

TOXOPLASMA LYMPHADENOPATHY: CYTO-PATHOLOGICAL DIAGNOSIS ON FNAC

Clinical Research

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ABSTRACT

Toxoplasmosis, including congenital toxoplasmosis, a disease caused by *Toxoplasma gondii*, an obligate intracellular parasite. The disease is found worldwide. Infections with Toxoplasmosis cause no obvious symptoms in adults. Occasionally there can be flu like symptoms like muscle ache and lymph-adenopathy for a few weeks. Rarely there can be eye problems. However, in cases with compromised immune system, there can be seizures, poor co-ordination and other problems.

We report here an unusual case of Toxoplasmosis in an immunocompetent 58 years old adult male who presented to us with multiple swellings on the right side of the neck. Detailed clinical examination and laboratory investigations were within normal range. The treating physician suspecting lymphoma / tubercular lymphadenitis referred the patient for fine needle aspiration cytology (FNAC). Cyto-pathological examination of Giemsa stained FNAC smear demonstrated *Toxoplasma gondii* in one of the lymph nodes. The serology was consistent with the diagnosis of Toxoplasmosis. FNAC helped in establishing the diagnosis of Toxoplasmosis.

KEYWORDS

Toxoplasmosis; *Toxoplasma Gondii* ; Lymphadenopathy; FNAC

INTRODUCTION

Toxoplasmosis is a zoonotic infection in humans caused by a protozoan intracellular parasite, *Toxoplasma gondii*. Felines such as cats, serve as definite hosts, while man and other mammals act as intermediate hosts. It affects 30-50% of world's population^{1,2}. Toxoplasmosis can result from the ingestion or handling of undercooked or raw meat containing tissue cysts. Alternatively, it can result from direct contact with cats or from the consumption of water or food contaminated by oocysts excreted in the feces of infected cats³. It can also be transferred from a mother to a child during pregnancy if the mother becomes infected. Rarely the disease may spread by blood transfusion. Majority of toxoplasma cases in immunocompetent hosts are subclinical/ asymptomatic. The importance of diagnosing toxoplasma on FNAC in elderly male lies in ruling out other important clinical differential diagnosis of cervical lymphadenopathy like metastatic lymphadenopathy, lymphomas and tubercular lymphadenitis, which can affect patient's management greatly.

CASE REPORT

An elderly male, aged 58 years, farmer by profession, reported to the physician with multiple swelling on right anterior and posterior cervical region. The swellings were gradually increasing in size over a period of 3 months. The swellings were painless. The patient had no history of fever, cough, weight loss, or night sweats. The patient was a non- smoker and had no history of tobacco consumption. There was no past history of prolonged medication or any surgery.

Clinical examination at the time of presentation revealed multiple lymph nodes in the neck in right anterior cervical triangle and few in the right posterior cervical triangle of neck, varying from 1 to 2 cm. in size. The lymph nodes were discrete, non-matted and firm in consistency without any signs of acute inflammation. The skin over the swelling was normal. General and systemic examination did not reveal any other significant clinical findings.

Blood investigations showed leucocytes count to be within normal range. The erythrocyte sedimentation coefficient (ESR) was 15 mm/1st Hour (Westergren Method). The Kidney function test, liver function tests were within normal limits. Serology for HIV1 and HIV2 was non-reactive. X-rays chest was normal. Ultra- sonography (USG) Abdomen did not reveal any pathology. The patient was referred to our department for FNAC

Fine needle aspiration was done using a 22-gauge needle, was carried out from anterior cervical group of lymph nodes as well as from cervical lymph node in posterior triangle of neck. Aspirate from one of the lymph node in the anterior cervical triangle yielded blood mixed fluid aspirate. Smears prepared from cyto-spin sediments were stained using Giemsa stain. The stained smears showed cluster of crescent

shaped toxoplasma tachyzoites, in background of inflammatory cells and few histiocytes [Fig 1]. However, smears from rest of the lymph nodes showed only reactive lymphoid hyperplasia, with associated histiocytic and epithelioid cell proliferation, few eosinophils. Thus the diagnosis was established on FNAC. The patient was further subjected to serology which also turned out positive for IgM.

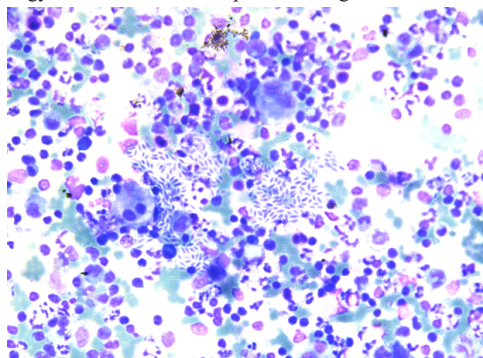


Fig 1: Cluster of crescent shaped toxoplasma tachyzoites, in background of inflammatory cells.

