

Case Report

Localized Leishmania Lymphadenitis: A Morphologic and Immunohistochemical Study

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ABSTRACT

Localized Leishmania Lymphadenitis (L.L.L) is a self limited clinical presentation of cutaneous leishmaniasis. Microscopic findings in L.L.L are very similar to Toxoplasma lymphadenitis. In all cases, an intensive microscopic search should be done for Leishman bodies. In this study, we describe our microscopic findings and results of our immunohistochemical (IHC) study with a panel of monoclonal antibodies against T-Cells, B-Cells, histiocytes, Langerhans cells, and dendritic reticulum cells.

Morphologic and immunohistochemical study in this case showed expanded paracortical tissue with many small clusters of epithelioid histiocytes and large reactive B follicles. Immature sinus histiocytosis in subcapsular and trabecular sinuses was also seen.

Key words: Leishmania Lymphadenitis, Leishmaniasis, Leishmania tropica, Immunohistochemistry in reactive lymph node

Introduction

Localized leishmania lymphadenitis (L.L.L) is a rare form of lymphadenitis, which can be misdiagnosed as Toxoplasma lymphadenitis. The etiologic microorganism is Leishmania tropica (1).

The patient may or may not manifest cutaneous lesion and usually have no evidence of visceral leishmaniasis. L.L.L has been reported from different geographic areas and countries as China (2), Mediterranean countries (3), Malta (4), and Iran (5). Immune reactions play an important role in the pathogenesis and clinical course of the disease (6). In this report we describe the

routine microscopic and also the immunohistochemical findings in lymph node with a panel of monoclonal antibodies against T-cells, B-cells, reticulum cells, Langerhans cells, and macrophages. All antibodies were from DAKO company and used according to the standard methods at the Pathology Department, BC Cancer Agency, University of British Columbia, Vancouver Canada.

Case Report

A twenty-five years old man from southeast part of Iran was admitted as an outdoor patient. He had painless right inguinal lymphadenopathy of three months

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duration. The general condition of patient was good; there was no systemic symptom, no organomegaly and no systemic adenopathy. There was no detectable skin lesion and no history of skin lesion. Lymph node biopsy was done and H&E stained sections showed reactive follicular hyperplasia, paracortical hyperplasia, immature sinus histiocytosis, and many small clusters of epithelioid histiocytes, mostly infiltrated in paracortical and perifollicular regions (Figure 1). Some granulomata showed central necrosis with neutrophilic infiltration (Figure 2). Plasmacytosis was also evident. Initial histological suspicion was Toxoplasma lymphadenitis with unusual clinical presentation. Further microscopic study showed some intracytoplasmic Leishman bodies in the histiocytes (Figure 2). Finally, the case was diagnosed and reported as localized leishmania lymphadenitis.

Later on we decided to study the infiltration pattern of different immunoreactive cells in this rare case of lymphadenitis. A panel of monoclonal antibodies from DAKO was used to study the reactive T and B-lymphocytes, histiocytes, Langerhans cells, and reticulum cells. Three micron sections was prepared from formalin fixed, paraffin embedded material. The immune reactions showed the following pattern of infiltration of immunoreactive cells: CD1a showed a good number of Langerhans cells in superficial cortex next to subcapsular sinus. Few scattered Langerhans cells were also seen in paracortical area and medulla (Figure 3). Reactive B-follicles and epithelioid cell clusters showed a negative reaction with CD1a. Meanwhile, CD21 showed many round and irregular B follicles with a fine network of CD21 positive dendritic reticulum cells. In addition, CD68 immunostaining showed some reactive histiocytes in subcapsular and trabecular sinuses. Some scattered histiocytes with positive reaction were also seen in the B follicles (tangible body macrophages), paracortical area and in the pulp cords. All epithelioid histiocytes also showed a positive reaction with CD68. CD20 showed a positive reaction with many lymphocytes in germinal centers, mantle zone cells, and pulp cord cells. Many reactive B-lymphocytes with positive membranous reaction were infiltrated in perifollicular areas around the epithelioid histiocyte collections. Epithelioid histiocytes showed a negative reaction with CD20 (Figure 4). CD4 showed many positive cells in paracortex and scattered positive T helper cells in germinal centers. Some CD4 positive T-Cells were infiltrated around epithelioid histiocytes (Figure 5). CD8 showed a good number of positive

T- lymphocytes in paracortex and some positive T-suppressor cells around epithelioid histiocytes (Figure 6). Reaction with bcl-2 was positive in mantle zone cells and many lymphocytes in paracortex and medullary cords. Germinal center cells and epithelioid histiocytes showed a negative reaction with bcl-2. CD56 showed a negative reaction with all of the infiltrated cells throughout the lymph node.

