ISSN: 0976-3031

Available Online at http://www.recentscientific.com

CODEN: IJRSFP (USA)

International Journal of Recent Scientific Research
Vol. 8, Issue, 8, pp. 19305-19309, August, 2017

International Journal of Recent Scientific Research

DOI: 10.24327/IJRSR

Research Article

LANGERHANS CELL HISTIOCYTOSIS MIMICKING ACUTE LEUKEMIA-AN ATYPICAL PRESENTATION

Shushruta Mohanty[1]., Pranati Mohanty[2]., Shilpy[3] and Goutami Das Nayak[4]

[1,3,4]Department of Pathology, S.C.B Medical College, Cuttack, Odisha, India
[2]Department of Pathology, P.R.M .M.C.H, Baripada, Odisha, India

DOI: http://dx.doi.org/10.24327/ijrsr.2017.0808.0666

ARTICLE INFO

Article History:

Received 16th May, 2017
Received in revised form 25th June, 2017
Accepted 23rd July, 2017
Published online 28th August, 2017

Key Words:

Bleeding gums, icterus, LCH, mimicks.

ABSTRACT

Langerhans cell histiocytosis (LCH) is a rare disease of unknown etiology characterized by oligoclonal proliferation of Langerhans cells. The diagnosis of LCH is complicated by the fact that it may involve multiple organ systems and its clinical presentation and course varies, ranging from an isolated to a multisystem disease. In children, the estimated incidence of LCH is eight to nine cases a million each year [1] and affects childrens most commonly 1-5 yrs of age group. we report here an unusual case of a one n half -year-old female diagnosed with Langerhans cell histiocytosis initially taking course under the form of leukemia with bleeding gums ,anemia and generalized peripheral lymphadenopathy, also presented with icterus, anasarca and raised liver enzymes, subsequently leaving the clinicians in a dilemma to arrive at a correct diagnosis .The earliest diagnosis was then determined by doing FNAC of lymph node , following which skin biopsies and IHC were done which confirmed the case to be LCH.

INTRODUCTION

Langerhans cell histiocytosis (LCH) is characterized by the proliferation of abnormal dendritic antigen-presenting histiocytes. In 1868, Paul Langerhans discovered the epidermal dendritic cells. Diagnosis of LCH is often difficult and is usually delayed because of its rarity. The clinical presentation of LCH therefore varies and is frequently misdiagnosed (1–3). LCH presents with solitary organ involvement or as a multi-system disease. It usually affects the bone, skin, and pituitary gland, and occasionally affects the hematopoietic system, lymph nodes, and lungs [2]. LCH is most often found in the pediatric population and less commonly in adults [2].The purpose of reporting this case is the fact that LCH presenting as leukemia is rare in literature as in our case and secondly its diagnosis by FNAC which is rare and challenging.

Case Report

One and half year old female child presented with bleeding gums, fever, mild rashes since 2 months. On examination child had pallor, icterus, hepatosplenomegaly and lymphadenopathy and was provisionally diagnosed as acute leukemia. Routine inestigations were carried out, Hb-6.2gms%, ESR-45 mm in 1 hr.TLC-9400/cumm,TPC-2.8Lacs/cumm,DC-N67,E02,L30,M1,B0,LFT-Serumbilirubin(tot)-2.5mg/dl,SGOT-124IU/L,SGPT-66IU/L,ALP-1686IU/L.(raise liverenzymes), Prothrombin time-control-11.7sec,test -15.7sec, INR-1.31., Aptt-control -27.6,test -30.8sec, Direct coomb's test-Negative., serum LDH-102U/L. USG- Hepatomegaly with multiple enlarged porta hepatic lymphnodes. s/o Acute hepatic parenchymal disease. X ray showed no bony lesions. Consequent immunophenotyping was done which ruled out leukemia.

