

TWO INTERESTING CASES OF FILARIASIS AT UNCOMMON SITES

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Received on : 28-09-2022

Accepted on : 06-12-2022

ABSTRACT

Filariasis is a condition resulting from filarial parasites that affects both humans and animals. There are several hundreds of filarial parasites which have been mentioned in medical literature, out of which only eight species are known to cause natural infections in humans. Repeated episodes of inflammation and lymphedema cause lymphatic damage, persistent edema, and elephantiasis of the legs, arms, scrotum, vulva, and breasts. We have reported two cases of filariasis at unusual sites.

KEYWORDS: Filariasis, Lymphedema, Elephantiasis, Scrotum.

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INTRODUCTION

Elephantiasis, which is endemic to tropical and subtropical regions, is the ubiquitous cause of acquired lymphedema and tends to affect the population residing in these areas. (1) Lymphatic filariasis is a painful condition that causes chronic infestation and profound disfigurement. The World Health Organization commenced an initiative for the eradication of lymphatic filariasis in 1997 after recognising it as the second-leading worldwide source of long-term and permanent disability, after leprosy. (2)

It is caused by parasites termed as nematodes (roundworms) of the family Filarioidea, which get spread through infected mosquitoes bites. The microfilaria are ingested by mosquito, who act as the vector and consume the blood of an infected human host. Microfilaria mature into filariform larvae that are delivered to a human host through an insect bite. *Wuchereria bancrofti*, *Brugia malayi*, or *Brugia timori* are the causative organisms in human lymphatic filariasis. Among them *Wuchereria bancrofti* is the most common species.

Humans can be infected with eight different varieties of filarial worms. Four of them are responsible for serious filarial infection: (1) *W. bancrofti*, (2) *Brugia malayi*, (3) *Onchocerca volvulus*, and (4) *Loa loa*, with the previous two causing lymphatic filariasis while the latter two are responsible for non-lymphatic filariasis.

CASE REPORT

CASE I: BREAST FILARIASIS

A 37-year-old married female residing in Balaganj, coming from a lower socio-economic status, presented to the surgery OPD of our hospital with a history of

swelling of the right breast, which was gradually increasing in size, was associated with redness, pain, and itching over the past few months. She also complained of fatigue and experienced episodes of chills without any history of fever over the past 6 months.

RADIOLOGICAL FEATURES

On ultrasonography, a 4 mm by 2 mm cystic lesion was seen in the areolar region of the right breast, along with numerous curvilinear echoes and two parallel walls with an anechoic central lumen were visible at 2 o'clock position. The lesion also demonstrates vigorous whirling movements in the subcutaneous plane known as filarial dance. Few additional tubular channels that were not converging towards the nipple were visible adjacent to these cysts, and it was assumed that they were focally dilated lymphatic ducts in the subcutaneous plane, particularly in the 12 to 3 o'clock position.

The classic twirling motion of the filarial parasite was revealed on the real-time ultrasonography suggestive of breast filariasis. During the colour doppler examination of the lesion, blue, red, and mixed colour doppler signals that were non-rhythmic, non-pulsatile, and showed rapid changes in both position and size were noted.

Although uncommon, filarial breast involvement does occur occasionally in endemic regions where *Wuchereria bancrofti* is the prevalent species. When larvae go to lymphatic veins and cause localised granulomatous inflammation in surrounding tissues, the female breast is affected.

Local lymphatic drainage is disrupted as fibrosis gradually replaces the lymphatic veins. Patients may

thus exhibit a vaguely defined, painless breast mass known as a filarial granuloma.

