

## Lec.2

Lecturer: khalidah Kareem

### *Dipylidium caninum* (Dog Tapeworm)

It causes a disease known as dog tapeworm infection or dipylidiasis. It is a parasite of dog and cats, humans infected accidentally.

Adult measured 10-70cm in length, the segments is vas-shape; mature segment contain paired reproductive organs with 2 midle lateral located genital pores. [i.e. two set of male and two set of female reproductive organs]; gravid segments resembles Pumpkin seed in its shape with masses of egg capsule [eggs sac] filled with 5-25 eggs. The scolex is rhomboidal in shape, with 4suckers and retractile conical-shaped rostellum provided with 6 -7 rows of hook.

#### *D.caninum*

Scolex

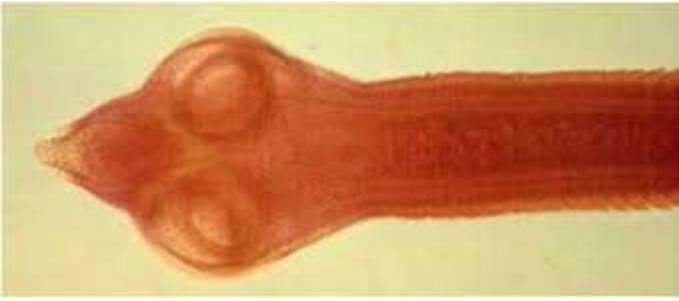
immature

mature

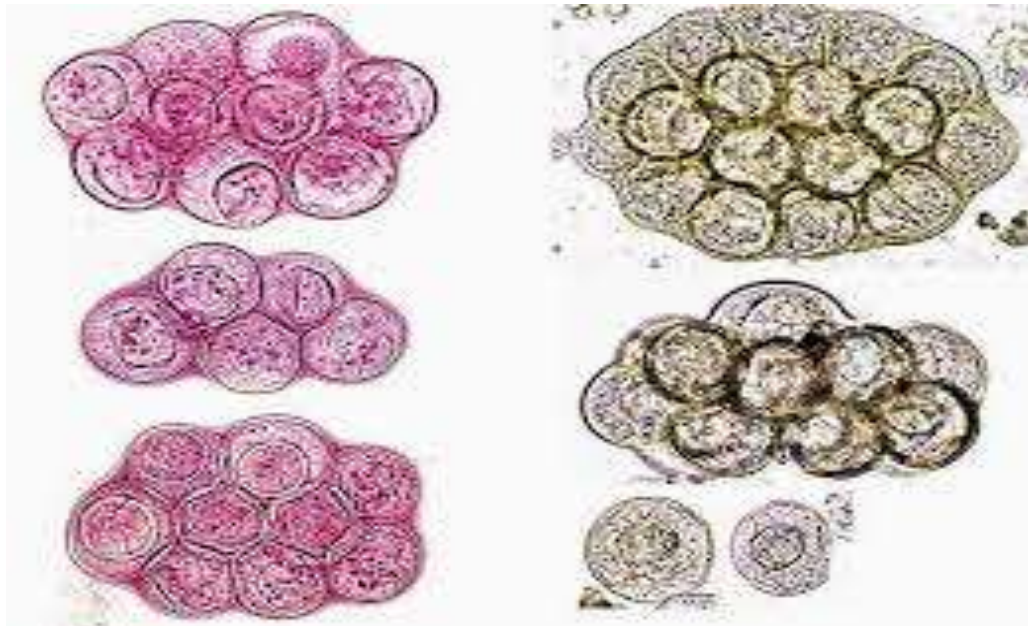
