



**KULLIYAH OF MEDICINE & HEALTH SCIENCES**  
(Facilitator's copy)

Course	Medical Parasitology
Semester/Year	3/ 2
Topic	Tissue Nematodes
Date	
Time	
Student's Name/ ID	
Lecturer Name	Lee Ii Li

### **Overview**

This is the Self-Learning Package (SLP) for Medical Parasitology (MP). The exercise will help students to understand the biology, diagnosis, treatment and prevention and control measures for tissue nematodes.

Infections caused by tissue nematodes are categorized into 2 categories, namely, non-filarial and filarial tissue nematodes infections. *Trichinella spiralis* and *Dracunculus medinensis* are the example of causal agents for non-filarial tissue nematode infections. While are *Wuchereria bancrofti*, *Brugia malayi/ timori/ pahangi*, *Loa loa*, *Onchocerca volvulus* and *Mansonella ozzardi/ perstans/ streptocerca* the example of causal agents for filarial tissue nematode infections.

*Trichinella spiralis* species is the common cause of human disease by eating raw or undercooked pork. Although, other mammals like wild carnivores and horses can be reservoirs of infection. It can cause symptoms varying from generalized fever, abdominal pain, diarrhea, nausea, vomiting's, myalgia to more severe like myocarditis and encephalitis.

*Dracunculus medinensis* is the causal agent for dracunculiasis, also known as Guinea worm disease. The disease affects poor communities in remote parts of Africa that do not have safe water to drink. There is neither a drug treatment for Guinea worm disease nor a vaccine to prevent it. Great progress has been made towards elimination of Guinea worm disease; the number of human cases annually has fallen from 3.5 million in the mid-1980s to 28 in 2018.

There are many species of filarial worms, but only a few infect people. Species that infect people may reside in

- Tissues under the skin (subcutaneous tissues) or in the eye: African eye worm (*Loa loa*), which causes loiasis, or *Onchocerca volvulus*, which causes river blindness (onchocerciasis)
- Lymph tissues: *Wuchereria bancrofti*, *Brugia malayi*, or *Brugia timori*, which cause lymphatic filariasis

### ***Topic Learning Outcomes (TLOs)***

Students should be able to:

1. Describe the morphology of the causative agents for tissue nematode diseases
2. Discuss the life-cycle and epidemiology of the nematode parasites
3. Explain the pathogenesis, clinical manifestation, diagnosis and treatment of the nematode infections
4. Discuss the principles of prevention and control

References:

1. Franklin A.N. & Harold W. (1998). **Basic and Clinical Parasitology** (6<sup>th</sup> Edition) New York Prentice Hall.
2. Viqar, Z., & Loh, A.K. (1996) **Handbook of Medical Parasitology** (3<sup>rd</sup> Edition).

Using the references provided and other possible resource materials in the library, answer the following questions.

1. Illustrate the morphology of the following tissue nematodes.

<i>Trichinella spiralis</i>	<i>Dracunculus medinensis</i>	
<i>Wuchereria bancrofti</i>	<i>Brugia malayi</i>	
<i>Loa loa</i>	<i>Onchocerca volvulus</i>	<i>Mansonella ozzardi</i>



2. Life cycle and epidemiology of the following nematodes.

<i>Trichinella spiralis</i>	<i>Dracunculus medinensis</i>

<i>Wuchereria bancrofti</i>	<i>Brugia malayi</i>

<i>Loa loa</i>	<i>Onchocerca volvulus</i>

*Mansonella ozzardi*

--



3. Pathogenesis, clinical manifestation, diagnosis and treatment of the following tissue nematodes.

<b>Tissue Nematodes</b>	<b>Clinical Manifestation</b>	<b>Diagnosis</b>	<b>Treatment</b>
<i>Trichinella spiralis</i>			
<i>Dracunculus medinensis</i>			
<i>Wuchereria bancrofti</i>			
<i>Brugia malayi</i>			
<i>Loa loa</i>			
<i>Onchocerca volvulus</i>			
<i>Mansonella ozzardi</i>			

## 4. List of prevention and control measures for tissue nematodes.

<b>Tissue nematodes</b>	<b>Prevention and control measures</b>
<i>Trichinella spiralis</i>	
<i>Dracunculus medinensis</i>	
<i>Wuchereria bancrofti</i>	
<i>Brugia malayi</i>	
<i>Loa loa</i>	
<i>Onchocerca volvulus</i>	
<i>Mansonella ozzardi</i>	

5. Summarise the important details about tissue nematodes

<b>Tissue nematodes</b>	<b>Disease</b>	<b>Mode of transmission</b>	<b>Location detected in human</b>
<i>Trichinella spiralis</i>			
<i>Dracunculus medinensis</i>			
<i>Wuchereria bancrofti</i>			
<i>Brugia malayi</i>			
<i>Loa loa</i>			
<i>Onchocerca volvulus</i>			
<i>Mansonella ozzardi</i>			