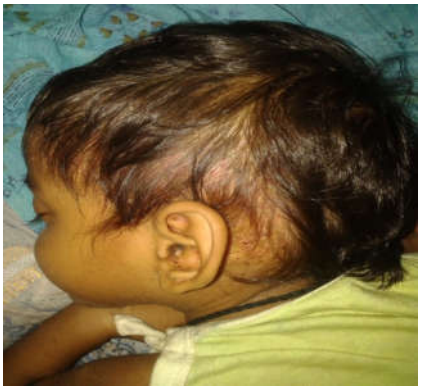

Fig 1 a

Corresponding author:* **Shushruta Mohanty
Department of Pathology, S.C.B Medical College, Cuttack, Odisha, India

Fig 1 b

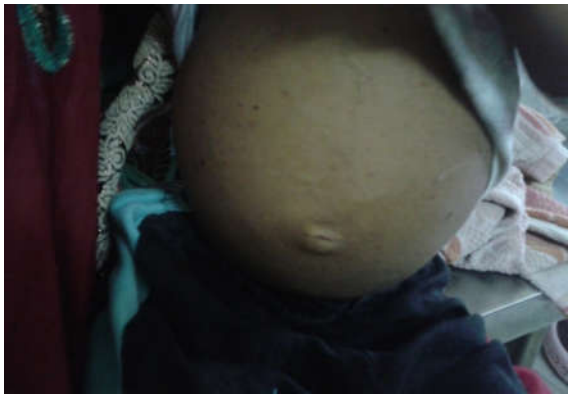

Fig 1 c

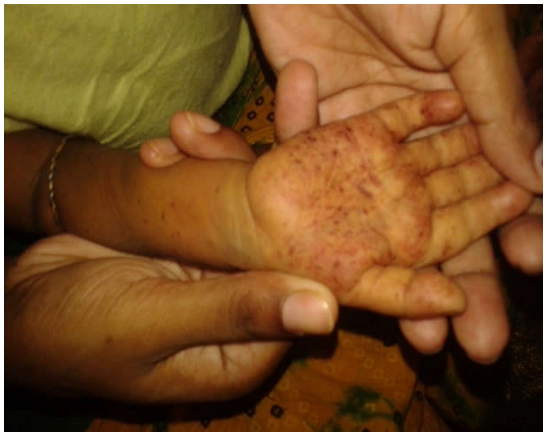

Fig 1 d

Fig 1 (a,b,d)-Presence of generalized distribution of rash all through out the body and distended abdomen- Fig-1 (c)

Bone marrow aspiration was done and was diagnosed as hypoplastic marrow, without any infiltration of tumor cells. Serology was done for viral markers which was negative which ruled out viral hepatitis. Patient was discharged with a diagnosis of hypoplastic anemia. On second admission, after two weeks child presented with anasarca and generalized rash. On examination, there was excerberation of previous symptoms. Liver enzymes were markedly raised. FNAC from cervical lymphnode and skin lesions showed histiocytes in good number with nuclear grooving and few eosinophils and occasional giant cells suggesting Langerhans cell histiocytosis.

Biopsy from inguinal lymphnode shows complete effacement of lymph node architecture and diffuse infiltrate of sheets of large polygonal cells with irregularly folded nuclei, prominent nuclear grooves, and abundant cytoplasm. There were admixture of eosinophils, osteoclast-like giant cells, histiocytes, and lymphocytes. Immunohistochemistry was performed, which showed strong diffuse positivity of S-100 protein which confirmed the diagnosis.