DISCUSSION

Toxoplasma gondii is a protozoan parasite that infects almost all warm-blooded animals, including humans, and is considered one of the most successful eukaryotic pathogens⁴. Felines such as cats, serve as definite hosts, while man and other mammals act as intermediate hosts. *Toxoplasma gondii* usually parasitizes both definitive and intermediate hosts without producing clinical signs. In humans, severe disease is usually observed only in congenitally infected children and in immunosuppressed individuals, including patients with acquired immune deficiency syndrome (AIDS). There is no person to person transmission except from an infected mother to its fetus. The risk of fetal infection ranges from 1 in 1000 to 1 in 10000. Children born with toxoplasmosis may have severe symptoms and disease may be quickly fatal or else, symptoms may not appear until months or even years after birth⁵. Postnatally acquired infections may be local or generalized and are rarely severe in immunocompetent individuals. In immunocompromised patients including those with AIDS, cancer or other chronic illnesses, toxoplasmosis can be severe, debilitating and fatal. Primary infections in adults are mostly asymptomatic, but lymphadenopathy or ocular toxoplasmosis can present in some patients⁶. Lymphadenitis is the most common manifestation. It may be limited to one lymph node but more often involves several chains of lymph nodes⁷. Any node can be infected, but the deep cervical nodes are the most commonly involved. Infected nodes are tender and

discrete but not painful; the infection resolves spontaneously in weeks or months. Lymphadenopathy may be accompanied by fever, malaise, fatigue, muscle pains, sore throat, and headache.

McCabe et. al.⁸ carried out a multicenter study on histo-pathologically confirmed 107 cases of toxoplasmosis. They concluded that cervical lymphadenopathy, without systemic symptoms or extra nodal disease was the most frequent clinical manifestation of acquired infection with *Toxoplasma* in the immunocompetent individuals. However, serious extra nodal disease did occur in some patients and included myocarditis, pneumonitis, encephalitis, chorioretinitis, and transmission of the infection to the fetus. Our elderly patient did not have any clinical or laboratory evidence of being immunocompromised. Though the patient had significant cervical lymphadenopathy, no evidence of extra nodal disease was found. Mierrinen et.al.⁹ also reaffirmed that lymph node toxoplasmosis is a disease with mild symptoms, and in most patients the enlarged lymph nodes were the only sign. Three fourths of their patients were women and the majority were under 40 years of age. The follow-up revealed that lymph node toxoplasmosis is a disease without complications and has no connection with malignant lymphomas.

Like any parasitic disease, the gold standard for diagnosis is demonstration of the parasite in the infected individual. Many authors^{10,11} regard identification based on light microscopy alone to be less sensitive and reliable. They advised the samples to be enriched by filtration or centrifugation for examination followed by staining, which helps to distinguish the parasites from host cells. We centrifuged the sample and carried out Giemsa staining and identified the parasite. Recently, diagnosis of Toxoplasmosis, employing molecular technologies to amplify parasite nucleic acids using polymerase chain reaction (PCR)-based molecular techniques, has been found to be very specific and has potential to become the investigation of choice for typing *T. gondii* in humans and animals¹².

Diagnosis of Toxoplasmosis, exclusively by FNAC is very rare. Hosokawa S et.al.¹³ reported a case of toxoplasmosis in cervical lymph node but their patient was immunocompromised result of recurrent acute myelogenous leukaemia with cervical lymphadenopathy. The biopsy in that case showed typical features of a well-defined pseudocyst containing *Toxoplasma gondii* tachyzoites. Choudhury M et.al.¹⁴ also reported a case of cervical lymphadenopathy diagnosed by FNAC and serology combined. The demonstration of the parasite on FNA smears in our patient confirmed the diagnosis. The patient was further subjected to serology which turned out positive for IgM in our patient. Presence of IgM antibodies is suggestive of the diagnosis of acute acquired toxoplasma infection in the immunocompetent patient. Because IgM antibodies may persist for many months or even years following the acute infection, their greatest value is in determining that the patient has not recently been infected. A negative result virtually rules out recently acquired infection¹⁵.

CONCLUSION:

In developing countries, because of the high prevalence of tuberculosis and lack of easy diagnostic accessibility, it is possible that many cases of toxoplasmosis lymphadenitis are being diagnosed as granulomatous lymphadenitis, especially on FNAC. This may lead to unnecessary and potentially toxic treatment for tuberculosis. Toxoplasma lymphadenitis could also be mistaken for Hodgkins Lymphoma (lymphocyte predominant) and atypical lymphoid hyperplasia. The confusion arises from the fact that clusters of epithelioid histiocytes may be present in lymph nodes involved by Hodgkin lymphoma and atypical lymphoid hyperplasia. This case is being reported to highlight the importance of nonmalignant differential causing lymphadenopathy an elderly male, which was diagnosed by demonstration of parasite on cytology, and confirmed by serology. The procedure is simple and cost-effective.

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