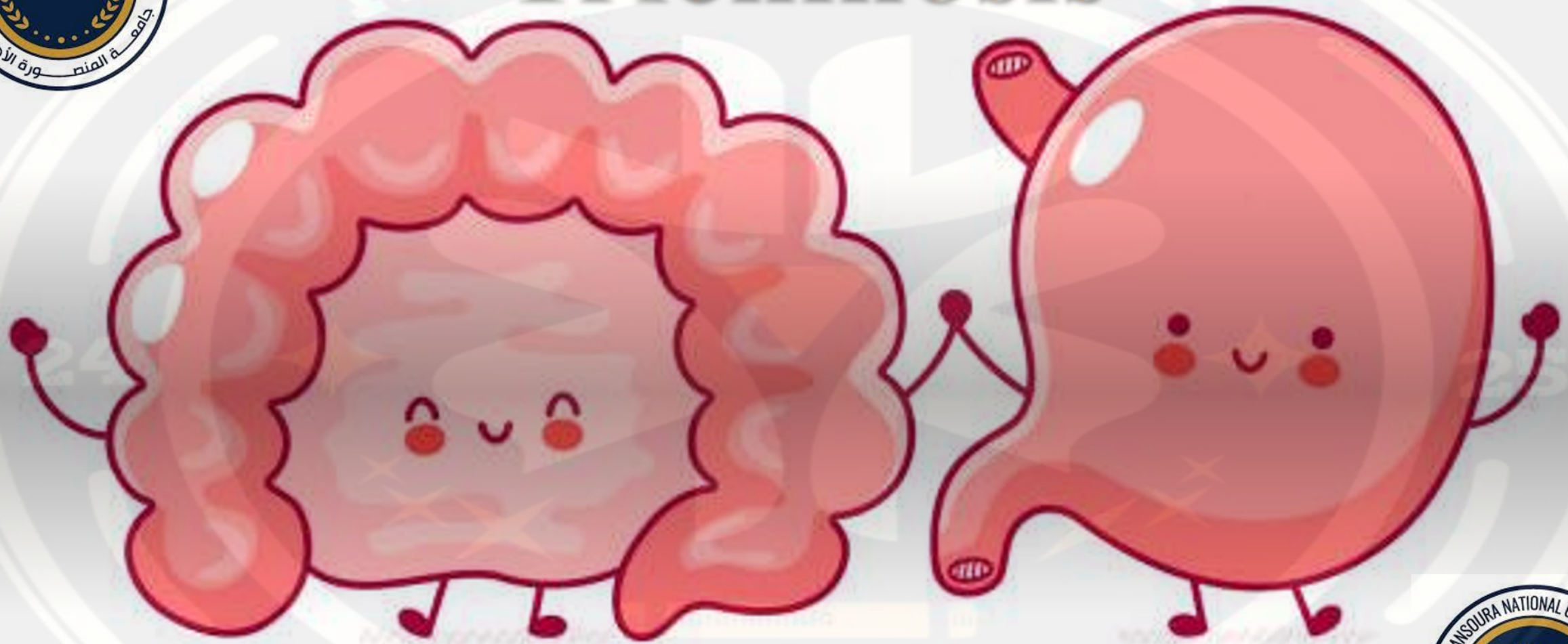
L2 sem2 MSS
by / Rahaf Aborzaid
Publications - Medbank.

Trichinosis



Dr Ahmed Gomaa

Trichinella spiralis

→ coiled larvae inside muscles.

