Journal of Neonatal Surgery
ISSN(Online): 2226-0439
Vol. 14, Issue 14s (2025)
https://www.jneonatalsurg.com

OPEN ACCESS

The Filarial Dance Sign: A Distinctive Sonographic Marker of Scrotal Filariasis in Endemic Settings

Sanket Vinubhai Davra[1], Dr. Kumar Pushkar[*2]

[1]MD, Assistant Professor Department of Radiodiagnosis, Dr DY Patil Medical College, Hospital and Research Centre, Pimpri, Pune, Maharashtra, India.

Email ID: **davrasanket@gmail.com**

[2*]PG Resident, Department of Radiodiagnosis, Dr DY Patil Medical College, Hospital and Research Centre, Pimpri, Pune, Maharashtra, India.

Email ID: **kumar.pushkar1996@gmail.com**

[*]**Corresponding Author**:

Dr. Kumar Pushkar

Email ID: kumar.pushkar1996@gmail.com

Cite this paper as: Sanket Vinubhai Davra, Dr. Kumar Pushkar, (2025) The Filarial Dance Sign: A Distinctive Sonographic Marker of Scrotal Filariasis in Endemic Settings. *Journal of Neonatal Surgery*, 14 (14s), 900-903.

ABSTRACT

Background: Scrotal filariasis is an uncommon manifestation of lymphatic filariasis (LF), typically seen in endemic regions. While chronic presentations like hydrocele are well recognized, acute involvement of the spermatic cord is often overlooked. High-resolution ultrasonography (HRUS) aids diagnosis, particularly when the characteristic filarial dance sign (FDS) is present.

Case Presentation: A 22-year-old male from an endemic area presented with right scrotal swelling and low-grade fever. HRUS revealed dilated, avascular lymphatic channels in the right spermatic cord with mobile echogenic structures showing swirling motion—consistent with FDS. The testis and epididymis were normal.

Management: The patient received a 12-day course of Diethylcarbamazine, with marked symptomatic and sonographic improvement.

Conclusion: FDS on ultrasound is a reliable, non-invasive marker of scrotal filariasis in endemic areas. Early recognition enables timely medical management and prevents unnecessary surgical intervention.

Keywords: *Scrotal filariasis, Filarial dance sign, Wuchereria bancrofti, Ultrasonography, Diethylcarbamazine*

1. INTRODUCTION

Lymphatic filariasis (LF) is a parasitic infection caused by filarial nematodes—*Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*—which are transmitted by mosquito vectors belonging to the *Culex*, *Aedes*, and *Anopheles* genera. LF affects over 120 million individuals across 73 countries, with India alone accounting for approximately 40% of the global disease burden [1,2]. Although the disease frequently presents with chronic manifestations such as hydrocele, lymphedema, and elephantiasis, acute scrotal involvement is underrecognized and underreported in endemic regions.

Genital filariasis commonly results from lymphatic obstruction and inflammation within the scrotal structures, including the epididymis and spermatic cord. Clinically, this may manifest as epididymitis, funiculitis, or hydrocele [3,4]. The overlapping features with other causes of acute scrotum, such as torsion or infection, often delay accurate diagnosis. In this context, high-resolution ultrasonography (HRUS) with color Doppler has emerged as a valuable non-invasive diagnostic modality.

A pivotal sonographic sign for scrotal filariasis is the filarial dance sign (FDS), first described by Amaral et al. in 1994. It refers to the persistent, random, twirling movements of echogenic linear structures—representing live adult filarial worms or microfilariae—within dilated lymphatic channels of the scrotum [5]. In endemic regions, the presence of FDS is considered virtually pathognomonic, especially when correlated with clinical history or peripheral blood smear findings [6].

.

2. CASE PRESENTATION

A 22-year-old male from a filariasis-endemic region in India presented with a three-month history of gradually progressive swelling in the right hemiscrotum, accompanied by localized tenderness. He also reported intermittent low-grade fever over the preceding two weeks. There was no history of trauma, dysuria, prior genitourinary infections, or significant comorbidities

On clinical examination, the right hemiscrotum was mildly enlarged and tender to palpation, without overlying skin changes, erythema, or inguinal lymphadenopathy. The left scrotum appeared unremarkable.