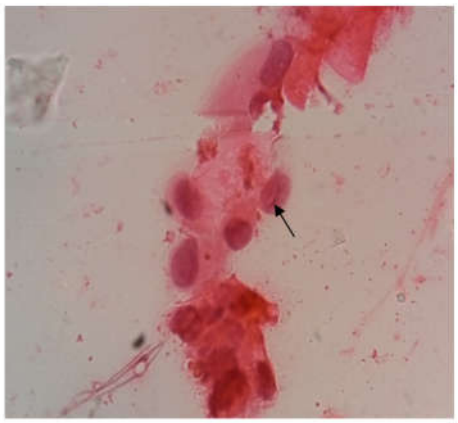

Fig 2 a

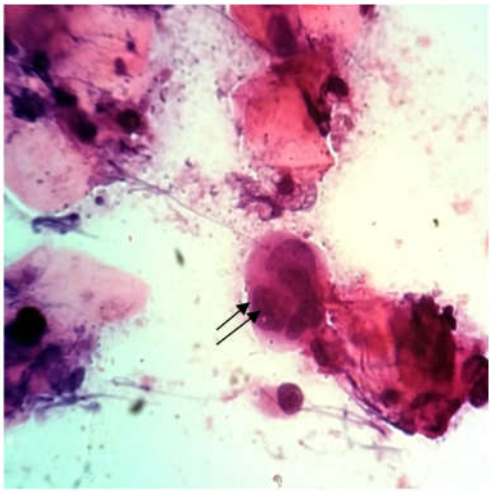

Fig 2 b

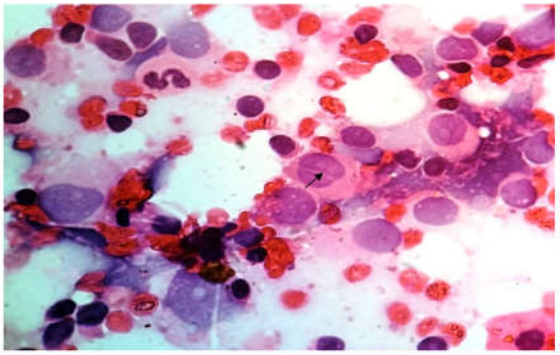

Fig 1 c

Fig 2 (a,b,c) FNAC- Showing histiocytes with nuclear grooving (↑ Arrow) and multinucleated giant cells (↑↑ Arrow)

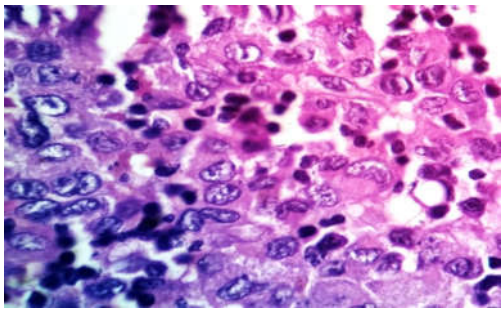

Fig 3a 100x

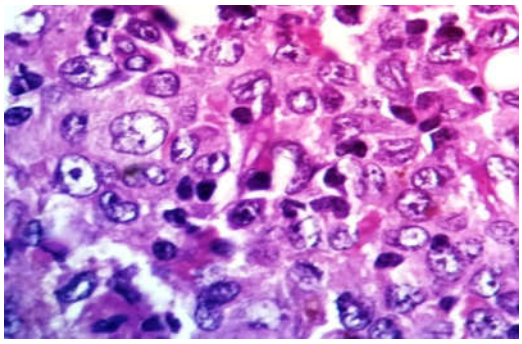

Fig-3b 400x

Fig 3 a,b Photomicrograph showing histiocytes with irregular folded convoluted nuclei with nuclear grooving admixed with eosinophils.