Gravid

Egg-sac



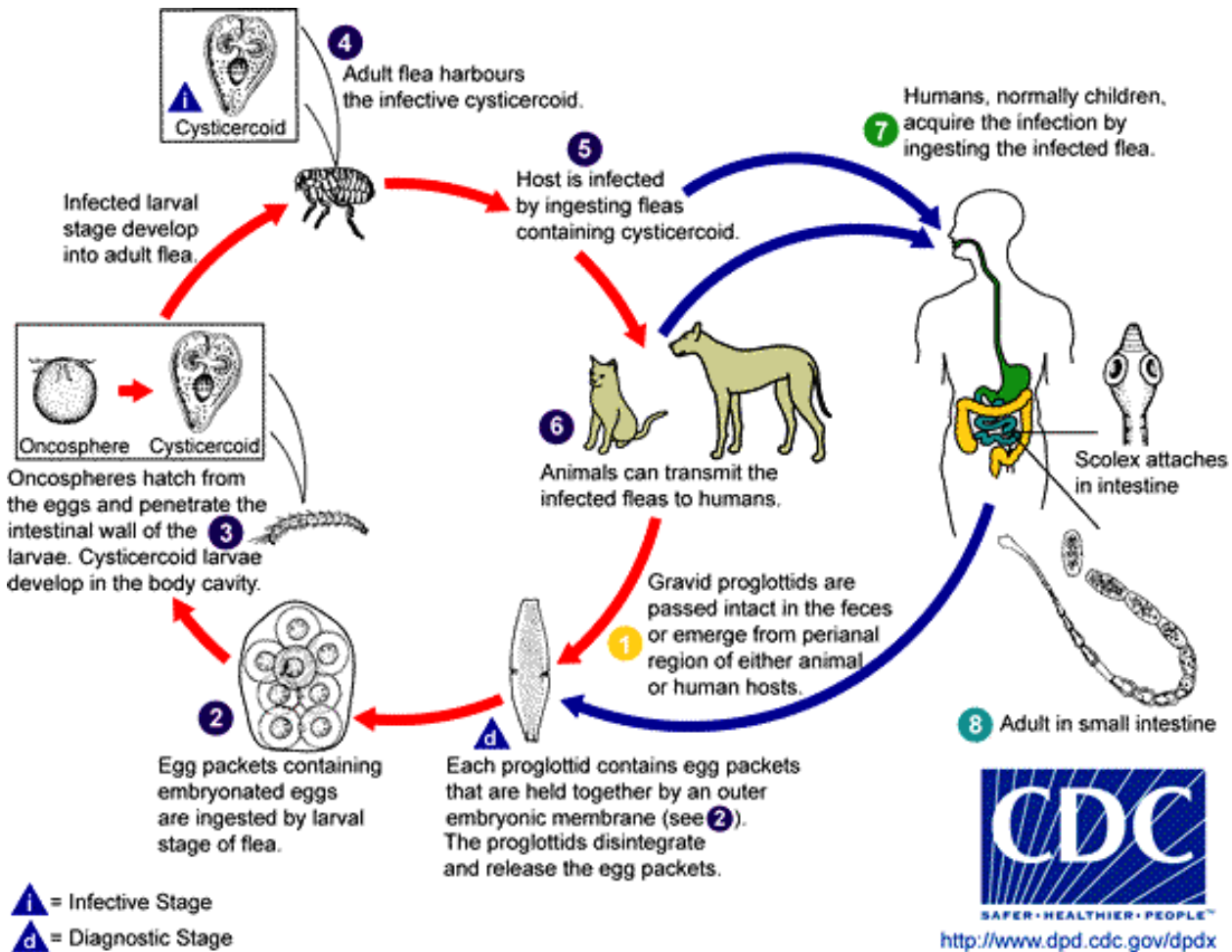


*D. caninum*: [scolex]



*D. caninum*: Egg capsules

**-Life cycle:** when larvae of dog fleas or cat fleas ingested the egg capsule, hatching occurs and the liberated embryos transform to cysticercoids larvae. The definitive host becomes infected by ingesting the infected insect.



## *D. caninum*: Life cycle

### **-Pathogenesis and Symptomatology:**

- ❖ . Asymptomatic in light infection
- ❖ In children, it may produce diarrhea and occasionally there may be severe sensitization reaction, e.g. urticaria, fever and eosinophilia. Patients with heavy infection may develop appetite loss, diarrhea, abdominal discomfort, indigestion and anal pruritus caused by gravid proglottid migrating out of the anus.

