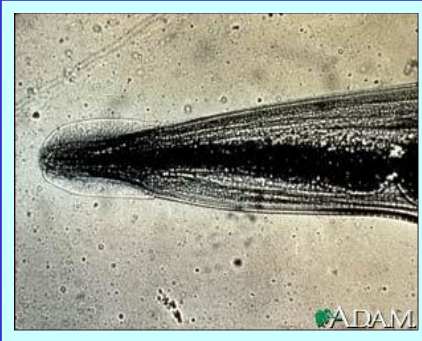


ENTEROBIASIS

Enterobius vermicularis
(pin worm, seat worm)

- Parasite of large intestine (esp. caecum)
- World-wide distribution (not only in tropics)
- NOT a geohelminth



objectives

- You should be able to describe the
 - Morphology
 - Life cycle
 - Infective and diagnostic stage
 - Mode of transmission
 - Pathology
 - Sign and symptoms
 - Presentation diagnosis and treatment of *Enterobious vermicularis*

Morphology

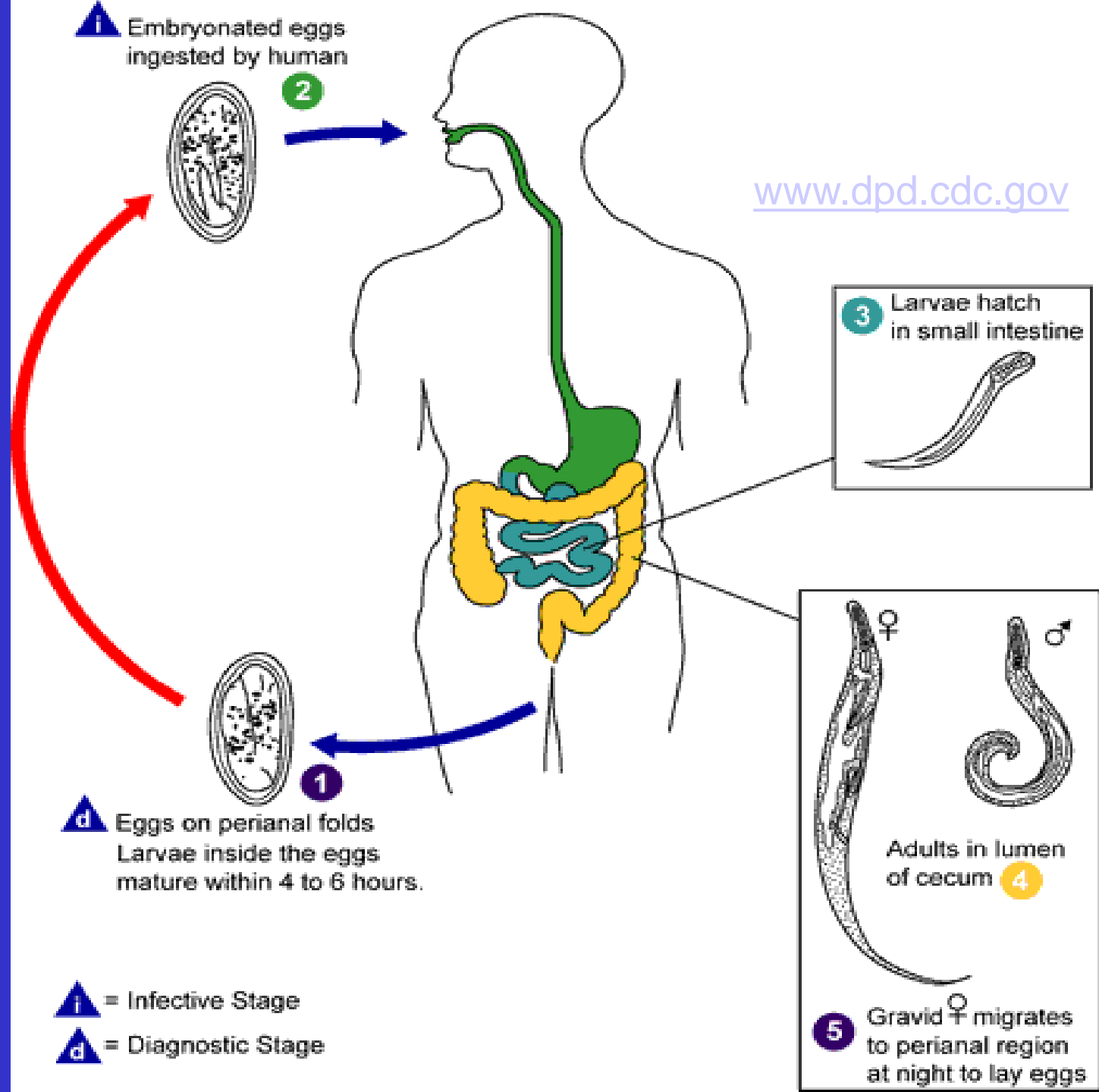
Creamy white
colour

About 1 cm in
length

Females larger
than male worms

Male worms have
curled tail





Transmission

1. Direct transmission from perianal region to hand to mouth.

auto-infection (common)