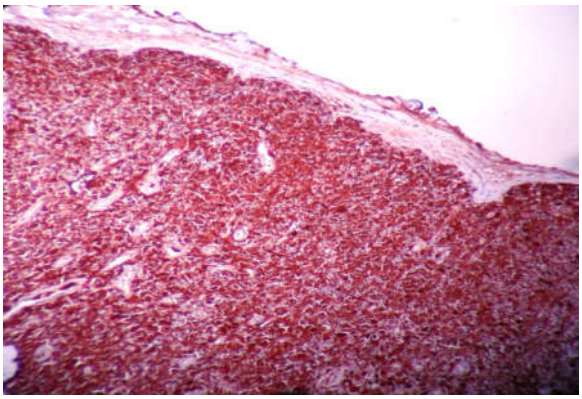

Fig 4a 40x

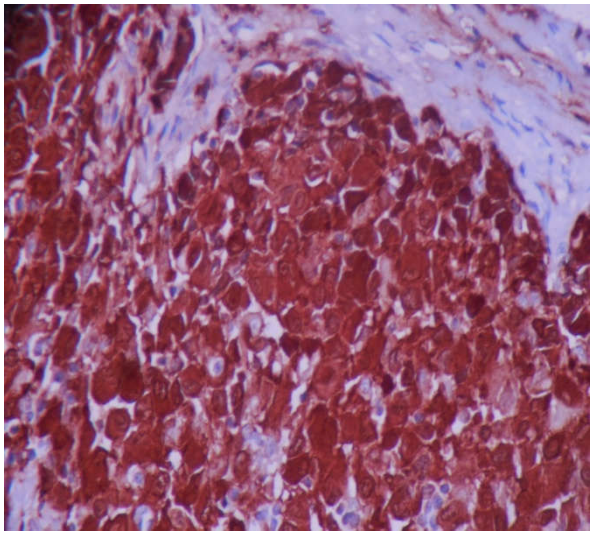

Fig 4b 400x

Fig 4 a,b Photomicrograph of IHC-Showing diffuse positivity of S -100

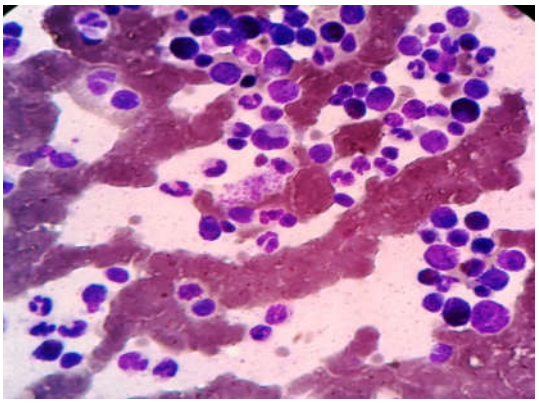

Fig 5 a 40X

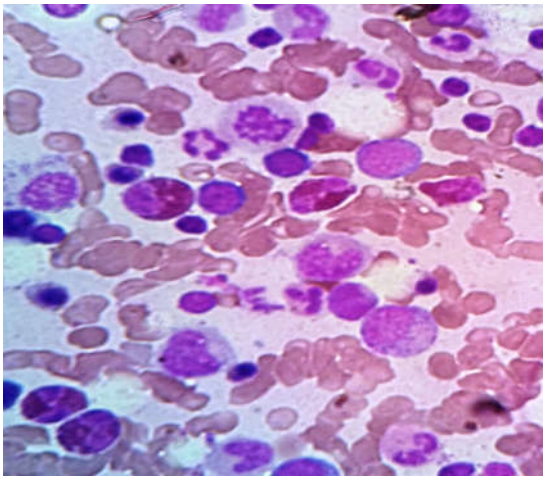

Fig 5 b 400 X

Fig 5 a,b Bone marrow showing no evidence of LCH.

