

Case Study

DOI: <http://dx.doi.org/10.22192/ijamr.2024.11.03.001>

Case study on Lymphatic Filariasis

Ms. Kajal Gathe

Clinical Instructor, Department Of Community Health Nursing, MKSSS, Sitabai Nargundkar College Of Nursing For Women Nagpur India

Keywords

Filarioidea,
lymphoedema,
onchocerciasis,
chyluria,
hematuria,
Scrotal swelling,
Lower limb swelling

Abstract

Filariasis is a disease caused by a chronic mosquito-borne parasitic infection. Chronic infection can lead to swelling of the extremities, hydroceles, and testicular masses. It is the second-largest cause of permanent deformity and disability behind leprosy worldwide. Lymphatic filariasis (LF) is currently considered a neglected tropical disease. The Global Programme to Eliminate Lymphatic Filariasis is providing mass drug administrations (MDA) to populations in endemic areas in a push to eradicate this disease. Several programs exist to encourage participation with MDA.

Case report

A 17-year-old female patient presented with a subcutaneous swelling on the flexor surface of the lower part of the left arm for last 3 weeks. The swelling was accompanied by mild pain. It was 2 cm × 2 cm, spherical in shape with well-defined margins. The swelling was freely mobile without any signs of acute inflammation. The patient did not reveal any other swelling in the body. Routine hematologic tests showed complete blood count and erythrocyte sedimentation rate within normal limits. Peripheral smear prepared from the patient's blood did not demonstrate any parasite. Absolute eosinophil count and eosinophil count were within normal limits (absolute eosinophil count 200/mm³, eosinophils 2%).

Clinical diagnosis of neurofibroma/lipoma was made by a treating physician and the patient was referred to the Department of Pathology for FNAC, which was done using a 10 mL syringe and a 22 gauge needle under aseptic precautions yielded pus. Aspirated material was spread on slides, air-dried, and stained with Giemsa stain and Ziehl-Neelsen stain for acid-fast bacilli.

Cytological examination of Giemsa-stained smear showed a large number of microfilaria in the background of degenerated inflammatory cells that comprised of neutrophils, eosinophils, histiocytes, and lymphocytes. The microfilaria had typical features of the presence of hyaline sheath, cephalic space, and tail end devoid of nuclei. Thus, these *Wuchereria* belonged to the species *bancrofti*

Introduction

Filariasis is the common term for a group of diseases caused by parasitic nematodes belonging to superfamily Filarioidea. Adult worms of these parasites live in the lymphatic system, cutaneous

tissues or body cavity of the humans and are transmitted through vectors. Lymphatic filariasis is a major cause of disfigurement and disability in endemic areas, leading to significant economic and psychosocial impact.

Fig 1: Different stages of larvae in mosquito



Definition

Lymphatic filariasis, commonly known as elephantiasis, is a neglected tropical disease. Infection occurs when filarial parasites are transmitted to humans through mosquitoes.

OR

Filariasis caused by nematodes that live in the human lymph system is called Lymphatic Filariasis (LF)

Incidence

The global baseline estimate of people affected by lymphatic filariasis was 25 million men with hydrocele and over 15 million people with lymphoedema. At least 36 million people remain with these chronic disease manifestations. (1 Jun 2023)

India has 40% of the world's lymphatic filariasis (LF) cases. For patients, one of the major costs of treating the disease is that of being unable to work for some time. A year 2000 survey reported that about half the people in India were at risk of contracting LF.

The Government of India (Gol) has launched a Mass Drug Administration (MDA) campaign on 10 February 2022 for the elimination of lymphatic filariasis (LF) in 10 endemic districts of Odisha.

These include Balasore, Bhadrak, Bolangir, Cuttack, Kalahandi, Kandhamal, Khurda, Nayagarh, Nuapada and Rayagada. 16 Feb 2023

The current estimate reveals that 120 million people in 83 countries of the world are infected with lymphatic filarial parasites, and it is estimated that more than 1.1 billion (20% of the world's population) are at risk of acquiring infection.