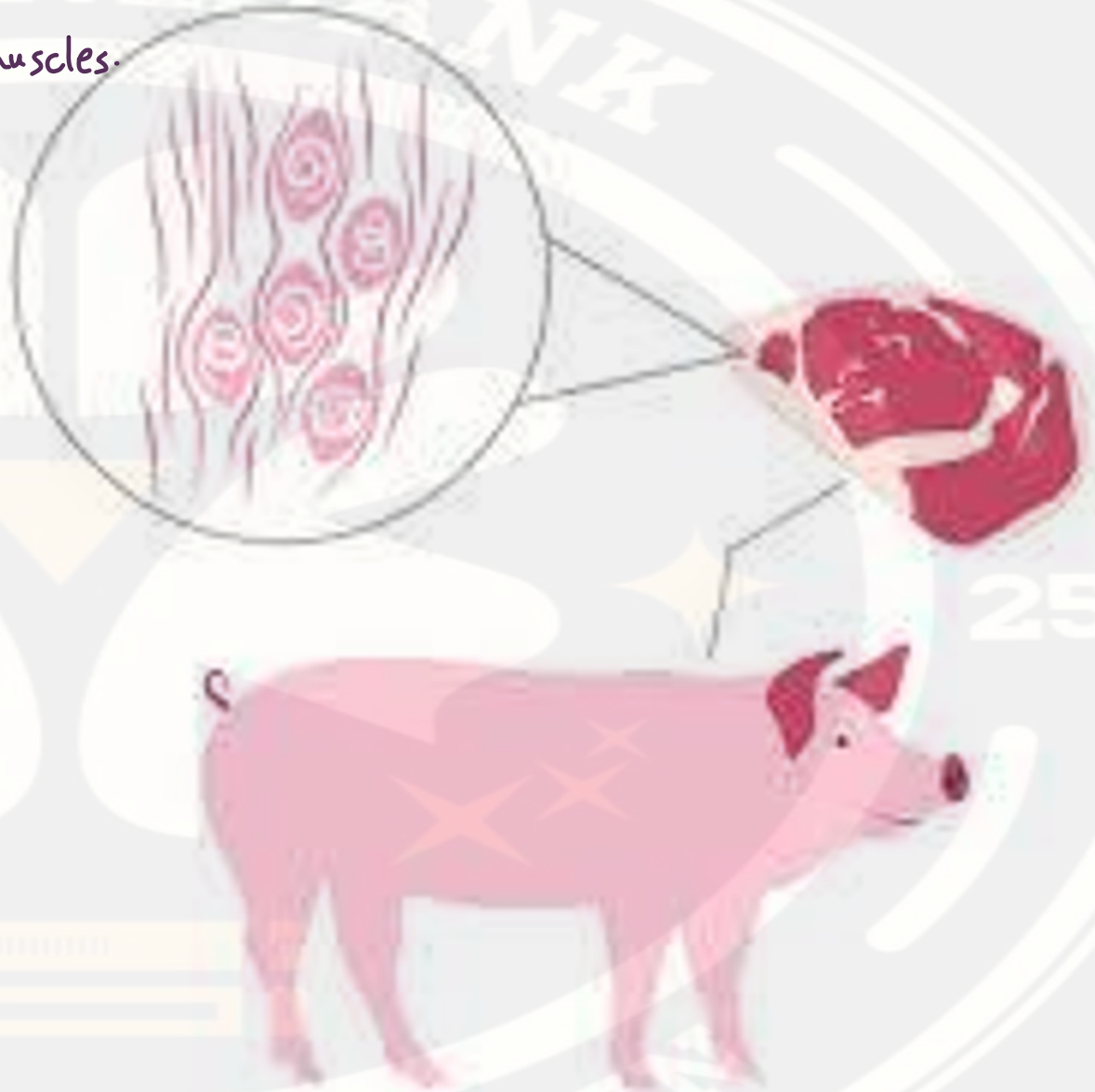
→ Nematodes

→ rare in islamic countries.

- Cosmopolitan. global → all worlds
- Intestinal nematode.
- Tissue nematode.

Deffinitive host . intermediate host.

- **Man**: DH, IH.
- **Pork-borne**.
- Asmall worm with slender anterior end.



Morphology

Male: 1.5 mm x 40 µ, with ventrally curved Posterior end.

smaller than female.

Female: 3 mm x 80 µ, with bluntly rounded posterior end, larvi-parous (**viviparous**).

→ straight, flattened.

→ not eggs

Larva: measures about 1 mm in length.