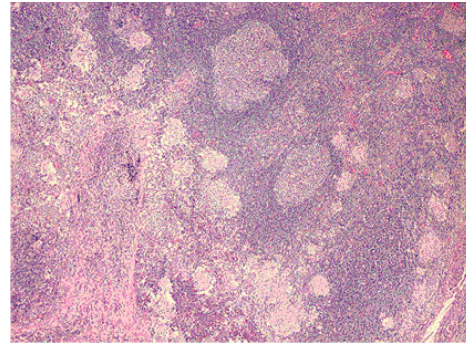


Figure 1. Reactive follicular hyperplasia with many histiocytic clusters in paracortex and some around B follicles mimicking Toxoplasma lymphadenitis. (H&E×40)

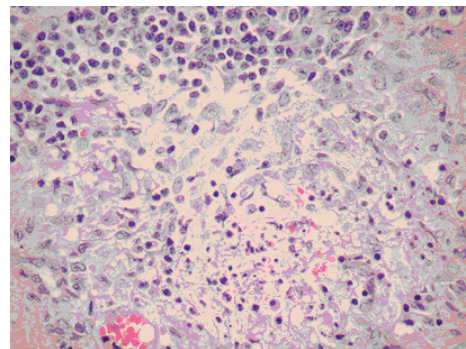


Figure 2. Many intracytoplasmic Leishman bodies in the macrophages and also neutrophilic micro-abscess in the centre are seen. (H&E×400)

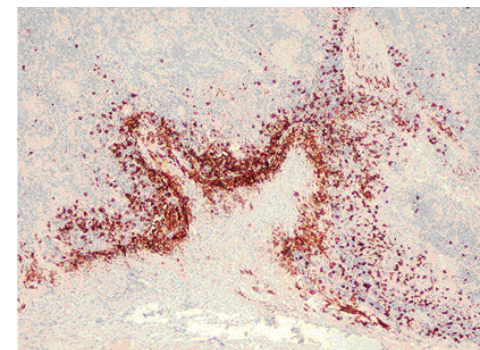


Figure 3. Immunohistochemical staining with PAP method. Many CD1a positive Langerhans cells are seen in superficial cortex and some scattered cells in the deep cortex. (IHC CD1a;×40)

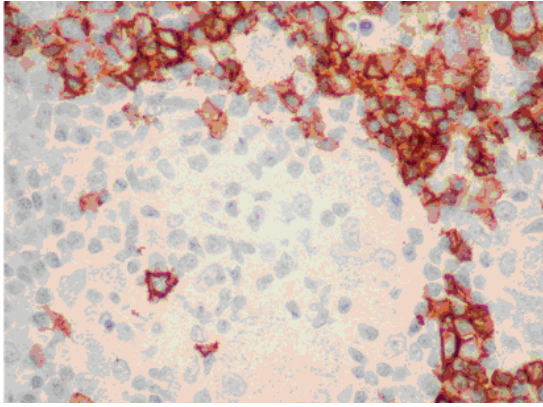


Figure 4. A large number of immunoreactive B-lymphocytes are seen around histiocytes. (IHC CD20; ×400)

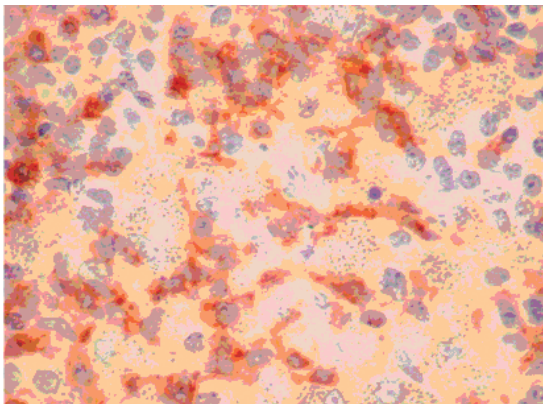


Figure 5. Some reactive CD4 positive lymphocytes are seen around histiocyte clusters. (IHC CD4; × 400)

