after a three-day acute febrile syndrome, progressive seborrheic dermatitis, hepatosplenomegaly, lymphadenopathy, and jaundice; all consistent with Langerhans cell histiocytosis. Additional tests were performed to confirm the diagnosis and assess systemic involvement. It is concluded that early diagnosis of Langerhans cell histiocytosis allows for timely treatment, prevents complications that may worsen the prognosis, and improves the patient's quality of life.

RESUMEN

La Histiocitosis de células de Langerhans es una patología que puede expresarse con gran variedad de cuadros clínicos, de acuerdo al compromiso multiorgánico. El diagnóstico se establece mediante la realización de una biopsia y su pronóstico en relación con la etapa en la que se encuentra y el tipo histológico, por lo que se plantea como objetivo describir un caso de histiocitosis de células de Langerhans grado III en una lactante de 9 meses de edad, quien ingresó tras un síndrome febril agudo de tres días de evolución, dermatitis seborreica progresiva, hepatoesplenomegalia, linfadenopatías e ictericia; compatibles con histiocitosis de células de Langerhans, por lo que se realizan exámenes complementarios para establecer un diagnóstico, así como el compromiso sistémico. Se concluye que el diagnóstico precoz en la Histiocitosis de células de Langerhans permite que se aplique un tratamiento oportuno, se evitan complicaciones que agraven el pronóstico y se mejora la calidad de vida del paciente.

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

INTRODUCTION

Histiocytosis is the general term used to indicate some diseases of the endothelial reticulum system, which occurs as a result of the accumulation or primary proliferation of the mononuclear phagocytic system.

It is an entity that can present as localized neoplastic lesions or in a disseminated manner with multiorgan representation. Some authors consider that it may be related to immunologic disorders and to the BRAF V600E oncogene.

The first case of Langerhans cell histiocytosis in Cuba was described in 1975 by Dr. Alicia Rivero Gómez. Its incide GTnce ranges from 0.2 to 2.0 cases per 100,000 children under 15 years of age, with 60% to 70% male involvement. 5 Diagnosis is based on pathologic anatomy in conjunction with a compatible clinical and/or radiologic context. 6 Relevant personal and family pathologic history such as diabetes insipidus should be taken into consideration.

Due to the low frequency in this age group and even more so in females, the aim of this article is to describe a case of grade III Langerhans cell histiocytosis in a 9-month-old female infant.

CASE PRESENTATION

A 9-month-old female infant, white, urban origin, product of first gestation, controlled pregnancy, with no known personal pathological history. She was brought for consultation by her parents because they reported that three days ago, she began to present fever of 39°C, thermometrically confirmed; this was more frequent in the afternoon, when she began to cry and was accompanied by chills and, at times, sweating.

On physical examination, the patient was conscious, in a wakeful state, they highlighted:

Icteric skin, with papular, erythematous and scaly lesions, most frequently on the scalp, but also

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

frequent on the abdomen and upper limbs; icteric mucous membranes; presence of bilateral retroauricular and cervical adenopathies, immobile and non-painful, without changes in coloration; decreased thoracic expansibility; globular abdomen, decreased hydroaerial sounds, smooth-edged hepatomegaly, non-painful, approximately 5 centimeters long, spleen percussible but not palpable.

The results of the complementary tests on admission reported moderate anemia with hemoglobin figures of 9.3 g/dL; hematocrit of 30 %; leukocytes of 5.0 per 10 9/L, predominantly polymorphonuclear (88 %) and with presence of monocytes (7 %); erythrocyte sedimentation rate of 80 mm/h and platelet count in normal values. A medulogram was performed which did not reveal any alterations and there was no medullary infiltration.

Liver function tests were performed due to jaundice and showed TGP of 87 IU/L and TGO of 62 IU/L. Peripheral laminae revealed hypochromia, anisocytosis, microcytosis, toxic granulations with neutrophilia and normal platelets.

A computerized axial tomography was performed, which revealed a 5-centimeter hepatomegaly; moderate splenomegaly; multiple large, medium and small adenopathies, predominantly the latter two in the lumboaortic, hylosplenic, renal, hepatic, retroclural and lateroiliac regions. Infiltration of the vena cava that slightly displaces the aorta artery to the left is suspected.