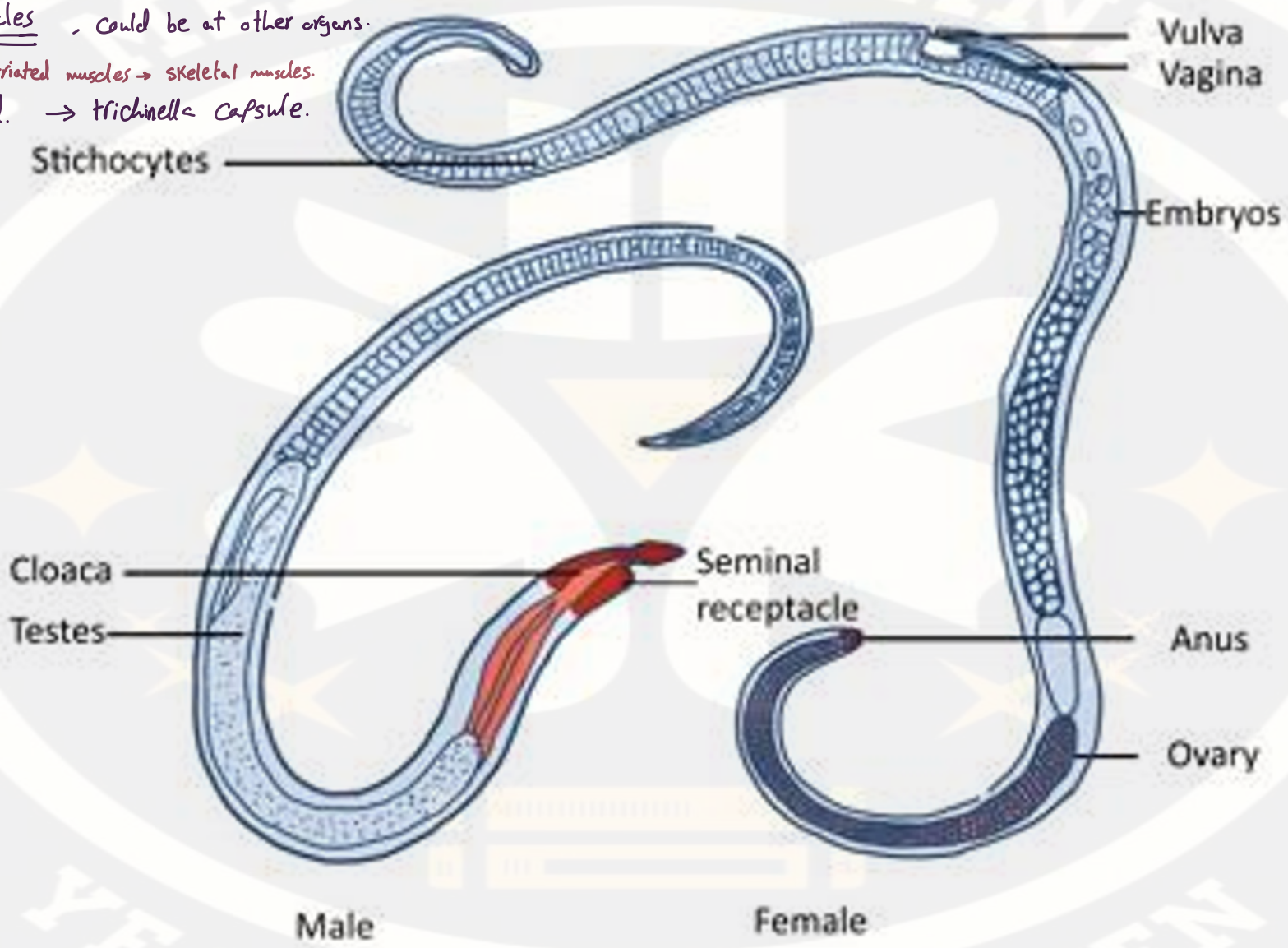
① → adult → small intestine

② → larvae → at blood stream.

③ → larvae → at muscles , could be at other organs.

active striated muscles → skeletal muscles.