Physical Examination

Filariasis patients appear toxic on presentation due to pain. They present with fever called filarial fever. It is an acute self-limited fever present in the beginning of the disease. Edematous plaques may be observed and it is a sign of acute dermatolymphangioadenitis. In onchocerciasis, blindness occurs and subcutaneous nodules may be found. Genitourinary manifestations are also observed in filariasis as hydrocele, chyluria, hematuria and scrotal elephantiasis.

Appearance of the patient

Patients with filariasis appear toxic due to pain.

Vital signs

Filarial fever is acute self limited fever and occurs in the beginning of the infection.

Skin

Edematous plaques in acute phase of the disease as a sign of acute dermato-lymphangioadenitis

Papular eruptions

Subcutaneous nodules in cases of onchocercosomata

Heent

-) Blindness
-) In Onchocerciasis, the most serious manifestation consists of ocular lesions that can progress to blindness.
-) Subconjunctival migration of an adult worm can be seen in Loiasis.

Lungs

-) Rhonchi may be present in patients with pulmonary tropical eosinophilia syndrome.

Abdomen

-) Hepatomegaly

Extremities

-) Lymphedema
-) Elephantiasis
-) Lymphangitis

Genitourinary

-) Genitourinary signs that may be detected in filariasis patients:
 -) Hydrocele
 -) Scrotal elephantiasis
 -) Chyluria as a result of leakage of the lymph into the urine
 -) Hematuria
 -) Proteinuria

Other

Lymphadenopathies

Causes

Lymphatic filariasis is caused by infection with parasites classified as nematodes (roundworms) of the family Filariodidea. There are 3 types of these thread-like filarial worms:

Wuchereria bancrofti, which is responsible for 90% of the cases.

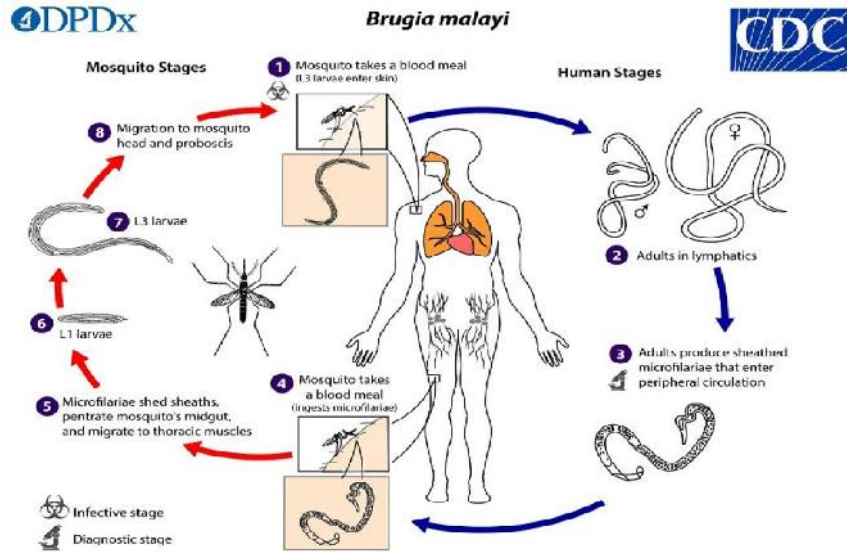
Brugia malayi, which causes most of the remainder of the cases.

Brugia timori, which also causes the disease.

Adult worms nest in the lymphatic vessels and disrupt the normal function of the lymphatic system. The worms can live for approximately 6–8 years and, during their lifetime, produce millions of microfilariae (immature larvae) that circulate in the blood.

Mosquitoes are infected with microfilariae by ingesting blood when biting an infected host. Microfilariae mature into infective larvae within the mosquito. When infected mosquitoes bite people, mature parasite larvae are deposited on the skin, from where they can enter the body. The larvae then migrate to the lymphatic vessels where they develop into adult worms, thus continuing a cycle of transmission.

Lymphatic filariasis is transmitted by different types of mosquitoes, for example by the *Culex* mosquito, widespread across urban and semi-urban areas, *Anopheles*, mainly found in rural areas, and *Aedes*, mainly in endemic islands in the Pacific.