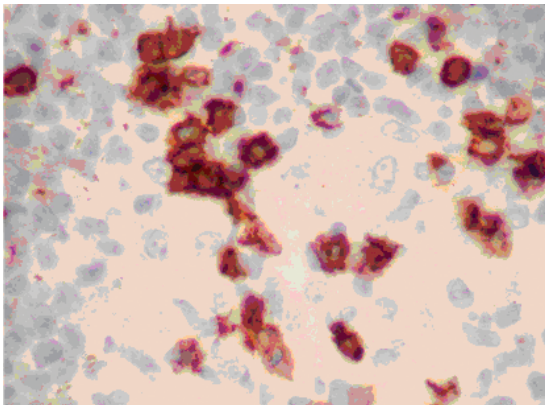


Figure 6. The number of CD8 positive T-lymphocytes around histiocyte clusters are less than CD4 positive cells comparing with Figure 5. (IHC CD8; ×400)

Discussion

Microscopic findings in localized leishmania lymphadenitis (L.L.L) can mimic toxoplasmosis and some other reactive lesions as mycobacterial infections, sarcoidosis, and other rare reactive lesions.

In any suspected case, a careful study should be done to find Leishman bodies, especially when there is no skin lesion. Histological findings as follicular hyperplasia, paracortical expansion, immature sinus histiocytosis, and small clusters of epithelioid cell granulomas are nonspecific histological findings. Immature sinus histiocytosis can also be seen in Toxoplasma lymphadenitis, HIV infection, and L.L.L. epithelioid histiocytes as small clusters collected in perifollicular and interfollicular areas are mainly suggestive of Toxoplasma lymphadenitis and L.L.L (5,7).

In some cases of L.L.L, Leishman bodies are overlooked or not seen with conventional staining. The presence of necrosis in epithelioid cell granulomas is in favor of L.L.L rather than toxoplasmosis (7).

Some reports about L.L.L discussed about the role of epidermal Langerhans cells for uptake and transport of Leishman bodies from skin to lymph nodes as an antigen-presenting cell (8). Our findings in this study as shown with CD1a are in favor of this hypothesis. B- and T-cell reaction pattern was shown with CD20, CD4, and CD8 in this study. Such reactive lymphocytes of B and T cell origin were also infiltrated and surrounded around Leishman body infected histiocytes.

Further immunologic study should be done to compare the immune reaction differences between Toxoplasma lymphadenitis and L.L.L. In our study, mantle zone B cells and many other lymphocytes in interfollicular area show a positive reaction with bcl-2 monoclonal antibody. Does it mean some type of bcl-2 activation in such cells as memory cell lymphocytes with longer survival time?

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References

1. Ardehali S, Sadeghi-Hassanabadi A, Moaddeb A, Abdollahi B, Malek-Hosseini Z, Evans DA. The characterization of Leishmania from patients with lymphadenopathy in Shiraz, Iran. *Trans R Soc Trop Med Hyg.* 1995 Jul-Aug;89(4):370-1.
2. Chung HL. Localized leishmaniasis of the lymph nodes. *China Med J* 1944;62: 284-292.
3. Angevine DM, Hamilton TR, Wallace FG . Lymph nodes in leishmaniasis: Report of two cases. *Am J Med Sci* 1945;210:33-38.

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4. BELL DW, CARMICHAEL JA, WILLIAMS RS, HOLMAN RL, STEWART PD. Localized leishmaniasis of lymph nodes; report of four cases. *Br Med J*. 1958 Mar 29;1(5073):740-3.

5. Daneshbod K. Localized lymphadenitis due to leishmaniasis simulating toxoplasmosis. Value of electron microscopy for differentiation. *Am J Clin Pathol* 1978;69:462-467.

6. Azadeh B, Sells PG, Ejeckam GC, Rampling D. Localized Leishmania lymphadenitis. Immunohistochemical studies. *Am J Clin Pathol*. 1994 Jul;102(1):11-5.

7. Azadeh B. Localized leishmania lymphadenitis: a light and electron microscopic study. *Am J Trop Med Hyg* 1985;34:447-455.

8. Dabiri S, Meymandi S.S, Nadji M, Kharazmi A. A description of parasite-harboring cells in localized lymphadenitis in dry type cutaneous leishmaniasis. *Acta Tropica* 2001;79:129-133.