ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY (FNAC) IN DIAGNOSIS OF ASYMPTOMATIC MICROFILARIASIS

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ABSTRACT: Filariasis is a tropical and subtropical disease caused by Wuchereria Bancrofti and Brugia Malayi and transmitted by Culex mosquito. Lymphatic Filariasis is a major health problem in countries like India, China, Indonesia, and Africa. Diagnosis of Filaria is done by conventional methods like peripheral blood smear examination, Fluorescent capillary method and filarial antigen detection by Rapid card method. Here we present four unusual cases with swellings presented in surgical outdoor and referred for FNAC. Our aim is to evaluate and emphasize the utility and importance of Fine Needle Aspiration in diagnosing Microfilarasis in clinically unsuspected cases. **KEYWORDS:** Role, Cytology, Microfilaria.

INTRODUCTION: Filariasis is a chronic parasitic infestation, prevalent in South Asia and Africa. ^[1]In India it is major health problem in many states like Bihar, Jharkhand, Andhra Pradesh, Orissa, Madhya Pradesh and Uttar Pradesh^[2] Detection of filaria is very unyielding on conventional peripheral blood examination because of its nocturnal periodicity. On FNAC it is usually incidental to find Microfilaria in smears and fluid. Here we report four unusual cases which were referred for FNAC due to various swellings and came out to be filariasis on cytology.

CASE 1: 40 year old male presented with diffuse swelling measuring 2x1.8 cm. on lower lip since 10 years. Skin overlying was dry and show whitish discoloration. On Aspiration scanty clear fluid aspirated. Microscopically, scantily cellular smears with few cyst macrophages and numerous microfilaria against a background of blood cells and proteinaceous material were seen.

CASE 2: 55 year female presented with thyroid swelling since two years. Her thyroid function tests were normal and no complaints of hyper or hypothyroidisms were found. Her USG showed diffuse midline swelling with cystic change. On aspiration benign follicular cells, cyst macrophages against a background of colloid and numerous microfilarias in colloid were seen.

CASE 3: 57 year old male presented with thyroid swelling since 8 years with no complaints of pain, hyper or hypothyroidism. Swelling moved with protrusion of tongue and deglutition. The differential diagnosis offered was neoplastic lesion, goitre and thyroglossal cyst. His USG with high frequency probe showed heteroechoic mass seen in midline above thyroid cartilage. Vasculitis was seen on Color Doppler. Right lobe of thyroid showed well defined lesion 1.2x1.4 cm and in left lobe swelling of 1x0. 8cm s/o Colloid degeneration or neoplastic nodule. Aspiration showed dead microfilaria lying in colloid with scanty cellular smears.

CASE 4: 65 year old male patient presented with painless scrotal swelling, 6x 4cm since 2 months. On USG evidence of cystitis and hydrocele was reported with both normal testes. On aspiration10 ml

clear, colorless fluid aspirated. Microscopically, numerous microfilaria were seen against a background of fluid and few inflammatory cells seen.

All the cases discussed above had no symptoms of filariasis. Peripheral blood smears in all four cases were negative for microfilaria or eosinophilia. In all the four cases microfilaria were large with outer hyaline sheath, few had secondary kink, distinct somatic nuclei with absence of nuclei at tail end resembling microfilaria of Wuchereria Bancrofti morphologically.

DISCUSSION: Filariasis is endemic in India and south East Asia. It is estimated that more than 125 million people worldwide are affected by filariasis and WHO considers this disease as the second leading cause of permanent and long term disability after leprosy.^[3] More than 1.1 billion people live in area with increased risk of infection. Filariasis is caused by slender thread like nematodes of Filarioidea super family predominantly involve Skin and subcutaneous tissue (O. Volvulus and Loa Loa) Lymphatic system (W. Bancrofti and B Malayi).^[4] Wuchereria Bancrofti is the cause in 98% of cases.^[5] In rest Brugia Malayi is the cause.^[6] The disease mainly involves the lymphatic system of the body, lymphatics of the lower limbs, retroperitoneal tissue, spermatic cord, epidydimus, mammary glands are more frequently involved.^[7] Filariasis consists of spectrum of clinical presentations ranging from asymptomatic microfilaremia, acute lymphadenitis, chronic lymphadenitis, edema of limbs and genitalia & tropical pulmonary eosinophilia.^[8]

The life cycle of Wuchereria Bancrofti is found in two hosts. Man is the definitive host and mosquito is an intermediate host. Adult worm resides in lymph nodes where the gravid female releases a large number microfilaria. These larvae pass through the thoracic duct and pulmonary capillaries to the peripheral circulation. Adult worm lives in lymphatic vessels of definitive host and microfilaria is released in circulation in peripheral blood.

Individuals having circulating microfilaria are otherwise healthy but have the ability to transmit the infection to others through mosquito bites. Whereas, those with chronic filarial infection suffer severely from the disease but no longer transmit the infection. In endemic zones infected individuals remain asymptomatic for their whole life and are traditionally called 'Endemic Normals'.^[9] Lymphatic Filariasis was considered eradicable or potentially eradicable disease by International task force for the disease eradication.

Diagnosis of filarial infection is frequently made on clinical grounds in endemic area, but demonstration of microfilaria in circulating blood is the only means by which one can make definitive diagnosis ^{[10].} Despite of a large number of people at risk and wide variety of tissue affected, it is very unusual to find microfilaria in FNAC smears.^[11] FNAC is not routinely used as mode of investigation for clinically suspected cases of Filariasis but Microfilaria has been reported on unusual sites like breast, neck nodes, thyroid, epidydimus and rarely in subcutaneous swelling and effusions.^[12,13,14] Therefore, careful screening of FNAC smears is very helpful in detection of microfilaria even in asymptomatic patients and also for proper diagnosis and management of patients.

In the above cases none of the patient was suspected to have microfilaria infection, though by simple and cost effective FNA procedure, definitive diagnosis was made and patients were subjected to medical treatment rather than invasive surgical treatment.

CONCLUSION: The asymptomatic cases may harbor infection and detection of such carriers is a major challenge during eradication of filariasis. Cytology can be an efficient tool in diagnosis of such cases. We emphasize that in all swellings subjected to Fine Needle Aspiration, filariasis should be

considered as differential diagnosis. The entire spectrum of clinical manifestations of filariasis should be kept in mind and careful screening of cytological smears should be done so as to find coexisting filariasis with benign or malignant lesion.

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Figure 1: Microphotograph of Microfilaria lying Againsta bloody background from lip swelling



Figure 2: Microfilaria of Wuchereria Bancrofti with Blood Cells in the Background (The Cephalic Tail Tip Free From Nuclei)



Figure 3: Microphotograph of Microfilaria lying against a background of blood cells, Colloid and Few Follicular Cells from Thyroid Swelling

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