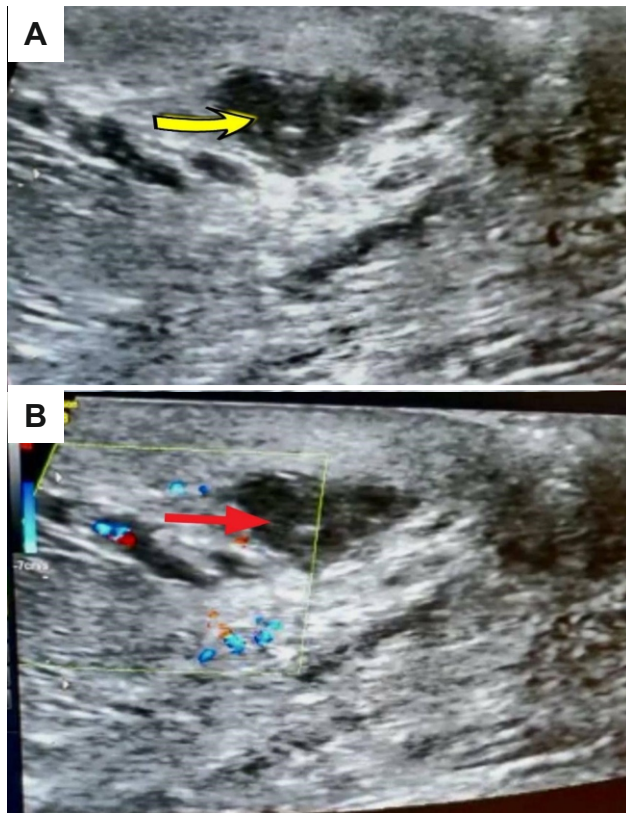


Fig. 1: Ultrasound of Breast of 37 Years Female with Swelling in breast. (A) Microfilariae in Subcutaneous Breast Tissue (red arrow). (B) Colour Doppler Imaging Showing Twirling Motion (yellow arrow).

CASE II: SCROTAL FILARIASIS

A 24-year-old male resident of Thakurganj, from a low socioeconomic status, reported to surgery OPD with acute epigastric discomfort, fever, scrotal pain, fever, and vomiting. With the exception of generalized abdominal pain, a physical examination did not reveal any notable abnormalities. There was no history of trauma, anemia, or any other systemic symptoms. The patient was advised to get a whole abdomen ultrasound, for which he was referred to our department.

RADIOLOGICAL FEATURES

An ultrasound of the scrotum demonstrated increased echogenicity, a thicker spermatic cord, and a few dilated cystic areas displaying motile internal linear echoes that represented the microfilariae exhibiting the hallmark scrotal filarial dance sign (FDS). There was no scrotal enlargement, edema, or lymphadenopathy, and HRUS results were apparent in the right scrotum around the testis neck at the junction of the epididymis and spermatic cord. Microfilaria in

peripheral blood smears are indicative of filariasis infection if the patient has FDS in an endemic area.

In endemic areas, the swirling, twisted, dancing echogenic particles are adult filaria worms. In nonendemic areas, the hyperechoic, motile particles are observed inside cystic dilatations of an enlarged epididymis in a patient showing blockage of spermatic duct. If the patient has FDS in a nonendemic region, this is an occlusion of epididymis, and in these cases, microfilaria is not evident on the peripheral blood smear. Most likely, these particles are collections of spermatozoa that have agglutinated.

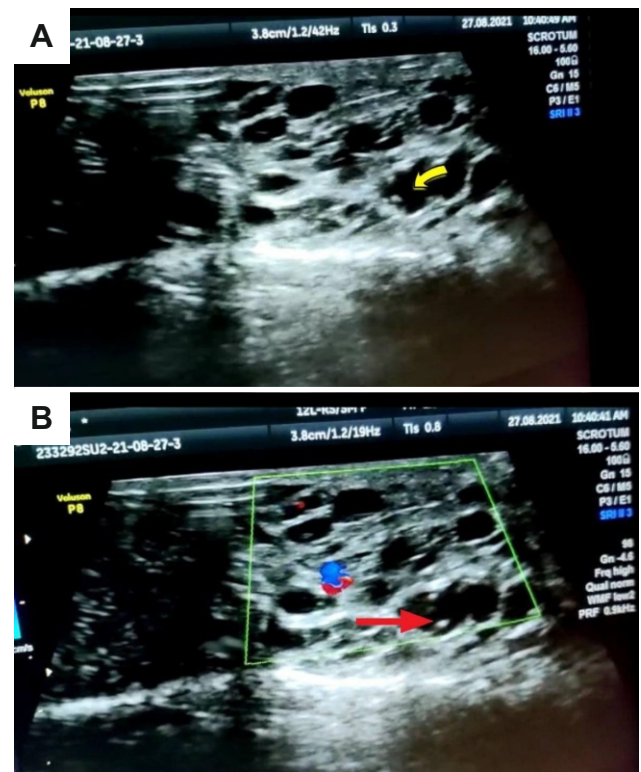


Fig. 2: HRUS Scrotum of 24 Years Male with Scrotal Pain and Fever. (A) Microfilariae in Scrotum (red arrow). (B) Colour Doppler Imaging Showing Filarial Dance Sign (yellow arrow).