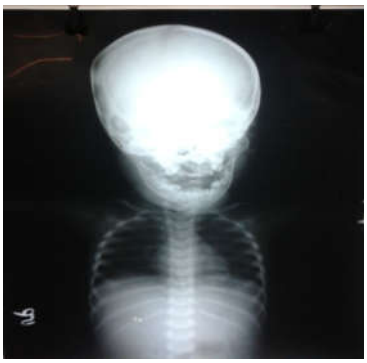

Fig 6a

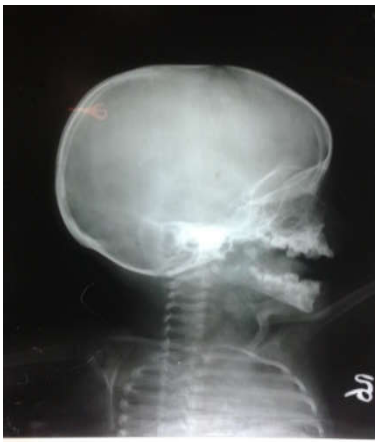

Fig 6 b

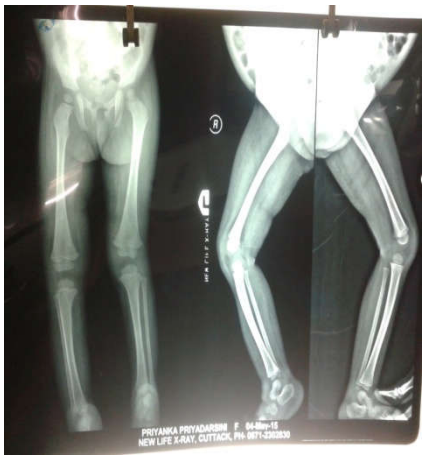

Fig 6c

Fig 6 a,b,c Xrays showing no evidence of bony involvement

DISCUSSION

LCH was renamed by the Histiocyte Society in 1985. Its former names were eosinophilic granuloma, histiocytosis X, Letterer-Siwe disease, and Hand-Schuller-Christian disease [3]. Although the etiology of the disease is not known, it could be caused by an immunological dysregulation subsequent to cytokine and prostaglandin over-production [4]. The disease at times could be difficult to diagnose. The distribution of affected organs shapes the prognosis of the disease [5]. The frequency of involvement of the bone is 80 %; skin, 25 %; the pituitary gland, 25 %; spleen, 15 %; liver, 15 %; the hematopoietic system, 15 %; lymph nodes, 5-10 %; and cranial involvement excluding the pituitary gland, 2-4 % [2]. The most commonly infiltrated bones are the skull, femur, lower jaw, pelvis, and vertebrae [6]. Oral or perioral lesions are present in 30 % of cases [6]. Oral lesions most often involve bone loss, unexpected tooth loss, and gum inflammation [6].

Based on disease severity, classification of LCH is: (a) The gravest form, Letterer-Siwe disease, (b) a less serious form, Hand-Schuller-Christian disease, and (c) the mildest form, eosinophilic granuloma. Letterer-Siwe disease is most commonly seen in infant and children less than 3 years of age and clinically presents with fever, weight loss, otitis media, papular rash, exophthalmos, hepatosplenomegaly, lymphadenopathy, and generalized skeletal involvement.[7].

Liver involvement in Children LCH typically presents with hepatomegaly, abnormal liver enzymes, or jaundice, associated with multiorgan involvement. Hepatomegaly in children is a common and nonspecific clinical finding, it may also be due to Kupffer cell hypertrophy and hyperplasia secondary to a generalized immune reaction or by enlarged portal lymph nodes causing obstruction. Liver involvement in LCH drastically changes a patient's prognosis and treatment. It is associated with a high mortality rate in patients with LCH [8] and treatment is aggressive due to the progressive irreversible damage of cholestasis [9]. The ideal treatment of liver LCH remains to be found out, and in advanced cases transplantation is the sole option. Even so, patients who accepted chemotherapy in this study indeed obtain a relatively better prognosis than those refused. Therefore, administrating treatment early appears to significantly improve the prognosis of liver LCH, and it is essential to be able to make an accurate diagnosis as soon as possible.

The lymph node involvement in LCH presents in one-third patients. [10] The lymph node involvement can occur either as a part of systemic disease or as an isolated manifestation. [11] The dendritic cells of LCH migrate from the epidermis to regional lymph nodes through efferent lymphatics. However, upon arrival in the lymph node, they lose their capability of antigen presentation. [12]

The diagnosis of LCH is documented here on basis of Cytology and histology examinations of LCH revealed the characteristic large cells of around 12 μm diameter with irregular convoluted nuclei, nuclear clefts and grooves, one or more small nucleoli, fine chromatin, and abundant amount eosinophilic cytoplasm. [1],[10] These large cells are usually admixed with varying proportions of eosinophils, osteoclast-type giant cells, neutrophils, and lymphocytes. By inducing osteoclast-derived enzymes, these giant cells are responsible for the destruction of architecture in both osseous and nonosseous lesions of LCH.[13]

Histiocyte Society Writing group (1987) has defined the criteria for the diagnosis of LCH, according to which the presence of Birbeck granules on electron microscopy or demonstration of CD1a on immunohistochemistry confirms the diagnosis of LCH in a typical histology. [1] Recently, Langerin (CD207), a novel C-type lectin, has been shown to induce the formation of Birbeck granules; thus, immunohistochemical demonstration of Langerin is the marker of Birbeck granules in LCH. [14]

Currently, accepted treatment of LCH includes surgery, chemotherapy, and radiotherapy. While patients of LCH with disseminated bony lesions are candidates for low dose radiotherapy, chemotherapy is the treatment for systemic involvement with dysfunction of organs like liver, lungs, spleen, or bone marrow. [15]. In our case child succumbed to death before chemotherapy was initiated.

In this case, the earliest diagnostic findings of LCH were obtained by FNAC. This case report also highlights the fact that FNAC can serve as a valuable tool to diagnose LCH as in our case. Thus, a provisional clinical diagnosis of leukemia, was found to be LCH on cytological smears and the diagnosis was confirmed by histopathology and immunohistochemistry. Due to lack of CD1a and langerin (CD207) in our set up S-100 was used which showed a diffuse positivity.

