

MJF COLLEGE OF VETERINARY & ANIMAL SCIENCES,  
CHOMU, JAIPUR



## Genus -Dirofilaria

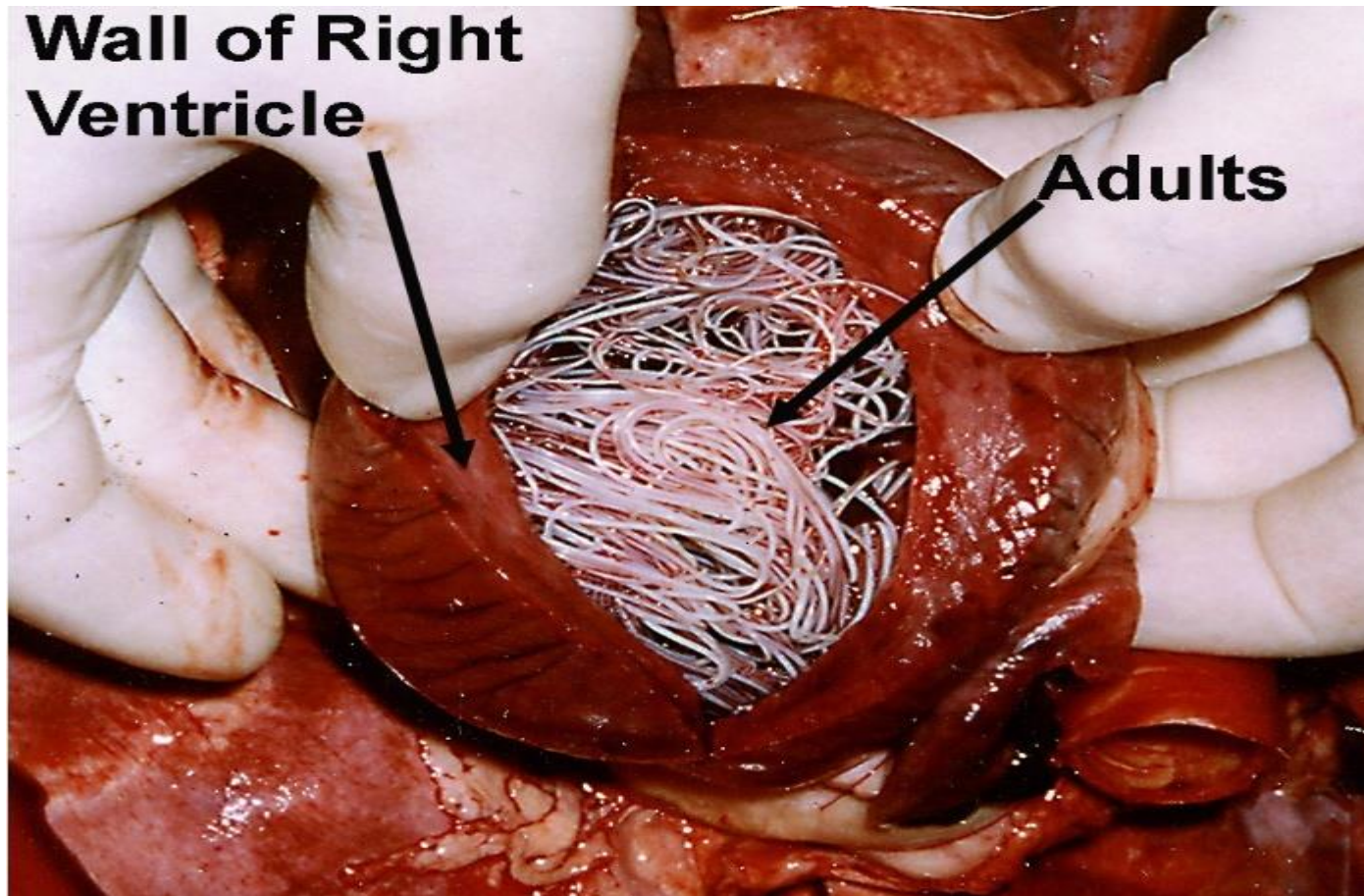
Dr. S. S. Grewal

Dr. Priyanka Saini

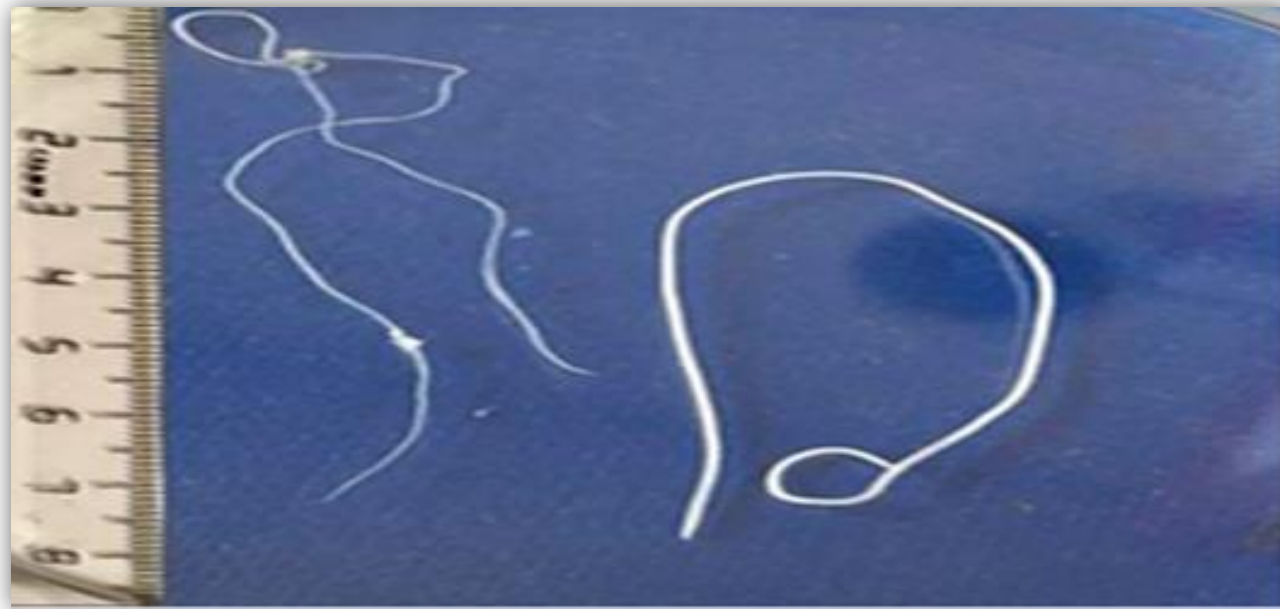
Dr. Robin Singh

<b>Family</b>	<b>Filaridae</b>
<b>Genus</b>	<b>Dirofilaria</b>
<b>Species</b>	<b><i>D. immitis</i></b>
<b>Location</b>	<b>Right ventricle and pulmonary artery</b>
<b>I/H</b>	<b>Mosquitoes ( Culex, Aedes &amp; Anopheles)</b>
<b>Common name</b>	<b>Heart worm of dog</b>

❖ *Dirofilaria repens* is found in the subcutaneous tissues.



Adult worms in the heart



***Dirofilaria immitis* (left) and *Dirofilaria repens* (right)**

## MORPHOLOGY

- ◉ Worms are long, thin and white in colour.
- ◉ Mouth is very small and lips are absent.
- ◉ Males are 12-16 cm and females are 25-30 cm long
- ◉ Posterior end of male is spirally coiled.
- ◉ The spicules are unequal and the left spicule is blunt.
- ◉ The position of vulva in female worms just behind the oesophagus.
- ◉ Larvae of filarid is known as "Microfilaria" which are found in the blood of the host.

# LIFE CYCLE

- ❖ **Life-cycle** : Indirect
- ❖ **Host** : Dog, Cat, Man
- ❖ **Location** : Right ventricle and pulmonary artery
- ❖ **Infective stage** : L3
- ❖ **Prepatent period** : 6 months

- The female worms lay microfilariae in the blood and these are ingested by the female mosquitoes during blood sucking.
- In mosquitoes, L3 are developed within 2 weeks.
- During further blood feeding, L3 are transmitted into the final host.
- The L3 migrate to the subcutaneous tissues where they moult twice.
- The young worm reach to the heart via the venous circulation and become adult.