2. Contact with infective eggs on contaminated bedsheets, clothes, towels, furniture etc. (fomites)

fingers → mouth (common)

3. Infective eggs in contaminated dust can be ingested with food. (rare)

4. Eggs may hatch on anal mucosa & larvae migrate backwards.

Retro-infection (rare)

- Eggs are very resistant to drying
- Remain viable for months
- Light, sticky



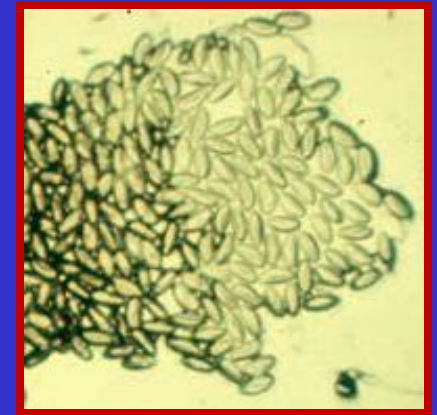
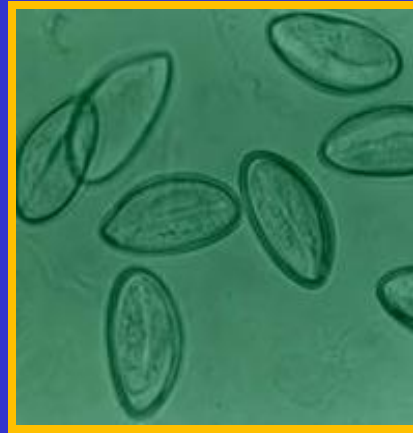
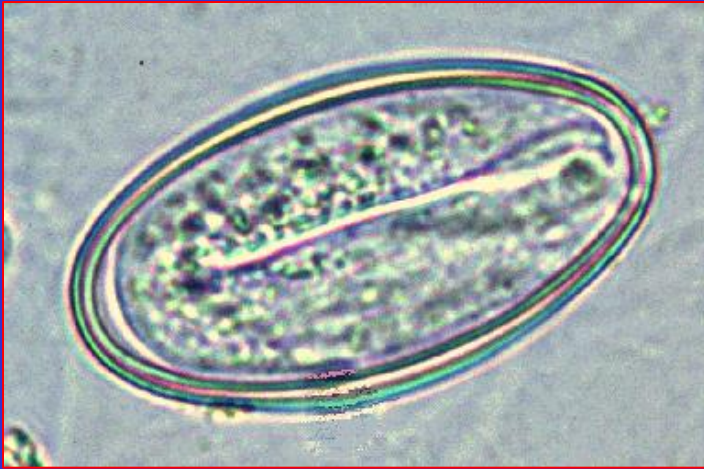
Clinical features

- Pruritus ani :
 - mild → severe
 - nocturnal
 - leads to abrasions in perianal skin
 - secondary bacterial infections
 - abscess formation

- Insomnia, irritability
- Loss of appetite, loss of weight
- Bed wetting in children (resultant emotional problems)
- Complications in ectopic sites