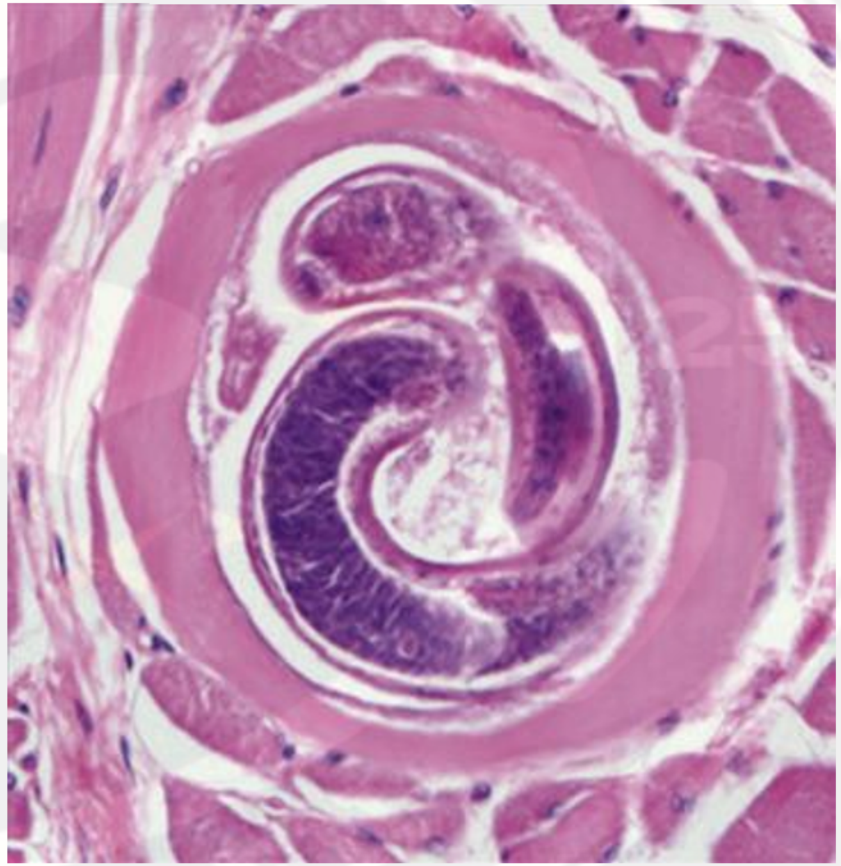
④ → (larvae) capsulated. → trichinella capsule.



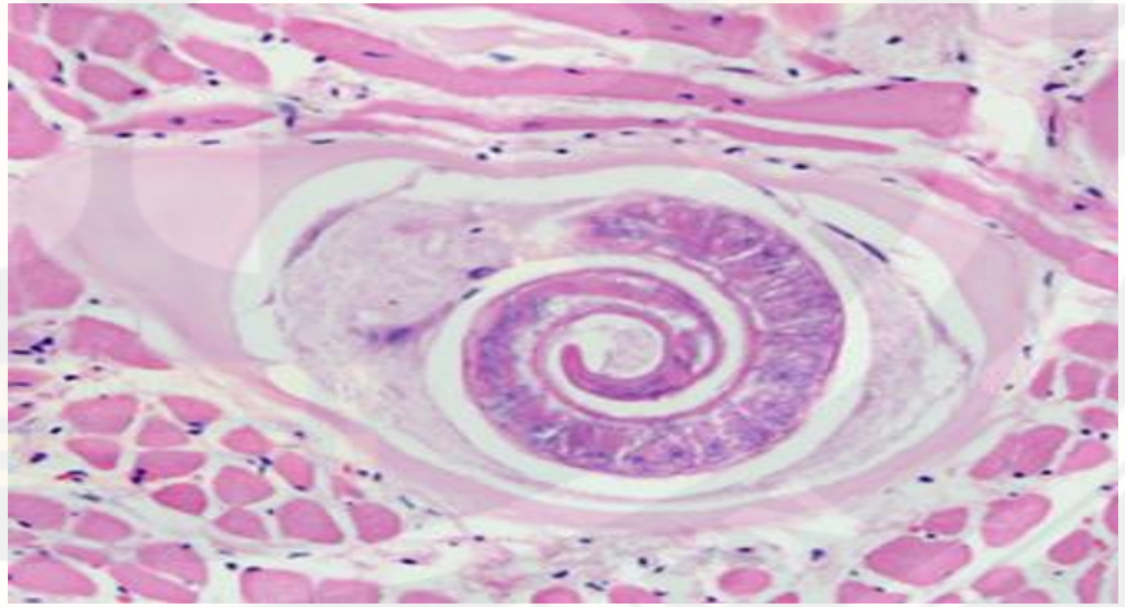
Trichina capsule

↳ Trichinella

- The larval stage of Trichinella spiralis.
- Common in the **striated active muscles** as diaphragm, intercostal, deltoid, laryngeal and extra-ocular muscles.
- **Ellipsoidal** in shape, 0.5x0.2 mm in size
- Contains a larva about **1 mm** in length coiled upon itself.