High-resolution ultrasonography (HRUS) of the scrotum was performed using a high-frequency linear transducer. The right testis appeared normal in size, shape, and echotexture, with preserved intratesticular vascularity on color Doppler imaging. The epididymis was also normal.

However, the right-sided spermatic cord was thickened and showed multiple tubular, anechoic to hypoechoic cystic channels, measuring approximately 6 mm in diameter. These structures demonstrated no vascularity on color Doppler interrogation, suggestive of dilated lymphatic vessels.

Importantly, several of these dilated channels contained curvilinear, echogenic mobile structures exhibiting continuous undulating and swirling “whip-like” movements, consistent with the filarial dance sign (FDS)—a hallmark feature of active filarial infestation (Figure 1–3). No hydrocele or varicocele was identified. The left testis and spermatic cord were within normal limits.

Based on the characteristic clinical findings and definitive sonographic evidence, a diagnosis of right-sided scrotal filariasis was established.

The patient was initiated on Diethylcarbamazine (DEC) therapy at a dose of 6 mg/kg/day for a duration of 12 days. The treatment was well tolerated. Within two weeks, the patient reported significant relief from scrotal discomfort and swelling.

A follow-up ultrasound examination demonstrated a reduction in the caliber of the dilated lymphatic channels and absence of motile filarial structures, confirming therapeutic response.