Diagnosis

Look for eggs on perianal skin



perianal swabs

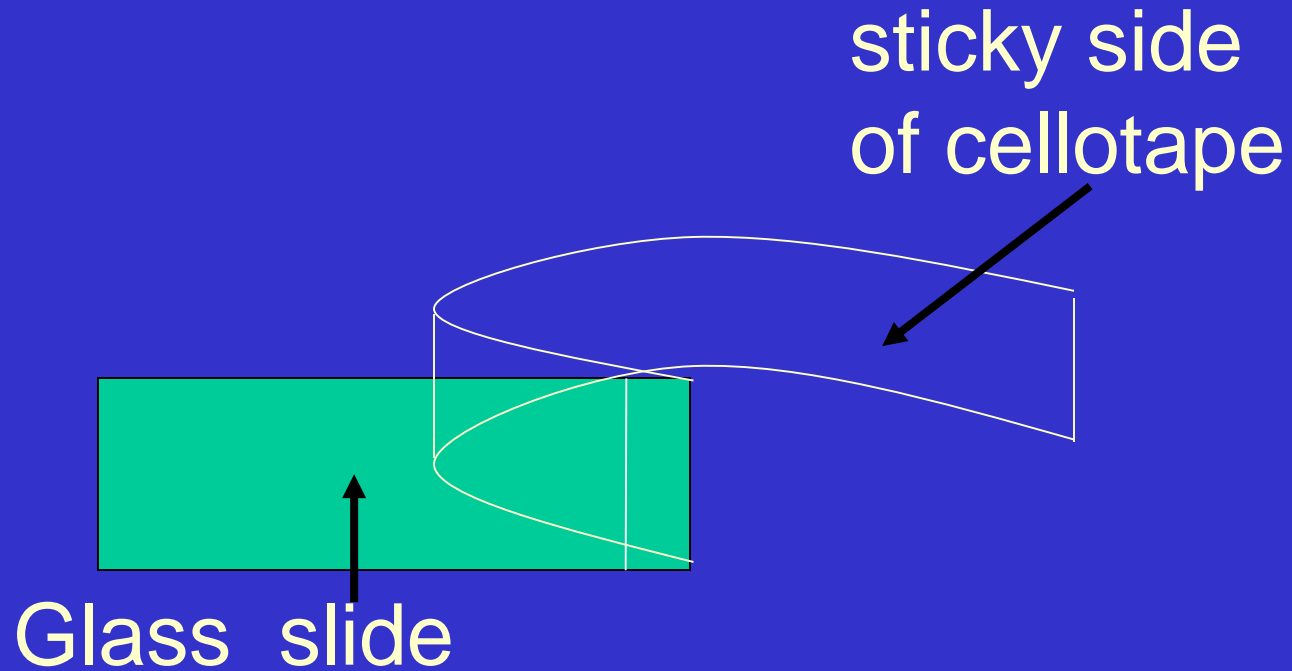
N.I.H. swab

Slide & cellotape

- Rarely, eggs may be seen in faeces
- Adult worms may be seen
 - on perianal skin
 - in rectum (during proctoscopy)
 - On underwear / night clothes