- Becomes infective after 17 days from reaching the muscles.
- Becomes calcified within 18 months, but the larva inside remains viable for years



Life cycle

Habitat: small intestine of definitive and intermediate hosts.

Definitive host and intermediate hosts: man, pigs, rodents, and other carnivorous mammals.

Reservoir hosts: rodents.

After fertilization males die and are expelled.

→ at stools

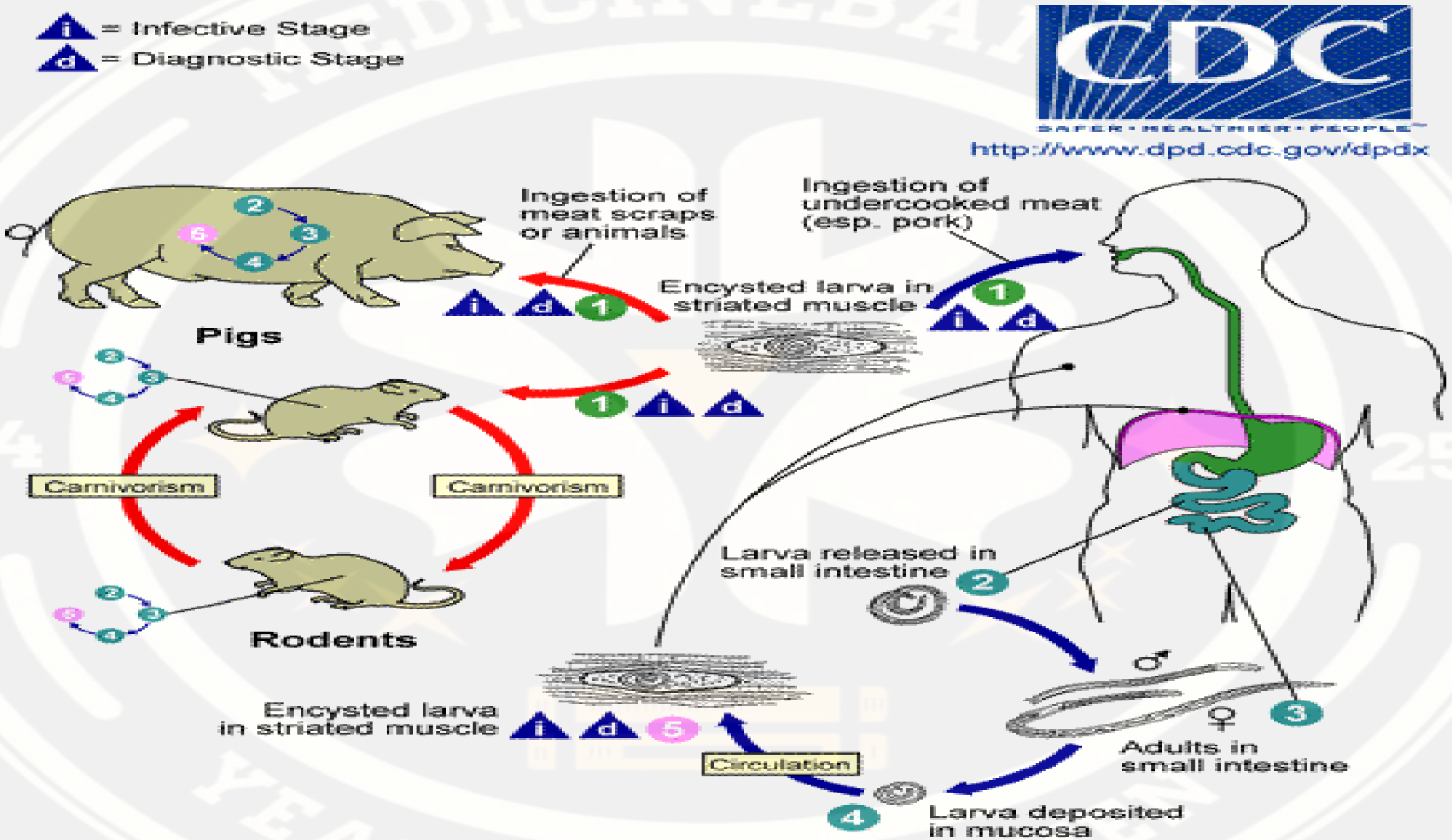
* Diagnose by dead males at stools

Females penetrate deeply in the mucosa and lay larvae (0.1 mm), which find their way to the circulation, through the pulmonary filter and distribute all over the body, particularly the active striated muscles where they encyst in the long axis of the muscles

intestinal lining

by C.T

muscles → 1 mm


i = Infective Stage
d = Diagnostic Stage
CDC
SAFER·HEALTHIER·PEOPLE™
http://www.dpd.cdc.gov/dpdx
Ingestion of meat scraps or animals
Ingestion of undercooked meat (esp. pork)
Encysted larva in striated muscle
Pigs
Carnivorism
Carnivorism
Rodents
Larva released in small intestine
Encysted larva in striated muscle
Circulation
Adults in small intestine
Larva deposited in mucosa

Stages in life cycle: larva → trichina capsule → adult.

Infective stage: larva inside trichina capsule.

Diagnostic stage: larva, adult.

Diagnostic samples: stool, blood, muscle biopsy.

Modes of infection

Man is infected by ingestion of raw or undercooked pork containing infective larvae.

Trichinella capsule

Pigs become infected by eating infected flesh from other pigs in garbage or ingestion of infected dead pigs and rats.

rubbish

Rats are infected by eating flesh of dead pigs or rats and by cannibalism → big rats eat small rats

Pathogenesis, clinical picture

Three stages (intestinal invasion, migration, and penetration and encystment).

Light infections (less than 10 larvae/gm muscle) are usually asymptomatic.

Heavy infections (from 50-100 larvae/gm muscle) may show the following manifestations:

GIT phase (1st week)

Caused by Intestinal invasion by adult worms

Clinical presentation

