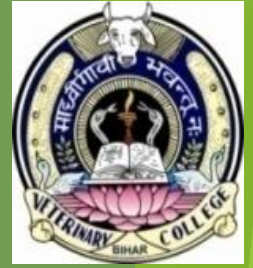




Onchocerca

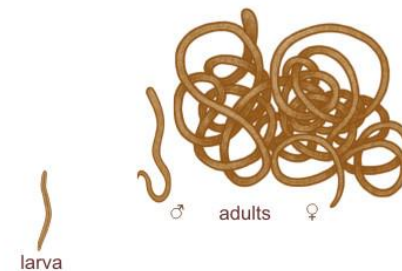


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Onchocerca

Morphological Characters:

- **Worms are elongated in shape.**
- **Worms lie in coiled up position in fibrous tissues nodules.**
- **Cuticle is transversely striated and bears spiral thickening.**
- **Microfilariae are found in the skin in the lymph spaces and connective tissue spaces.**



Onchocerca

Family : Onchocercidae

Species:

Species	Final host	Intermediate host	Location
<i>Onchocerca gibsoni</i>	Cattle and zebu	Midge (<i>Culicoides pungens</i>)	Subcutaneous & intermuscular nodules
<i>Onchocerca gutturosa</i>	Cattle and zebu	<i>Simulium ornatum</i>	Ligamentum nuchae & gastrosplenic ligament
<i>Onchocerca cervicalis</i>	Horse & mule	<i>Culicoides nubeculosus</i>	Ligamentum nuchae
<i>Onchocerca armillata</i>	Cattle & buffalo	-	Thoracic aortic wall
<i>Onchocerca volvulus</i>	Man	<i>Simulium</i> spp. (black fly)	Subcutaneous nodules

Onchocerca

Life-cycle:

Indirect life-cycle

Species	Intermediate host	Location
<i>Onchocerca gibsoni</i>	Midge (<i>Culicoides pungens</i>)	Subcutaneous & intermuscular nodules
<i>Onchocerca gutturosa</i>	<i>Simulium ornatum</i>	Ligamentum nuchae & gastrosplenic ligament
<i>Onchocerca volvulus</i>	<i>Simulium</i> spp. (black fly)	Subcutaneous nodules



Simulium(black fly)



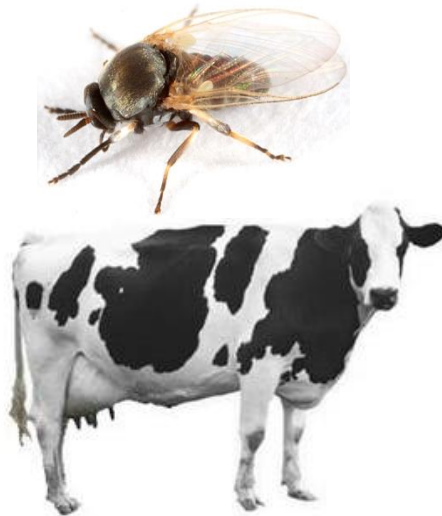
Cilicoide (Midge

Onchocerca

Transmission:

- ⌚ Microfilariae (L_1) are taken by the flies during sucking blood from the Infected host.
- ⌚ **Infective larvae (L_3) develop inside the flies.**
- ⌚ Transmission occurs when 3rd stage larvae (L_3) infected flies suck blood of another final hosts.

Simulium



Culicoides



Onchocerca

Life-cycle:

Life Cycle of *Onchocerca cervicalis*

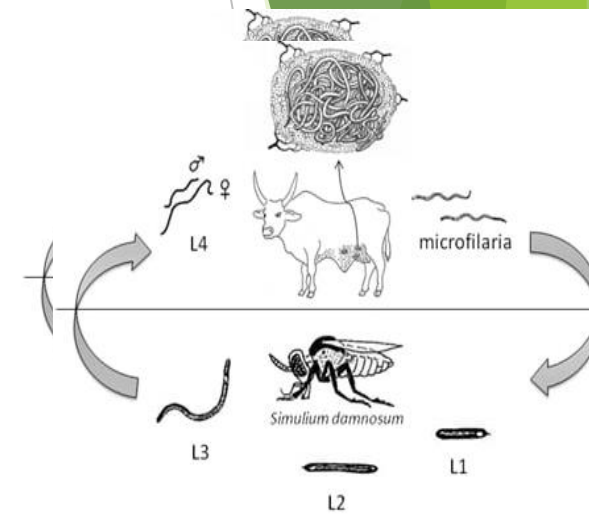
Microfilaria live on dermis of skin (larvae of neck threadworm)

