Toxoplasmosis Diagnosed on Fine Needle Aspiration Cytology: A Rare Case Report

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Abstract

Toxoplasmosis is a zoonotic infection caused in human beings by protozoan intracellular parasite Toxoplasma gondii. Definitive hosts are felines like cats, while intermediate hosts are man and other mammals. We are reporting a case of a 52 year old male presenting with swelling over nape of the neck since one month. Fine needle aspiration cytology (FNAC) was performed on the swelling. A diagnosis suspicious of toxoplasmosis was given and serological studies were advised. On serology, it was confirmed to be toxoplasmosis. We are presenting this case since it is rare to pick up toxoplasmosis on cytology.

Keywords: Cytology; Intracellular; Toxoplasma gondii

Introduction

The causative organism for toxoplasmosis is Toxoplasma gondii, which is an obligate intracellular parasite. In immunocompetent patients, 90 percent of patients with primary infection of toxoplasma are asymptomatic while some patients present with mononucleosis like syndrome with cervical or general lymphadenopathy [1]. Toxoplasma lymphadenitis is also known as Piringer-Kuchinka lymphadenitis [2]. Presence of parasite in lymphadenitis is not common and is reported rarely in histologic preparations. The diagnosis of toxoplasmosis is made on FNAC in only seven to eight cases till now [3].

Case History

A 52 year old male presented with swelling on the nape of the neck since one month. The swelling was 3x2 cm. It was solitary, discrete, firm in consistency and painless. No other constitutional symptoms were present. FNAC was done. The smears showed many histiocytes filled with numerous bradyzoites [Figure 1 & Figure 2]. A diagnosis suspicious of toxoplasma infection was given and serological confirmation was advised. Toxoplasma IgG and IgM antibodies were done out of which IgG antibodies were reactive. IgG avidity test was recommended to differentiate recent from past infection. The IgG avidity was high, indicating that it was a past infection. Final diagnosis of toxoplasmosis was given based on cytological and serological findings.

Discussion

Toxoplasma gondii is a ubiquitous coccidian protozoan which infects many warm blooded animal species including humans [4]. The prevalence of infection is around 40 percent in the world and around 24.3 percent in India. The most frequently observed clinical form of toxoplasmosis is lymphadenitis. Sim first recognised it in 1950 while Gard and Magnussen observed on tissue section of cervical lymph node [3].

It exists in three life forms- oocysts, tachyzoites and bradyzoites (tissue cysts). The sporozoites which are contained in oocysts are the product of sexual cycle in the intestine of definitive hosts like felines and are excreted in their faeces. Tachyzoites which replicate within all nucleated cells are the asexual invasive forms. The third...
form bradyzoites can remain dormant in tissue for years to be reactivated later [5]. In our case, bradyzoites were identified.

Toxoplasma infection may be congenital or acquired. Enlargement of superficial lymph nodes is the commonest presentation of acquired toxoplasmosis. Due to persistence of lymph nodes, a suspicion of malignant lymphoma may be raised. It is important to diagnose toxoplasma lymphadenitis due to the serious conditions in its clinical differential diagnosis like lymphoma, leukemia, infectious mononucleosis, cytomegalo virus infection, cat scratch disease, sarcoidosis, tuberculosis and metastatic carcinoma.

Clinically, the symptoms depend on age and immune status of patient. Majority of immunocompetent patients are symptom free, some showing enlarged lymph nodes, while few of them suffer from myocarditis, polymyositis, pneumonitis, hepatitis or encephalitis. After the acute phase, most patients retain the chronic infection with dormant tissue cysts and show no symptoms. On the contrary, immunocompromised patients with toxoplasmosis may have life threatening consequences. In our case, the patient was immunocompetent and presented with swelling over nape of the neck.

Diagnosis is based on combination of FNAC or tissue biopsy and serological detection of antibodies against Toxoplasma. In immunocompromised patients, serology may be false negative. Argyle et al. concluded that identification of tissue cysts is rare (one percent) on tissue sections and very rare in smears [3]. The organisms which are similar in size and shape to toxoplasma are cysts of Sarcocystis, Isospora, Microsporidia and Leishmania. FNAC findings are presence of epithelioid cell microgranulomas, mature lymphocytes, background reactive lymphoid hyperplasia, histiocytes filled with bradyzoites and absence of necrosis. In our case, similar cytological findings were seen.

Treatment is usually medical and drugs like pyrimethamine, sulfadiazine and folic acid are given. It is reserved for immunocompetent patients with persistent or severe symptoms and immunocompromised patients. Follow up of the patients is essential since the bradyzoites may remain dormant and get reactivated later [3]. In our patient, doxycycline was given and was symptom free on follow up after one year.

To conclude, lymph node FNAC smears should be examined carefully to detect the presence of toxoplasma since it is essential to differentiate it from other causes of lymphadenopathy which are serious like metastasis or lymphoma and to avoid unnecessary surgical intervention.

References