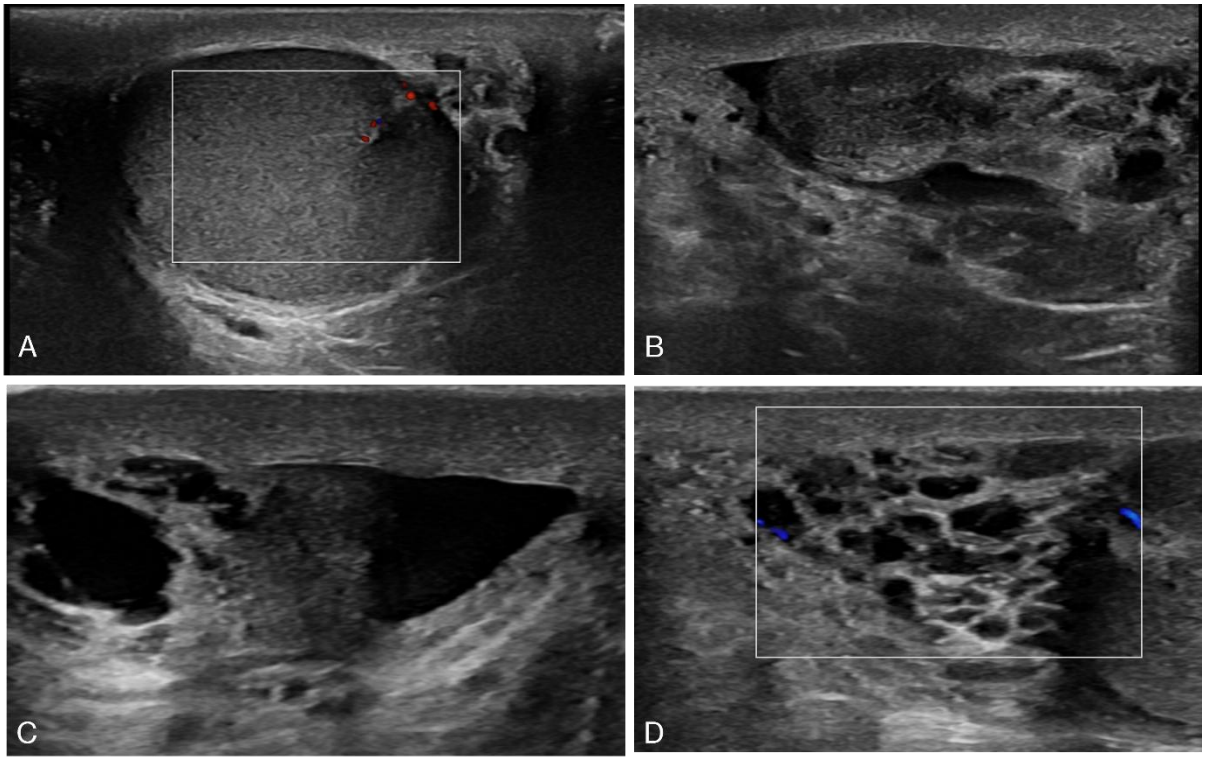

Figure 1: (A) Longitudinal grayscale ultrasound of the right testis showing normal size, shape, echotexture, and preserved intratesticular vascularity. (B) Grayscale image of the right epididymis, which appears normal in size and echotexture. (C) Minimal right-sided hydrocele seen in the dependent portion of the tunica vaginalis. (D) Transverse grayscale image of the right spermatic cord demonstrating enlargement with multiple dilated, tubular, cystic, avascular structures—suggestive of dilated lymphatic channels.

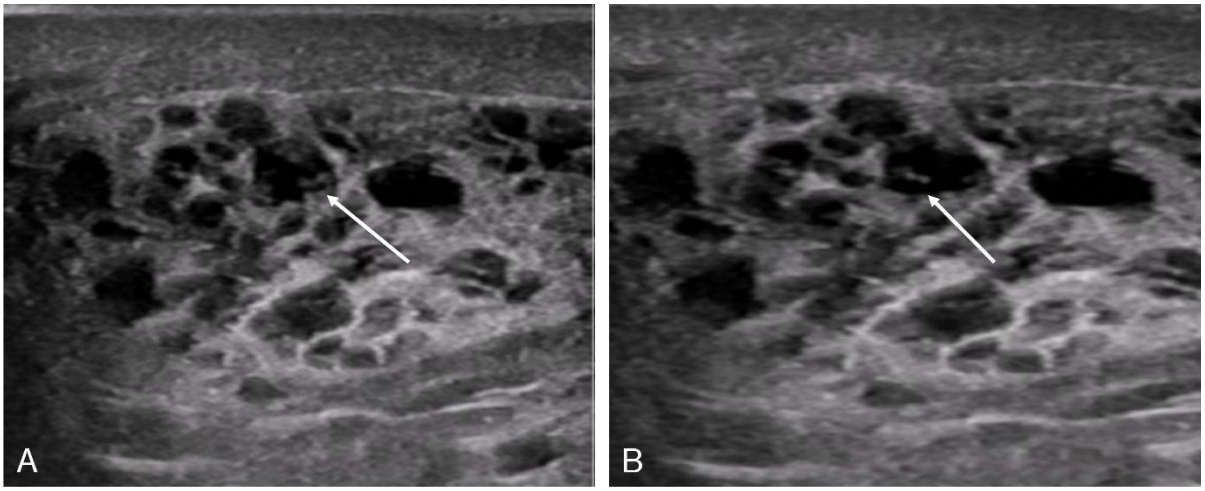

Figure 2:(A, B) High-resolution grayscale ultrasound images of the right spermatic cord showing multiple dilated lymphatic channels containing curvilinear, echogenic, undulating structures. These mobile elements represent live microfilariae, demonstrating the characteristic filarial dance sign

3. DISCUSSION

Lymphatic filariasis is a significant parasitic disease, particularly in endemic regions such as India and Southeast Asia, where *Wuchereria bancrofti* accounts for the majority of infections. Transmission occurs through the bites of infected mosquitoes, with *Culex quinquefasciatus* being the predominant vector in urban and peri-urban settings [1,2].

Scrotal filariasis arises when adult filarial worms lodge within the lymphatic channels of the spermatic cord or epididymis, leading to progressive lymphangiectasia, inflammation, and eventual lymphatic obstruction. The adult female worms produce thousands of microfilariae that circulate in the bloodstream, especially at night due to their nocturnal periodicity [3]. These pathophysiological changes result in a range of clinical manifestations, from mild scrotal swelling to overt hydrocele, funiculitis, or elephantiasis. Early in the disease, the signs are often subtle and may mimic other scrotal pathologies, complicating clinical diagnosis.

Ultrasonography, particularly HRUS combined with color Doppler, plays a central role in non-invasively identifying filarial involvement. The hallmark sonographic finding—**the** filarial dance sign—is characterized by highly mobile, linear, echogenic structures within dilated anechoic lymphatic channels, exhibiting continuous, vigorous, and seemingly tireless swirling motion. This dynamic pattern represents live adult worms or clusters of microfilariae and is considered highly specific for filarial infection in endemic zones [5,6].