The diagnostic impression was lymphosarcoma, so a liver biopsy was performed, which revealed fatty infiltration in the hepatic cylinder with preservation of the architecture, three normal portal spaces and no tumor was observed. A biopsy of the adenopathies was also performed showing malignant micro histiocytosis grade III.

DISCUSSION

The case of an infant with clinical and paraclinical features of Langerhans cell histiocytosis was described, as mentioned, she presented fever, progressive seborrheic dermatitis, lymphadenopathy and jaundice.

Several authors agree that Langerhans cell histiocytosis presents with an extraordinary variety of

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

clinical manifestations, 2, 5, 8 this could also be seen in the present investigation, where symptoms of multisystemic involvement were shown. Guevara-Méndez 7 et al. report that adenopathy is frequent in patients with histiocytosis, expressing that it can be localized or generalized, a result similar to the present study, where the patient presented multiple adenopathies.

Langerhans cell histiocytosis is a disease of unknown etiology, 7 although its risk increases if there is a family history of cancer or thyroid disorders, smoking, newborn infections, among others. This disease can be localized or disseminated, and there are three grades or classes: class I or Langerhans cell histiocytosis if there is CD1a positive; class II or familial erythrophagocytic histiocytosis, if morphologically normal reactive macrophages appear, with prominent erythrophagocytosis; and class III or malignant histiocytosis, if there is neoplastic proliferation of cells with characteristics of monocytes, macrophages or their precursors.

This disease includes the clinical entities of eosinophilic granuloma, Hand-Schüller-Christian disease and Letter-Siwe disease. It presents with a wide variety of symptoms depending on organ involvement. The skeleton is involved in 80% of cases, and may be the only one affected, especially in children older than five years; bone lesions may be single or multiple and are most commonly seen in the skull. About 50% of patients present skin lesions during the course of the disease, usually difficult to treat desquamation, papules, seborrheic dermatitis of scalp, diaper area, back, palms and soles; hemorrhagic petechial rash may appear. Lymphadenopathy is present in 33% of patients, hepatomegaly is present in about 20% along with various degrees of liver dysfunction which may include jaundice and ascites. When exophthalmos is present it is bilateral and caused by retroorbital accumulation of granulomatous tissue. Otitis media with destructive lesions of the middle ear may be present in 30% to 40% of cases. From 10% to 15% present pulmonary infiltrate, rarely pneumothorax. Histological diagnosis is based on the determination of Langerhans cell accumulation, pure histiocyte infiltrates or mixed histiocyte and eosinophil infiltrates. Phagocytic histiocytes are rarely identified and necrosis may be evident.

The treatment of Langerhans cell histiocytosis is protocolized internationally by the International Histiocyte Society, 5 where groups are separated into low, intermediate and high risk. Patients with lesions in a single organ or system are low risk, in these cases they usually do not receive chemotherapy, although this could be assessed depending on the extent of the involvement;

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

osteolytic lesions are treated with curettage, with possible injection of intralesional corticosteroids, and single lymph node involvement is treated with excision. Patients with multifocal bone involvement, multiple lymph node involvement and diabetes insipidus associated with bone lesions belong to the intermediate risk group; in these cases chemotherapy will be used with intravenous vinblastine at a dose of 6 mg/m2 weekly, for six weeks, and oral prednisone at a dose of 40 mg/m2 in three doses for four weeks; in the maintenance phase vinblastine will be indicated at weeks 9, 12, 15, 18, 21 and 24, as will prednisone (this three times a day). The high-risk group will include those patients with multisystemic involvement, which includes one or more organs at risk, who, in addition to the treatment of the previous group, will be administered oral mercaptopurine at a dose of 50 mg/m2 daily; the protocol includes randomization for the administration of intravenous methotrexate at high doses; in case the previous treatment does not achieve a response, the use of 2-chloro-deoxyadenosine (2-Cda) at a dose of 5 mg/m2 daily for five days every three or four weeks is recommended, it is treated with a purine analog; another treatment used in cases of resistance are cyclosporine A, in combination with antithymocyte gamma globulin and dexamethasone.