Infected horse sheds larvae; larvae enter fly when horse is bitten and can now be transmitted to other horses



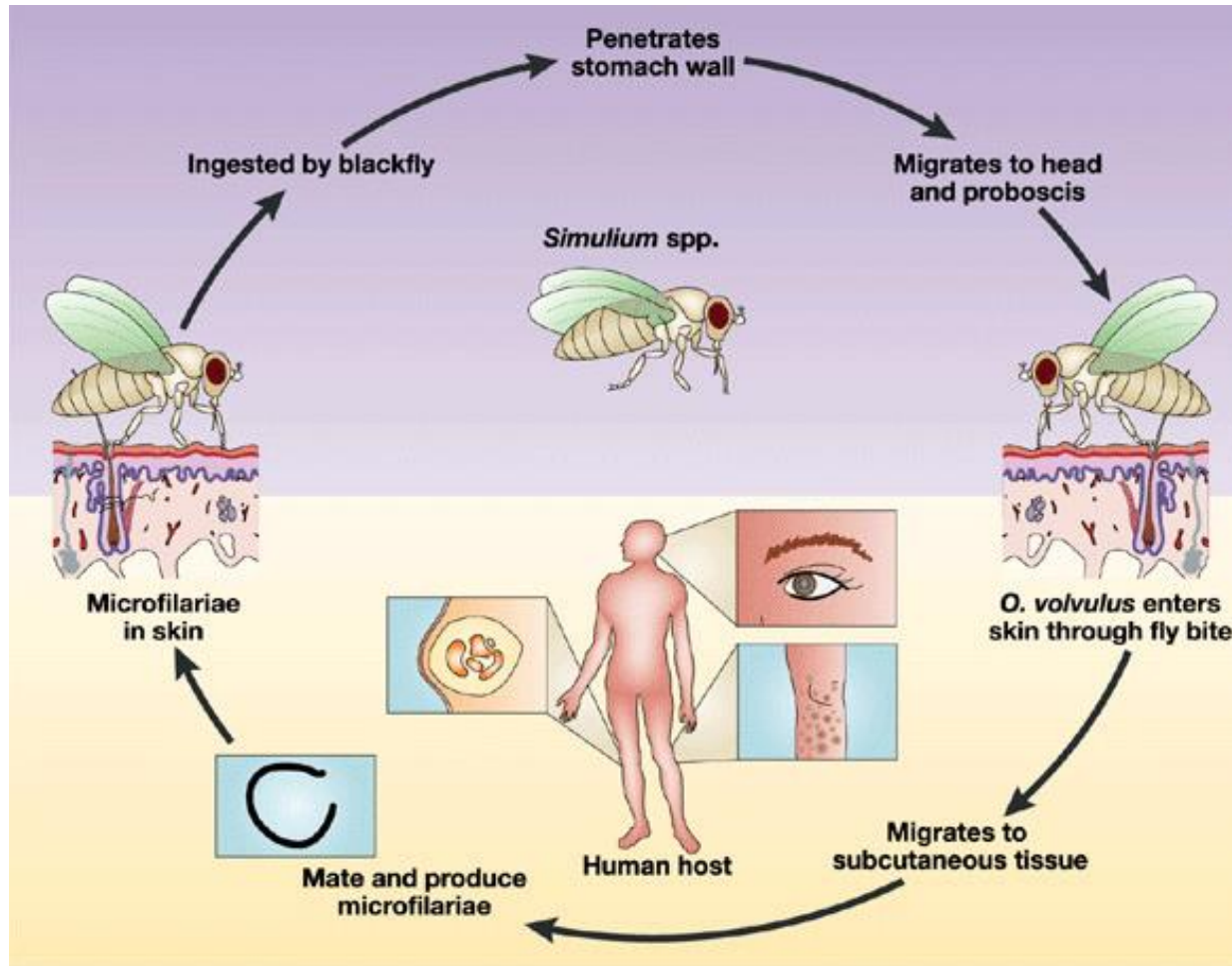
Fly bites horse and ingests microfilaria; parasite develops into second stage

Fly bites horse again. Second stage larvae travel to connective tissue in neck and develop into adult worm



Onchocerca

Life-cycle:



Onchocerca

Pathogenesis :