In the present case, HRUS of the right scrotum revealed multiple dilated tubular channels in the spermatic cord, devoid of vascular flow, and containing actively motile echogenic structures. These findings were diagnostic of active filarial infection and aligned closely with the description provided by Arid et al., who reported FDS in three adult males from endemic zones. In their study, FDS helped establish the diagnosis non-invasively and avoided unnecessary surgical exploration [6].

Conversely, the absence of FDS does not exclude the diagnosis. Thankachan et al. described a pediatric case where a child presented with scrotal swelling suggestive of epididymo-orchitis. Initial sonography did not reveal FDS, and the diagnosis was confirmed only upon surgical excision and histopathological examination of a cystic epididymal lesion, which revealed parasitic structures consistent with filarial infection [7]. This emphasizes the variability in imaging findings and the necessity of considering filariasis in the differential diagnosis of unexplained scrotal swelling in endemic regions.

It is essential to differentiate filarial scrotal involvement from other sonographically similar pathologies:

- Varicocele: Appears as multiple serpiginous anechoic tubular structures with demonstrable venous flow on Doppler. The absence of vascularity in our case helped exclude this differential.
- Spermatic duct obstruction (Dancing Megasperm): May mimic FDS with oscillating echogenic particles, but movements are less coordinated and lack the vigorous, swirling character typical of live filarial worms. These are usually seen in post-vasectomy or obstructive conditions and are thought to represent agglutinated spermatozoa [8].
- Epididymal cysts: Present as solitary, well-circumscribed, anechoic, avascular lesions, without internal motion.

In the index case, the presence of FDS, absence of vascularity, and clinical history in a highly endemic area strongly supported the diagnosis of active scrotal filariasis. Moreover, the exclusion of other differential diagnoses through ultrasound allowed for prompt initiation of anti-filarial therapy.

Medical management remains the mainstay of treatment, with Diethylcarbamazine (DEC) as the first-line agent, targeting both microfilariae and adult worms. Surgery is reserved for chronic complications, such as hydrocele or lymphatic fibrosis, or when the diagnosis is uncertain. In our patient, early recognition via HRUS led to timely administration of DEC, resulting in symptom resolution and preventing disease progression.

In conclusion, FDS is a crucial, non-invasive diagnostic marker of scrotal filariasis in endemic regions. Radiologists and clinicians must maintain a high index of suspicion in cases of unexplained scrotal swelling and be familiar with FDS and its mimics to ensure accurate diagnosis and timely management.

REFERENCES

[1] World Health Organization. Global Programme to Eliminate Lymphatic Filariasis: Progress Report 2000–2009 and Strategic Plan 2010–2020. Geneva, Switzerland: WHO.

[2] Centers for Disease Control and Prevention. Lymphatic Filariasis: Epidemiology, Risk Factors, Diagnosis and Treatment.

[3] Grove DI. Tissue Nematodes. In: Mandell GL, Bennett JE, Dolin R, editors. Principles and Practice of Infectious Diseases. 5th ed. Churchill Livingstone; 2000. p. 246–247.

[4] Reddy GS, Das LK, Pani SP. The preferential site of adult Wuchereria bancrofti: An ultrasound study of male asymptomatic microfilaria carriers in Pondicherry, India. Natl Med J India. 2004;17:195–6.

[5] Amaral F, Dreyer G, Figueredo-Silva J, et al. Live adult worms detected by ultrasonography in human bancroftian filariasis. Am J Trop Med Hyg. 1994;50(6):753–7. doi:10.4269/ajtmh.1994.50.753

[6] Arid MK. Scrotal Filariasis: The Importance of the Filarial Dance Sign in Scrotal Ultrasound. Open J Med Imaging. 2021;11(1):1–5. doi:10.4236/ojmi.2021.111001

[7] Thankachan J, Mohandas NV, Venugopal PR, et al. Filarial Epididymitis: A Diagnostic Challenge in Pediatric Acute Scrotum. Cureus. 2024;16(11):e74534. doi:10.7759/cureus.74534

[8] Leenknegt B, Diss L, Sidhu PS. Dancing megasperm. J Belg Soc Radiol. 2019;103(1):5. doi:10.5334/jbsr.1687