**-Diagnosis:** by recovery of characteristic gravid segments evacuated in the stool or migrating from the anus and by observing the egg capsules in the stool.

## ***Diphyllobothrium latum* (fish tapeworm or broad tapeworm)**

It causes a disease known as diphyllbothriasis or fish tapeworm infection.

Adult worm is up to 10 meters or more in size, adults live in small intestine. The scolex is almond shape provided with 2 suckorial grooves or bothria.

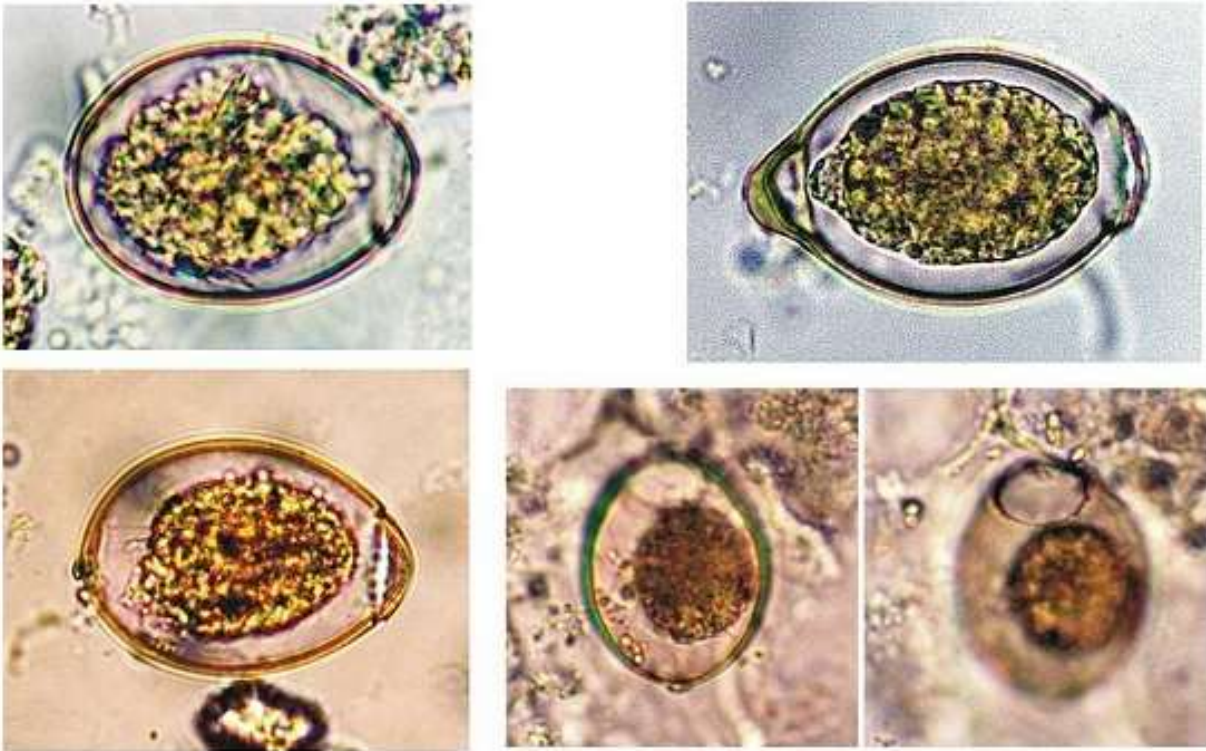
*D. latum* proglottids are wider than they are long, mature proglottid compose of one set of both male and female reproductive organ and centrally located genitale pore. Gravid proglottid contain acentrally located coiled uterine which frequently assumes a rosette shape filled with eggs.



***D. latum*: scolex, segment and egg.**

Eggs: broadly ovoid, light golden-yellow in color, have an operculum at one end and a small inconspicuous thickening of the shell at the opposite end.