Depend upon the *Onchocerca* species :

Species	Species
<i>Onchocerca gibsoni</i>	<ul style="list-style-type: none">○ Worm produces nodules or worm nest which contain a coiled-up worm surrounded by fibrous tissue.○ Diameter of nodules may reach up to 5 cm.○ It leads to economic lose due to carcass trimming
<i>Onchocerca gutturosa</i> & <i>Onchocera cervicalis</i>	It affects mainly liagmentum nuchae in which coiled worms deeply lodged. Nodules become calcified which contain degenerated worms. Older lesions show hard nodules and reveal <u>chalky appearance on incision</u> . Lesion also occurs on the head, shoulder, neck and withers.
<i>Onchocerca armillata</i>	No clinical signs. Worms found in nodules present on the wall of aorta and atheromatous plaques are commonly seen on the intima. Arotic aneurysms may observed in some cases.

Onchocerca

Pathogenesis & Clinical signs:

- 🕒 Microfilariae of *Onchocerca* spp. produce sporadic dermatitis which is called wahi and kasen in cattle, summer mange, allergic dermatitis etc. in horses.
- 🕒 In man, *Onchocerca volvulus* caused river blindness and nodding syndrome.

Simulium spp. (Blackflies) breed along fast-flowing rivers and streams, close to remote villages located near fertile land where people rely on agriculture.

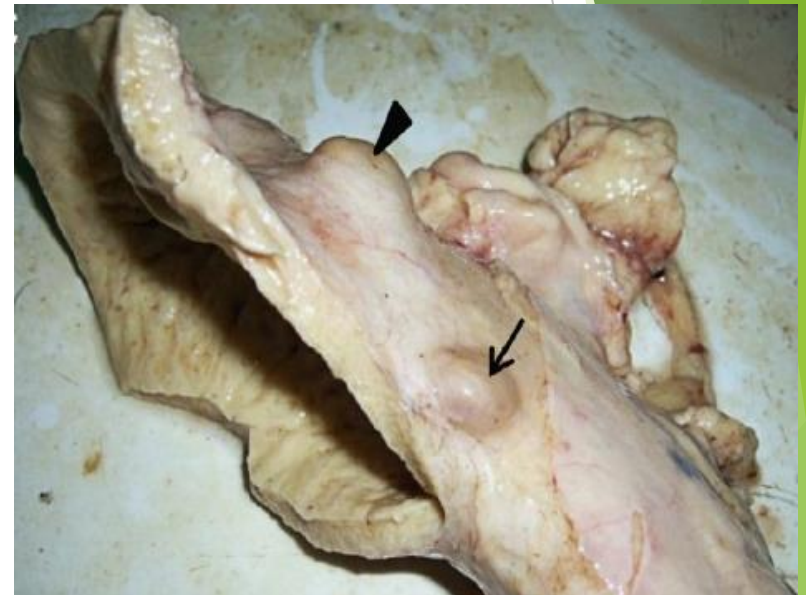


Onchocerca

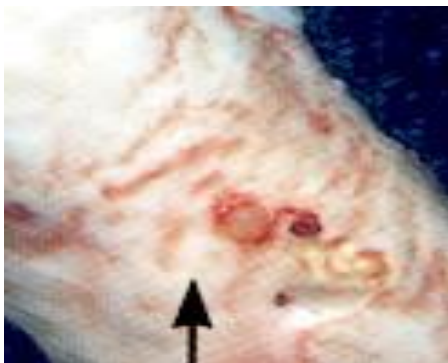
Transmission:



O. gibsoni formed nodules in the brisket of a cow



Aortic arch and associated serosa a cow exhibits both calcified and caseous nodules due to *Onchocerca armillata* infection



Onchocerca

Diagnosis:

- On the basis of clinical signs.
- Microscopic examination of skin biopsy sample and sometimes in blood smears revealed microfilariae of worm.



Skin
biopsy
samples



Microfilaria

Onchocerca

Treatment :

- **Microfilaricidal drugs are used in the treatment :-**
 - i. **Ivermectin @ 0.2 mg/kg body weight S/C.**
 - i. **Diethylcarbamazine @ 5- 8 mg/kg body weight for 21 days**

Onchocerca

Control:

- ❖ **Use of microfilaricidal drugs as prophylaxis in animals**
- ❖ **By controlling intermediate hosts by using insecticides, fly repellent, destroying breeding habitat etc.**



**THANK
YOU**