Sign and symptoms

In literature	In client
Fever	Acute inflammation of lymphatic vessels
Inguinal or axillary lymphadenopathy.	High temperature.
Testicular and/or inguinal pain	Shaking chills,
Skin exfoliation.	body aches
Limb or genital swelling - repeated episodes of inflammation and lymphedema lead to lymphatic damage, chronic swelling, and elephantiasis of the legs, arms, scrotum, vulva, and breasts.	swollen lymph nodes.
Tropical pulmonary eosinophilia syndrome — an increase in white blood cells that causes coughing and difficulty breathing.	

Diagnosis and Tests

To diagnose lymphatic filariasis, healthcare providers need to examine a blood sample. They may use:

- **Microscopic testing:** Providers may view your blood sample under a microscope. The microscope allows them to see if your

blood has any filarial worms. Filarial worms are nocturnally periodic, meaning they only move in your blood at night time. Because of this, you may need to get your blood drawn at night.

- **Antibody testing:** Providers may measure your blood sample for antibodies. Your body creates antibodies in response to an infection. You can have this test during the day.

Management and Treatment

Our treatment plan varies depending on what symptoms you have and how severe they are. In general, filariasis treatment may include:

- **Medication:** You may take anti-parasitic medicines such as ivermectin (Stromectol), diethylcarbamazine (Hetrazan) or albendazole (Albenza). These drugs destroy the adult worms in your blood or keep them from reproducing. Taking these medicines can also prevent passing the infection to someone else. Because the worms may still live in your body, you take these medicines once a year for a few weeks at a time.
- **Surgery:** You may have surgery to remove dead worms from your bloodstream. If filariasis has caused hydrocele, you may also have surgery to relieve fluid buildup in your scrotum.
- **Elephantiasis management:** Your healthcare provider may also recommend strategies to manage swelling, such as elevation or compression garments.

Complication

Over time, damage to your lymphatic system may make it difficult for your body to fight infections. Because of this lowered immune response, you may develop:

- Frequent bacterial infections.
- Elephantiasis — thickened and hardened skin and fluid retention, leading to painful, swollen and enlarged body parts.

Side effects of filariasis treatment

- Dizziness.
- Fever.
- Headache.
- Muscle or joint pain.
- Nausea.

Prevention and Control Measure

- **Prevention chemotherapy** - based on WHO recommendations, mass drug administration (MDA) of preventive drugs to endemic populations on an annual basis is essential. The recommended MDA drugs are - albendazole, ivermectin and diethylcarbamazine citrate.
- **Vector control** - spraying of insecticide treated nets, using insect repellent.
- **Xenomonitoring**- monitoring of the presence of parasites in vectors. Molecular analysis of vector mosquitoes can reveal the presence.


Conclusion

In conclusion, the case study on lymphatic filariasis highlights the multifaceted challenges associated with this neglected tropical disease. From its impact on affected individuals to the complexities of implementing effective prevention, clinical manifestation, management and treatment strategies, the study underscores the importance of global collaboration, awareness, and sustained efforts in addressing this public health issue. Despite progress in some regions, there remains a need for continued research, innovative interventions, and community engagement to ultimately eliminate the burden of lymphatic filariasis worldwide.

References

- 1) Professional CC medical. Filariasis: Lymphatic filariasis, symptoms, treatment [Internet]. [cited 2024 Feb 28]. Available from: <https://my.clevelandclinic.org/health/diseases/21925-filariasis>
- 2) Lymphatic filariasis [Internet]. World Health Organization; [cited 2024 Feb 28]. Available from: <https://www.who.int/news-room/fact-sheets/detail/lymphatic-filariasis>
- 3) Clement I. Essentials of Community Health Nursing. New Delhi: Jaypee Brothers Medical Pub.; 2012.

- 4) K. Park, Textbook of Preventive and Social Medicine, 27th Edition: Banarsidas Bhanot Publishers.
- 5) K. K. Gulani, Textbook of Community Health Nursing (Principles & Practices), 3rd Edition: Kumar Publishing House.

Access this Article in Online	
	Website: www.ijarm.com
	Subject: Parasitology
Quick Response Code	
DOI:10.22192/ijamr.2024.11.03.001	

How to cite this article:

Kajal Gathe. (2024). Case study on Lymphatic Filariasis. Int. J. Adv. Multidiscip. Res. 11(3): 1-6.
DOI: <http://dx.doi.org/10.22192/ijamr.2024.12.03.001>