Toxoplasmic lymphadenitis is the most frequently observed clinical form of acquired toxoplasmosis. It is diagnosed by observing the characteristic histopathology, performing serologic tests and demonstrating the organisms. However, detection of the organisms in lymph node section is rarely accomplished. We demonstrate a case of a toxoplasmic lymphadenitis of a 40-year-old man with bradyzoites. The histopathologic findings of the lymph nodes showed reactive follicular hyperplasia associated with the presence of irregular clusters of epithelioid histiocytes, usually located in the cortical and paracortical zones, and monocytoid B cell proliferation. We demonstrated the bradyzoites of *Toxoplasma gondii* with periodic acid-Schiff (PAS)-stain, and serologic testing showed positive Ig-G and Ig-M toxoplasma antibodies.

**Key Words:** Toxoplasma Lymphadenitis-Bradyzoites-PAS stain

Toxoplasmic lymphadenitis involves single or multiple nodes, and the nodes are most commonly in the posterior cervical region. Although toxoplasmosis is spread worldwide, it has been a disease of relatively low incidence in Korea. Toxoplasmic lymphadenitis is diagnosed through observing the characteristic histopathology, performing serologic test and demonstrating the organisms. We report a case of toxoplasmic lymphadenitis of a 40-year-old man with the demonstration of the bradyzoites in his lymph nodes.

**CASE REPORT**

A 40-year-old man visited the Department of General Surgery, Myongji Hospital, with a one week history of gradually increasing palpable nodules in his neck. Physical examination of the cervical area revealed enlarged lymph nodes of the left subauricular and right preauricular regions. These were firm, discrete, and non-adherent to the skin or to deeper tissues. On ultrasonography, the enlarged lymph nodes were found in the left upper neck, on the right spinal accessory chain, and in submandibular and subauricular regions. The lymph node biopsy was obtained from the left subauricular region. The lymph node measured 1.4 × 1.3 × 0.6 cm and the cut surface showed a homogeneous brown color. Histologically, the lymph node showed reactive follicular hyperplasia and the follicles exhibited an unusual variation in size and shape (Fig. 1). This was associated with the presence of irregular clusters of epithelioid histiocytes, that were usually located in the cortical and paracortical zones (Fig. 2). The monocytoid B cell proliferation was also found in the subcapsular and trabecular sinuses (Fig. 3). The bradyzoites of *Toxoplasma gondii* were demonstrated with PAS stain (Fig. 4). *Toxoplasma gondii* was identified by immunohistochemistry (DAKO, California, USA) (Fig. 5). Immunohistochemical staining for bcl-2 (DAKO, California, USA) was negative in the germinal centers. CD68 testing (DAKO, California, USA) revealed epithelioid histiocytes, and CD3 (DAKO, California, USA) and L26 testing (DAKO, California, USA) revealed the reactive mixed pattern of the lymphocytes population. Microparticle enzyme immunoassay (AxSYM®, Abbott, Illinois, USA) for *Toxoplasma gondii* showed Ig-G-specific antibody to *Toxoplasma gondii* at a level of 162.80 IU/mL (normal: <3.0 IU/mL) and Ig-M-specific anti-
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body at a level of 5.48 IU/mL (normal: <0.6 IU/mL).

DISCUSSION

Toxoplasmic lymphadenitis was first recognized in 1950 by Siim, and by Gard and Magnussen. Several reports followed, most notably those from Europe, the United States, and Korea. Toxoplasmosis in adults is rarely serious and it resembles clinically infectious mononucleosis. Characteristic histologic features include reactive follicular hyperplasia associated with the presence of irregular clusters of epithelioid histiocytes, that are usually located in the cortical and paracortical zones, and there is monocytoid B cell proliferation in the subcapsular and
trabecular sinuses. Toxoplasmosis can be confused with Hodgkin's lymphoma. However, in toxoplasmosis the structural disruption is not as pronounced as it is in Hodgkin's lymphoma, and the Reed-Sternberg cells are never seen. Other granulomatous diseases such as sarcoidosis, cat-scratch disease, lupus erythematosus and brucellosis must also be differentiated from toxoplasmosis. In contrast to sarcoidosis, the histiocytes in toxoplasmosis are more diffuse, and the granulomas are less well circumscribed, not as organized and lack multinucleated giant cells. The lymph nodes in cat-scratch disease, lupus erythematosus and brucellosis generally do not have diffuse histiocytosis and often display prominent focal necrosis that is not seen in toxoplasmosis. Individual Toxoplasma, or cysts containing clusters of trophozoites, have rarely been observed on fixed stained histological preparations from the lymph nodes. Many studies have not found the organism of Toxoplasma gondii in the sections of the lymph node. However, this case demonstrated the organism of Toxoplasma gondii on the PAS stained sections of the lymph node. To identify the organism, the pathology of interest is important. Recently, a highly sensitive and specific method for the identification of Toxoplasma gondii has been developed using polymerase chain reaction. This technique was applied to the study of lymph node biopsies showing histologic features of toxoplastic lymphadenitis, but the results have suggested that this method does not significantly contribute to the routine diagnosis of toxoplastic lymphadenitis. Therefore, the most practical method of diagnosing toxoplastic lymphadenitis remains as a routine histologic examination with confirmation by serologic studies.

REFERENCES