Symptoms resembling food poisoning; such as, nausea, vomiting, sweating, and colic.

+ Diarrhea

This period usually terminates with facial oedema and fever.

swelling → inflammation

→ immune response because of interleukins

Phase Trichinosis (2nd, 3rd week)

Caused by Larval deposition, migration encystation

→ blood → at the tissues

Clinical presentation It is tetrad of:

1. Muscle pain, weakness (myositis): active skeletal muscles, e.g. eye, mastication, respiratory.

+ fatigue. + loss of functions.

2. Facial (peri-orbital) edema due to toxin vasculitis.

→ facial muscles

diaphram.

3. Eosinophilia 20-50%.

- normal → 2 - 5 %

4. Fever.

Final stage

Occurs when larvae complete encystations

Clinical presentation- All symptoms subside.-

In severe cases, death occurs,due to myocarditis, encephalitis, or pneumonia

Diagnosis

Diagnostic stages

Clinical

history of the patient

1st week.

Parasitological

1. Small intestine
   - **Stool** 1st w, larva and adult
2. **Blood** 2nd w, larva
3. **Muscle biopsy** After 2 w, larva — T. Capsule

- **Clinical (during the 1st week):** trichinosis is suspected when gastro-intestinal manifestations simulating food poisoning appear in a group of persons with a history of eating pork few days before.
- **Parasitological.** → diagnostic stages → stool → larva, adult; blood → larva; muscle biobsy → larva.
- **Intra-dermal test** (Bachman's test, after 2 weeks). → sensitivity test → at practical
- **Serological tests:** ELISA, IFA → Antigen - Antibody reactions

Treatment

Symptomatic:

- Bed rest.
- General supportive treatment.
- Sedatives.-Steroids.
- Fluids and electrolyte balance should be monitored

Medical Treatment

- Thiabendazole.
  - →Killed the parasite.
- Mebendazole.
  - →Killed the parasite.

Prevention and control

- Thorough cooking of meat.
- Regular meat inspection by means of trichinoscopy of pork.
- Effective treatment of pork by means of refrigeration. الثلاجات
- Extermination of rodents from pig farms التخلص من الفئران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