

Radiological Findings in Filariasis - A Case Series

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ABSTRACT

Introduction: Filariasis is an endemic infection seen in tropical and subtropical regions that presents with lymphatic disorder in form lymphangiectasia.

Case report: We present here a case series of six patients with filariasis in which imaging played a important role in diagnosis. The most frequently involved parts of the lymphatic system are the lower limbs, retroperitoneal tissues, spermatic cord, epididymis and mammary glands.

Conclusion: Imaging specially ultrasound (USG) plays an important role in diagnosing of filariasis by demonstrating filarial dance sign. Computed tomography (CT scan) helps in diagnosing lymphangiectasia presenting as retroperitoneal mass due to thoracic duct blockage. Imaging plays important role in early diagnosis and helps in treatment especially in cases of asymptomatic patients.

Keywords: Filariasis, lymphangiectasia, Filarial Dance Sign

INTRODUCTION

Filariasis is prevalent in Southeast Asia, Africa, Indian sub-continent and west Pacific region and is noted through the tropical and sub-tropical region. There are approximately 120 million people infected and approximately half of them do not show the clinical manifestations of this disease. Filariasis mainly involves the lymphatic system of the body. The most frequently involved parts of the lymphatic system are the lower limbs, retroperitoneal tissues, spermatic cord, epididymis and mammary glands. Here we report a case series of varied radiological presentations of filariasis in which the diagnosis was made with help of ultrasonography (USG), computed tomography (CT), and the demonstration of filarial larvae in fluid aspirated under ultrasound guidance.

CASE REPORT

Patient presenting with retroperitoneal mass lesion

Filariasis presenting as retroperitoneal mass lesion is very rare presentation and only two of such cases have been reported previously in literature.

A 24 year-old male presented with a complaint of acute, epigastric pain and scrotal pain. He had a history of low-grade fever and vomiting. Physical examination did not reveal any significant abnormality except for diffuse abdominal tenderness.

A complete blood count showed no abnormality; total leukocyte count and differential count was normal. USG revealed dilated tubular cystic channels in the peri-cholecystic, peri-portal, pre-para-aortic, right iliac fossa region and complex, ill-defined cystic masses in the right inguinal and paratesticular region (figure: 1, 2)

Multiple dilated tubular cystic channels with few of them

showing moving linear echoes within it were seen in right spermatic cord and paratesticular region suggestive of filarial dance sign (FDS).

Contrast enhanced CT scan of the abdomen revealed diffuse, non-enhancing mix density retroperitoneal mass abutting the blood vessels extending from right inguinal region in to abdomen upto peri-portal region and peri-cholecystic region (figure-3). Thoracic duct appeared dilated in posterior mediastinum (figure-4). Multiple enlarged lymph nodes were seen in paraaortic and mesenteric region. Diagnosis of gross lymphangiectasia due to thoracic duct obstruction was made. USG guided aspiration from the cystic channels in inguinal region was also performed. The study of fluid aspirated from the inguinal lesion revealed motile larvae of *Wuchereria bancrofti* on light microscopy.

The patient was given 100 mg of oral diethylcarbamazepine (DEC) three times a day. In addition, injectable analgesics antibiotics, and steroids were prescribed. Antifilarial treatment was continued for three weeks, after which the patient showed good symptomatic response

Four patients presenting with inguino-scrotal swelling

Two male patients with a history of mild scrotal pain and swelling were referred to us for a scrotal ultrasonographic examination because of clinically suspected varicocele. On real time high resolution ultrasonography (HRUS), we noted anechoic tubular channels in the paratesticular region which showed no flow on color doppler study (figure-5). Other two patients presented with inguinal swelling with similar tubular channels. Within these anechoic channels, we detected linear echogenic structure with twirling motion consistent with the FDS. This patient was found to have microfilaremia on peripheral blood smears. Under ultrasonographic guidance, we aspirated the anechoic channels that showed the FDS, and we could show live microfilaria on light microscopy. The patient was then followed after therapy with DEC.

Filariasis mimicking femoral hernia

A 16 year old male presented with reducible left inguinal and femoral region swelling and pain mimicking femoral hernia on clinical examination. On ultrasound examination detected

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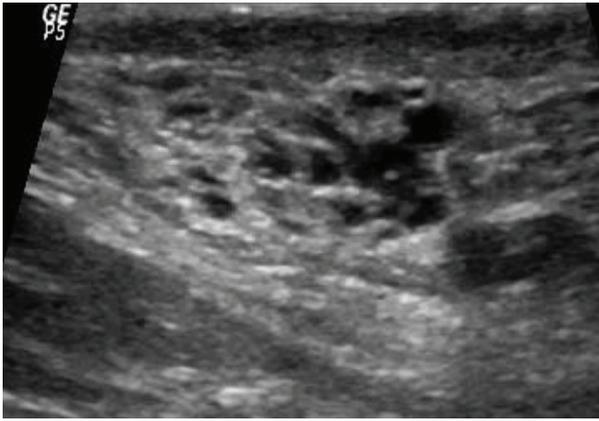


Figure-1: Ultrasound (USG) images shows thickened spermatic cord with cystic lesion adjacent to it.