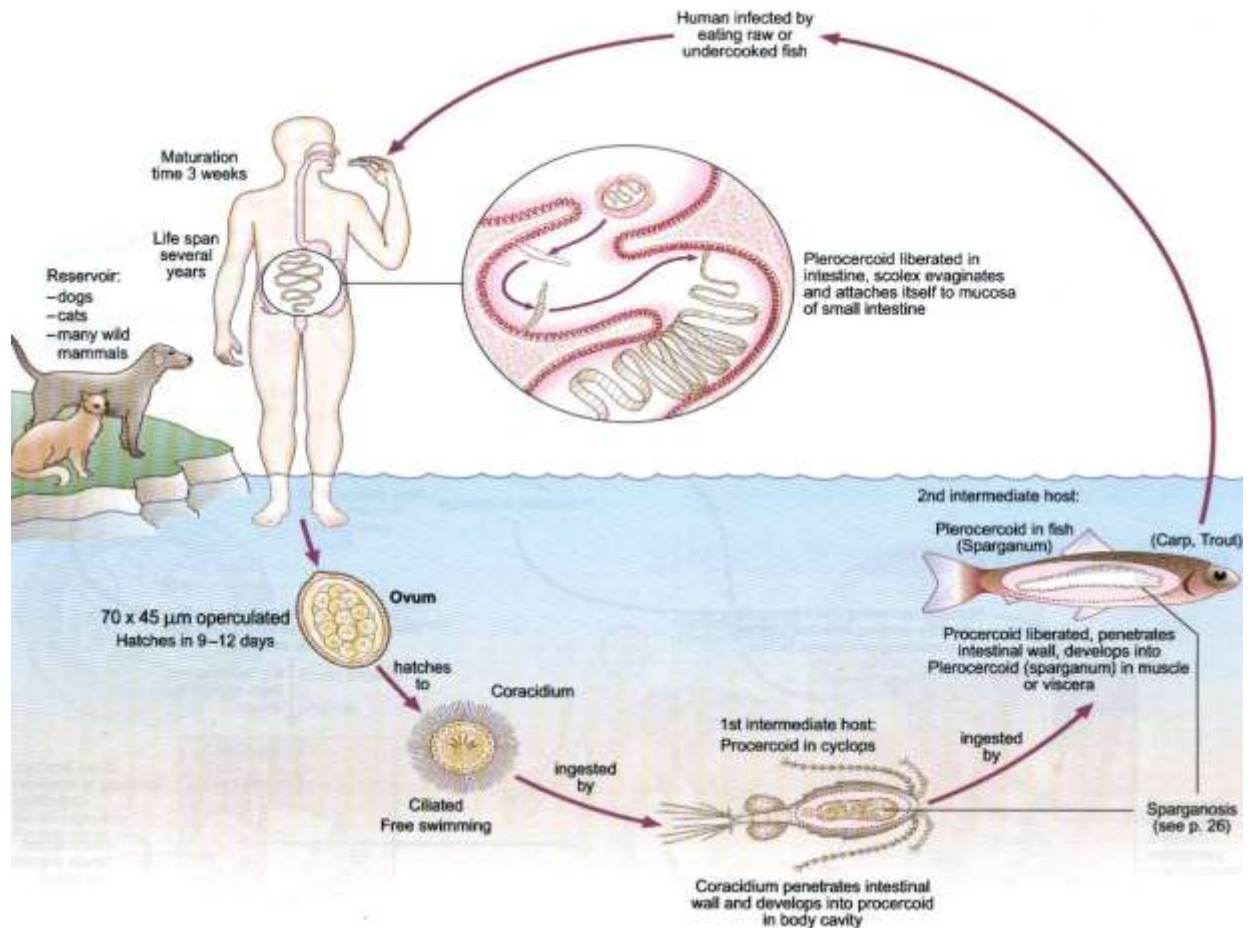


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### **Egg of *D. latum***

**-Life Cycle:** Embryonation of eggs takes place in fresh water lead to the formation of ciliated oncosphere (coracidium).