In this case, chemotherapy with vinblastine and prednisone at the doses mentioned above was indicated, showing effectiveness in the patient. Treatment similar to that suggested by Medina-Ruiz 8 et al, who in an extensive review of the literature, included the diagnosis and treatment of this condition; however, it did not coincide with the present study in terms of the ages at which it occurs, since these authors refer to ages above two years as the limit.

CONCLUSIONS

Langerhans cell histiocytosis is a rare anomaly that can affect several organs constituting a great risk for the patient's health, hence it presents with a great number of clinical manifestations. It should be taken into account that any patient with manifestations such as papular and scaly skin lesions, bone alterations with increased volume, lymphadenopathies, diabetes insipidus, globular abdomen, hepatosplenomegaly, among other alterations, should be studied in depth to establish or rule out this diagnosis because if treatment is started in early stages of the disease, life expectancy is much higher.

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

FUNDING

The authors did not receive funding for the development of this research.

DECLARATION OF AUTHORSHIP

Conceptualization: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Data Compilation: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Formal Analysis: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Investigation: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Methodology: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Supervision: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Validation: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Visualization: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Writing – original draft: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

Writing -review and editing: José Alfredo Gallego Sánchez, Camila García Gallego, Arismel Hernández Peña.

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

BIBLIOGRAPHIC REFERENCES

1. Dávalos-Tanaka M, Venegas-Andrade A, Velasco-Hidalgo L, Ramírez-Ristori AG, Durán-McKinsteret C. Dermatosis en el área del pañal sin respuesta a tratamiento convencional. ¿Sospecha de abuso sexual?. Acta Pediatr Mex [Internet]. 2023 [cited 09 feb 2024];44(1):23-8. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=110335&id2=
2. Cabrera-Rojas DL, Gómez-Correa GA, Varela-Aguirre GJ. Histiocitosis de células de Langerhans, una afección pulmonar infradiagnosticada en fumadores: reporte de caso y revisión de la literatura. Medicina & Laboratorio [Internet]. 2021[cited 09 feb 2024];25(4):721-34. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=107540&id2=
3. López Zaldo JB, Díaz Anguiano ML, Lupercio Coronel P, Díaz Anguiano IG, Barrientos García JG. Alopecia cicatricial como manifestación de histiocitosis de células de Langerhans: tricoscopía y reporte de caso en un adulto. Dermatología Cosmética, Médica y Quirúrgica [Internet]. 2022[cited 09 feb 2024];20(2):152-7. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=106258&id2=
4. Montero-Sánchez RA, Velázquez-Martínez JA, Lecourtois-Amézquita MG. Manifestaciones orales de histiocitosis de células de Langerhans: un caso pediátrico relacionado con el hueso mandibular. Odovtos-Int J Dent Sc [Internet]. 2022[cited 09 feb 2024];24(2):212-20. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=105387&id2=
5. Pedroso-Delgado JC, Pila-Pérez R, Rosales-Torres P, Rivera-Lecha I. Histiocitosis de células de Langerhans ósea a forma poliostótica. A propósito de un caso. Medisur [Internet]. 2019 [cited 09 feb 2024];17(4): 578-85. Available from: http://medisur.sld.cu/index.php/medisur/article/view/4128

UNIMED ISSN: 2788-5577 RNPS: 2484
JANUARY-APRIL 2024; 6(1)

6. Contreras-Perusquía Y, Olivares-Schietekat S, Córdoba-Ostos E, Ahumada-Ayala M. Diabetes insípida central debida a histiocitosis de células de Langerhans. Med Int Méx [Internet]. 2019 [cited 09 feb 2024] ;35(4):638-45. Available from: https://doi.org/10.24245/mim.v35i4.3054
7. Guevara-Méndez AV, Hernández-Benítez R, Iglesias-Leboreiro J, Bernárdez-Zapata I. Características clínicas e histopatológicas de las adenopatías en pediatría. Análisis de 10 años en un hospital privado. Rev Mex Pediatr[Internet]. 2022 [cited 09 feb 2024];89(3):95-8. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=109305&id2=#
8. Medina RB, Arocho L, López Del-Valle LM, Molina-Negrón D. Histiocitosis de células de Langerhans: seguimiento de 5 años y revisión sistemática de literatura. Rev Odotopediatr Latinoam [Internet]. 2021[cited 09 feb 2024];11(2):306-14. Available from: https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=102229&id2=