- **Prepatent period : 6 months**

# PATHOGENESIS

- ◉ Mild infection causes no clinical signs where as heavy infection causes circulatory distress due to mechanical interference.
- ◉ Presence of large number of worms in the heart will interfere with the function of the cardiac valves.
- ◉ Heartworm primarily causes pulmonary circulatory disturbances leads to pulmonary hypertension due to narrowing of pulmonary peripheral artery.
- ◉ In heavy infection, a mass of worms may block the posterior venacava and this may lead to **venacaval syndrome**.
- ◉ Compensatory hypertrophy of right ventricle results in "**congestive heart failure**", **liver failure syndrome** and **peripheral oedema**.
- ◉ Microfilariae are also responsible for glomerulonephritis.



## CLINICAL SIGNS

- ⊙ Deep soft cough
- ⊙ Reduced stamina
- ⊙ Haemoptysis
- ⊙ Haemoglobinurea
- ⊙ Jaundice
- ⊙ Anorexia
- ⊙ Anaemia
- ⊙ Ascites

# DIAGNOSIS

- Clinical signs
- Detection of microfilariae –
  1. Wet blood smear examination
  2. Knotts method - One ml of blood + 9 ml of 2% formalin, centrifuge for 5 min. then the sediment is to be stained with methylene blue.
- X ray.
- Serological test  
ELISA

## TREATMENT

- ❖ Thiacetarsamide : 2.2 mg / kg b.wt. I/V Twice a day for 2 days
- ❖ Malarsomine : 2.5 mg / kg b.wt. I/M for 2 days
- ❖ DEC : 2.5 – 3 mg/Kg b wt. for 7 days.
- ❖ Levamisole : 10mg/Kg b wt. Orally for 7 days
- ❖ Ivermectin is also quite effective but may become toxic in dogs at the usual therapeutic dose.

# CONTROL

- ⦿ Use of prophylactic drug like diethylcarbamazine to inhibit the larval development.
- ⦿ Treatment of the infected dogs with therapeutic drug with proper care.
- ⦿ Control of mosquitoes.