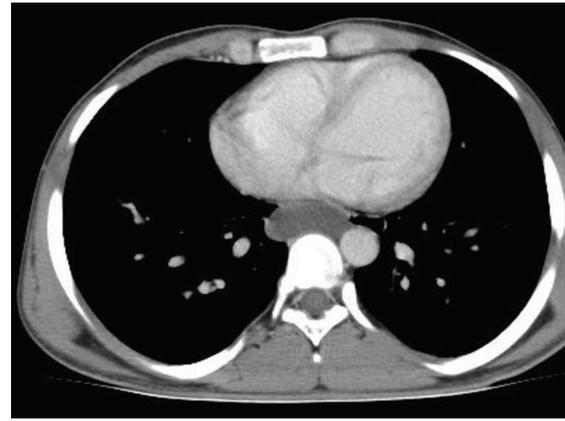


Figure-4: Axial images of CECT shows dilated thoracic duct in posterior mediastinum.



Figure-2: USG images showing intraabdominal multiple tubular cystic lesions in right iliac fossa region extending upto right inguinal region showing no color flow on power doppler study. Increased echogenicity with tiny cyst areas in paraaortic, periportal and pericholecystic region.

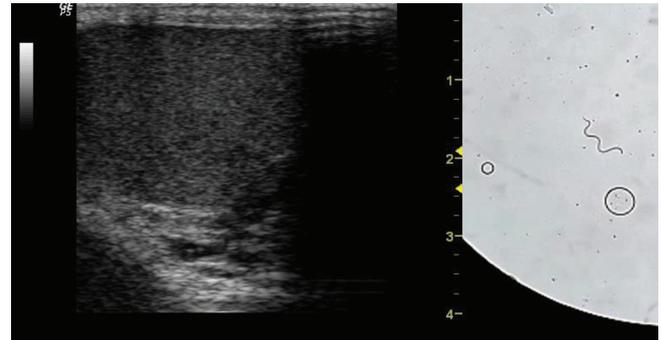


Figure-5: USG images shows anechoic tubular channels in the paratesticular region with linear moving echoes within it which failed to show any flow on color flow imaging. Light microscopy shows linear filarial larvae



Figure-3: On CECT images of the abdomen revealed gross, diffuse, non-enhancing mix density retroperitoneal mass abutting the blood vessels extending from right inguinal region upto peri-portal region and pericholecystic region.



Figure-6: USG images shows anechoic tubular channels in the inguinal region and anterior to femoral vessels.

anechoic tubular channels in the inguinal and anterior to femoral vessels which failed to show any flow on color flow imaging (figure-6). Within these anechoic channels, we detected linear echogenic structures with a persistent twirling movement suggestive of FDS. Diagnosis was confirmed by ultrasound guided fluid aspiration.

DISCUSSION

Lymphatic filariasis is endemic to tropical and sub-tropical areas and is the leading cause of acquired lymphedema.¹ Chronic filarial infestation leads to elephantiasis. In 1997, the World Health Organization started a campaign to eradicate lymphatic filariasis and identified it as the second leading

cause of permanent and long term disability.

Lymphatic filariasis transmission occurs by the *Culex quinquefasciatus* mosquito and caused by three nematodes, *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori*.^{2,3} Adult worms are found in the lymphatic channels and lymph nodes only in humans; no animal reservoir has been noted.⁴ Adult worms reside in lymphatic channels of the definitive host and release microfilaria which circulate in the peripheral blood. Lymphatics of lower limb, retroperitoneum, spermatic cord, epididymis and mammary gland are mostly involved.^{5,6} Filariasis presents as asymptomatic

microfilaremia, acute lymphangitis, lymph-adenitis, limb oedema and genital swelling and tropical pulmonary eosinophilia.⁷ Diagnosis is based on the visualization of microfilaria in blood smear and in hydrocoele fluid aspirate or chylous urine on light microscopy.⁸

The FDS on ultrasound was first described in 1994 by Amarel et al. They noted the movement of filarial worms in the lymphatic channels as “peculiar, random appearing movement of object inside a vessel like structure”. On ultrasound the worm are seen as linear echogenic structure with continuous, random, tireless twirling movement.⁹

Microfilaremia have been reported at various sites such as lymphnode, mammary gland, thyroid, bone-marrow, bronchial aspirates, nipple secretion, pleural and pericardial fluid, ovarian cyst fluid and cervico-vaginal smear^{10,11} Chaubal et al noted FDS reliable for indicating filarial infection.¹²

CONCLUSION

Ultrasound remains the primary imaging modality in diagnosis of scrotal filariasis by demonstrating filarial dance sign and lymphangiectasia. CT scan was more helpful in demonstrating lymphangiectasia presenting as retroperitoneal mass and dilated thoracic duct. Thus imaging helps in early diagnosis and helps in treatment especially in cases of asymptomatic patients.

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