Coracidium escapes through the operculum and swims in water. If this embryo eaten by suitable species of copepod or Cyclops it will transforms to Proceroid larva. If the infected Cyclops is then eaten by a fresh water fish [Crap Or Trout], the larva is transforms into a Plerocercoid larva (sparganum). When the infected fish is eaten raw or uncooked by definitive host, the worm develops to maturity and begins laying eggs in about 4 weeks.



## ***D. latum* life cycle**

### **-Pathogenesis and Symptomatology;**

It may produce no symptoms but infections often cause digestive disturbances, including diarrhea, hunger pains or loss of appetite, anorexia, nausea and vomiting. Sudden vomiting of a portion of the worm may occur, accompanied by symptoms suggesting peptic ulcer or appendicitis. In heavily infected individuals, vitamin B12 deficiency and megaloblastic anemia develops.

**-Diagnosis:** depends on finding the characteristic eggs or strands of proglottids in stool [GSE and direct microscopic examination], or occasionally vomited proglottids.

**-biopsy in case of sparganosis.**

**Treatment:**

Niclosamide is drug of choice or Praziquantal.

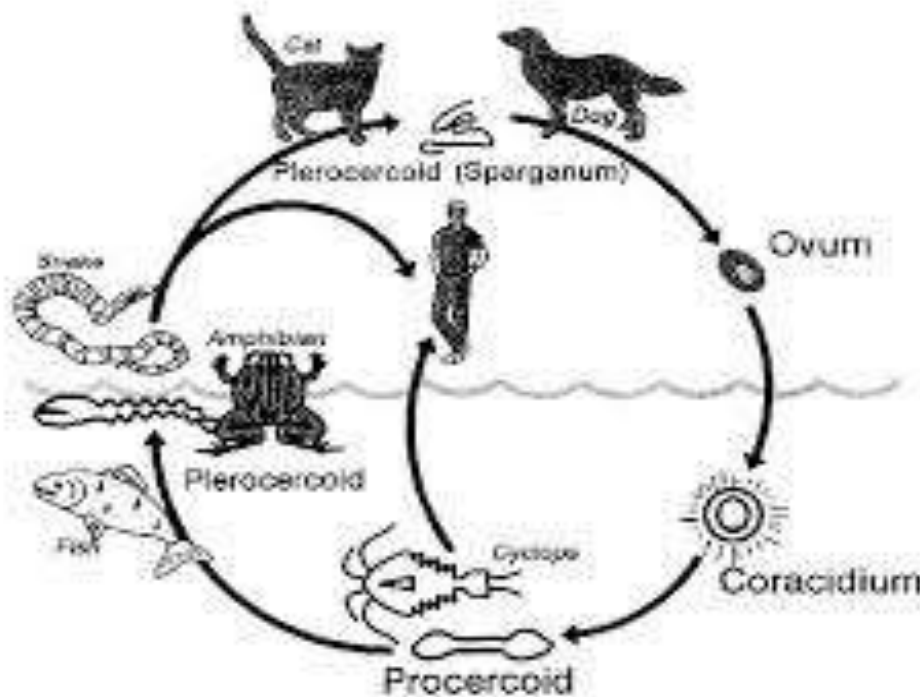
Surgical removal used for spargnosis or spargunum.

### Spargnosis

**Spargnosis:** is a human tissue infection with (sparganum) Plerocercoid larva of *spirometra* spp.

Several spp. of *Spirometra* are intestinal parasites of canine and feline hosts. Cyclops is the first intermediate host; second intermediate hosts are fishes, frogs, snakes and birds.

Human infection can be acquired by swallowing a Procercoid in a copepod or a Plerocercoid in a second intermediate host or applying Plerocercoid-infected flesh of frogs and snakes as poultices on an inflamed eye or finger.



***Spirometra* spp. Life cycle**

الصورة دورة الحياة *Spirometra* spp. للتطلاع فقط.