CONCLUSION

LCH is a multifaceted disease with varied clinical presentation. which can mislead the clinicians as in the present case which may result in delay in treatment.. Pathogenesis of LCH is a matter of debate whether it is a reactive (non cancerous) or neoplastic (cancerous) process. Although the prognosis of LCH with severe liver function derangement is grim, but still early diagnosis and prompt treatment can improve the survival rate.LCH should always be considered as differential diagnosis in a pediatric population of less than 5 yrs of age in a setting of fever, gum bleeding, hepatomegaly and rashes.

References

1. Abla O, Egeler RM, Weitzman S. Langerhans cell histiocytosis: Current concepts and treatment. *Cancer Treat Rev* 2010; 36:354-9.
2. Haupt R, Minkov M, Astigarraga I *et al* (2013) Langerhans cell histiocytosis (LCH): Guidelines for diagnosis, clinical work-up, and treatment for patients till the age of 18 years. *Pediatr Blood Cancer* 60(2):175-184
3. Writing Group of the Histiocyte Society (1987) Histiocytosis syndromes in children. *Lancet* 1(8526):208-209
4. lyeyasu JN, Marcos Vaz AC, Reis F, Altemani J, Queiroz LC, Carvalho KL (2012) Langerhans cell histiocytosis diagnosed in an elderly patient. *Radiol Bras* 45(4):241-243.
5. Shankar U, Prasad M, Chaurasia OP (2012) Gastrointestinal tract involvement in Langerhans cell histiocytosis: case report and literature review. *World J Gastroenterol* 18(12):1410-1413
6. Marti´nez DSM, Villagra´n UJ, Ajqui RR, Cervantes CK (2012) Oral manifestations of Langerhans cell histiocytosis (LCH): review of scientific literature and case report. *Rev Odontol Mex* 16(2):123-130.
7. Buckwalter JA, Brandser E, Robinson RA. The variable presentation and natural history of Langerhans cell histiocytosis. *Iowa Orthop J* 1999; 19:99-105.
8. Savasan S. An enigmatic disease: childhood Langerhans cell histiocytosis in 2005. *Int J Dermatol*.2006; 45:182-8. [PubMed]
9. Jaffe R. Liver involvement in the histiocytic disorders of childhood. *Pediatr Dev Pathol*. 2004; 7:214-25. [PubMed]
10. Lee LY, Kang CJ, Hsieh YY, Hsueh S. Diagnosis of nodal Langerhans cell histiocytosis by fine needle aspiration cytology. *Chang Gung Med J* 2005; 28:735-9.
11. Edelweiss M, Medeiros LJ, Suster S, Moran CA. Lymph node involvement by Langerhans cell histiocytosis: A clinicopathologic and immunohistochemical study of 20 cases. *Hum Pathol* 2007; 38:1463-9.
12. Pinkus GS, Lones MA, Matsumura F, Yamashiro S, Said JW, Pinkus JL. Langerhans cell histiocytosis immunohistochemical expression of fascin, a dendritic cell marker. *Am J Clin Pathol* 2002; 118:335-43.
13. da Costa CE, Annels NE, Faaij CM, Forsyth RG, Hogendoorn PC, Egeler RM. Presence of osteoclast-like multinucleated giant cells in the bone and nonostotic lesions of Langerhans cell histiocytosis. *J Exp Med* 2005; 201:687-93.
14. Valladeau J, Ravel O, Dezutter-Dambuyant C, Moore K, Kleijmeer M, Liu Y, *et al*. Langerin, a novel C-type lectin specific to Langerhans cell, is an endocytic receptor that induces the formation of Birbeck granules. Immunity 2000; 12:71-81.
15. Buckwalter JA, Branser E, Robinson RA. The variable presentation and natural history of Langerhans cell histiocytosis lowa orthop J 1999;19:99-105.

How to cite this article:

Shushruta Mohanty *et al*., Langerhans Cell Histiocytosis Mimicking Acute Leukemia-An Atypical Presentation. *Int J Recent Sci Res.* 8(8), pp. 19305-19309. DOI: http://dx.doi.org/10.24327/ijrsr.2017.0808.0666

****