DISCUSSION

In many Asian, African, and South American countries, filariasis is a ubiquitous problem. Due to its severity, this disease has major socioeconomic consequences. It is acknowledged as the second most debilitating illness among those caused by mosquitoes, after malaria.⁽³⁾ The most common causes of elephantiasis in humans are two species, which include *Wuchereria bancrofti* and *Brugia malayi*. Nearly 90 to 95 percent of the cases observed in India are associated with *Wuchereria bancrofti* infection, which mostly affects the lymph nodes and the lymphatic drainage system. The condition affects both sexes equally and is thought to

afflict 120 million people worldwide.(4)These adult worms, which are present in the lymphatic veins of the final host, release and disseminate microfilaria into the peripheral circulation. (5) The most commonly implicated sites in filariasis include limb lymphatics, bronchial aspirates, pleural and pericardial fluids, retroperitoneal tissues and cervico-vaginal smears (6). The lesions of the breast are unusual, yet not uncommon, in addition to this, enlargement of the breast has been observed in cases with dermal lymphatics obstruction by filarial worm. (7) The larvae infest the lymphatic channels of the breast, causing lymphangitis, fibrosis, and lymphatic blockage. The patient generally manifests with non-tender swelling, the upper outer quadrant being the most prevalent site. Some patients also present with a little non-tender subcutaneous thickening in the areolar region, as well as intermittent itching. However, changes in skin colour and axillary lymphadenopathy have been noted.

The condition is diagnosed by identifying microfilariae in blood smears and, in rare occasions, seen in hydrocoele fluid or chylous urine. There is no reservoir in animals; adult worms are only found in human lymphatic channels and lymph nodes. Amaral et al. first identified the "filarial dance sign" as a real-time sonographic observation of adult *W.bancrofti* in the scrotum of infected men.(8) Dreyer et al. initially presented the filarial dance in the breast. (9) The colour motion artefact, which was the result of the whirling motion of a parasite, was described by Rath et al.(10) Ovarian location of lymphatic filariasis is uncommon; very few cases have been documented in the literature. In a case report by Sane and Patel, adult filarial worms were identified in a specimen of cystic teratoma. In a case report by In a case report by Sane and Patel,(11) adult filarial worms were identified in a specimen of cystic teratoma. In a case report by Sethi et al., (12) filarial worms were found in the mesosalpinx and ovary, and both patients had gynaecological issues rather than filariasis.

The gold standard for the diagnosis of filariasis is a peripheral blood smear. Blood should be collected during the peak of microfilaraemia in order to detect microfilariae in peripheral blood smears. Although microfilaraemia is dependent on the periodicity with which microfilaria circulate in the peripheral circulation, it typically occurs for nocturnally periodic Lymphatic filariasis in the middle of the night, when obtaining samples of blood is typically very inconvenient (13).

The provocation test with diethylcarbamazine citrate (DEC) is used to identify filariasis. This approach can be used when it is not possible to collect samples of blood at midnight. The microfilariae are released into

the peripheral circulation by DEC. Comparing this test to the night blood procedure shows that it is more sensitive and specific. However, this method is not frequently used due to lot of inaccuracy, technological problems, and social challenges. The diurnal and nocturnal densities are well consistent ($r = 0.83$), although they tend to be lower end in the day blood after provocation than in the comparable night blood, except in very minor infections (14).

Treatment for filariasis frequently focuses on managing symptoms. Diethylcarbamazine citrate is the most well-known and often used medicine for treatment. Within a few days of starting treatment with this medication, the infection's severity is known to quickly decline. However, diethylcarbamazine frequently has major side effects since it causes the larvae to release antigen rapidly. Diethylcarbamazine (DEC) 6 mg/kg body weight coupled with albendazole is used as the medication.

CONCLUSION

In conclusion, breast and scrotal filarial infection can be detected using high frequency, high resolution ultrasonography. Motile filarial worms on ultrasonography, which is correlated with the active release of microfilariae into the lymphatics, are a sign of an active infection. Since ultrasound is the only diagnostic method that can identify live adult filarial worms, this may be the preferred approach for diagnosis.

A high-resolution, real-time ultrasound has shown the "Filarial Dance," a characteristic and persistent A high-resolution, real-time ultrasound has shown the "Filarial Dance," a characteristic and persistent pattern of motion of living microfilaria. Invasive FNAC should be avoided in favour of noninvasive ultrasonograph. It is an easy, quick, accurate, and noninvasive way to identify scrotal filarial infection. On ultrasonography, the "filarial dance sign" denotes a current infection. This approach ought to be chosen in light of ultrasonography's capabilities.

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How to cite this article:

Fatima A., Khanduri S., Khan Z., Ansari D., Dhingra V., Jamal H. Two Interesting Cases of Filariasis At Uncommon Sites. *Era J. Med. Res.* 2022; 9(2): 278-281.

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