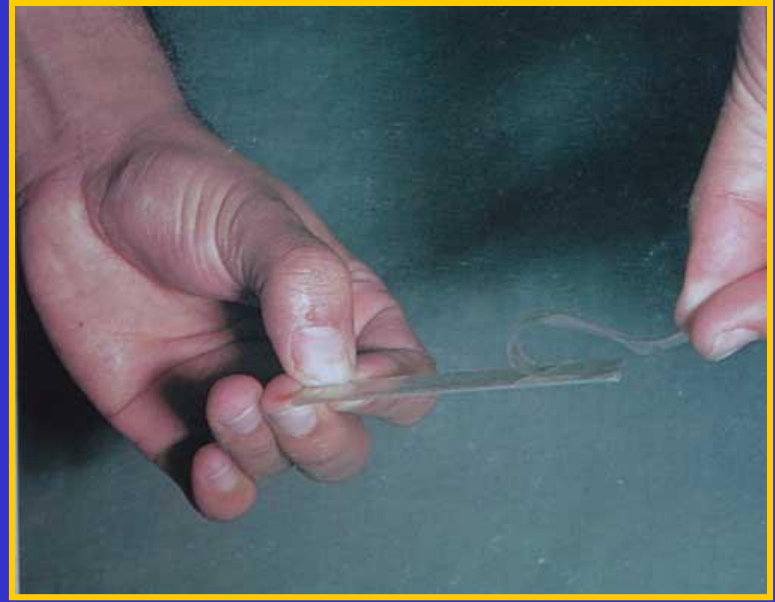
Slide & cellotape





Time- Early morning
before washing the
area

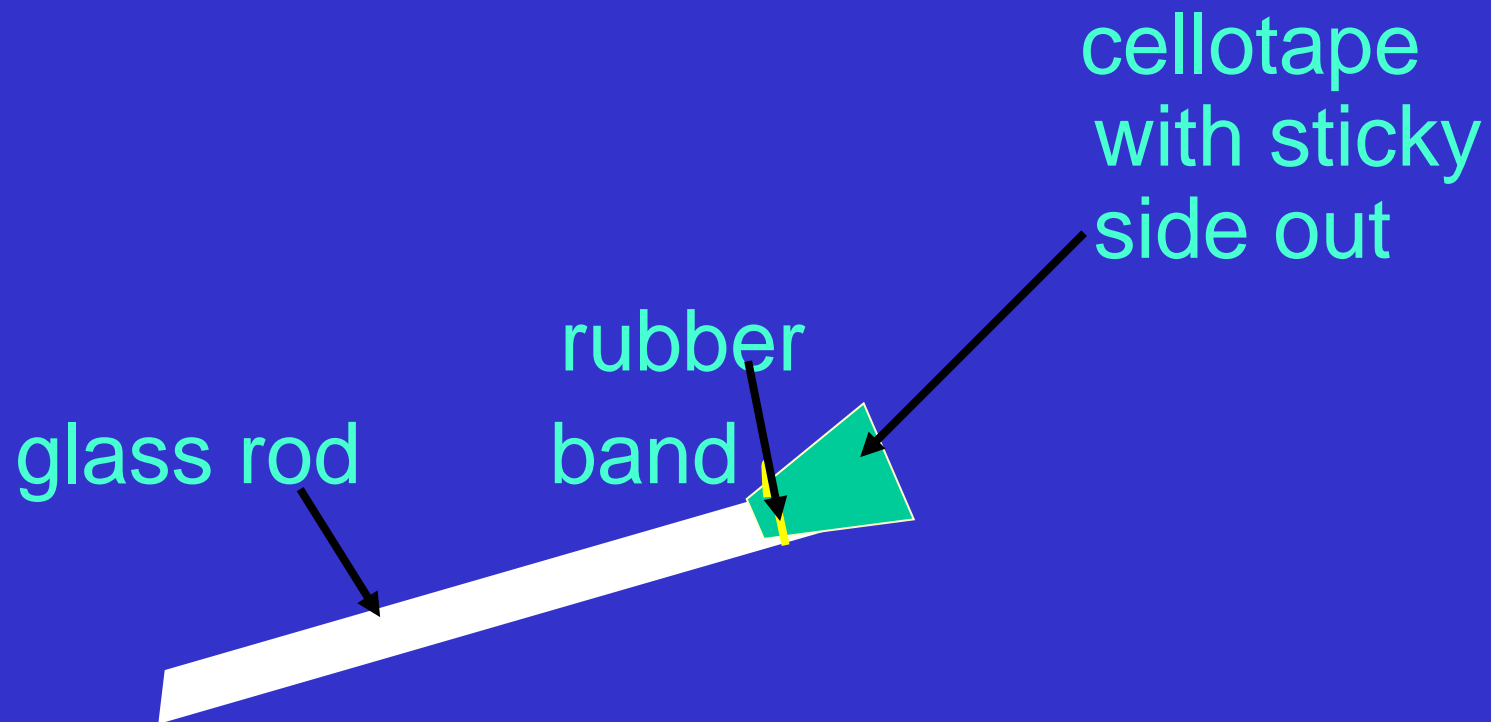
Separate the buttocks
and apply the gummed
surface over peri anal
region.



gently press the tape
with cotton wool on
the slide.

Then examine under
microscope

National Institute of Health Swab (N.I.H.)

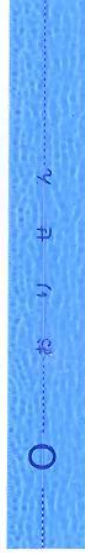
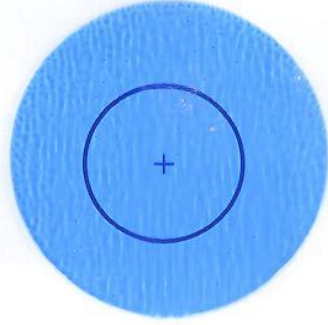


Commercial device

1日目

ぎょう虫検査セロファン

朝起きた時すぐ(用便前)に卵をとります。



2日目

透明なカバーをはずしてすてて下さい。

学年 年 組 番

氏名

Treatment

- Any anthelmintic (mebendazole, albendazole, pyrantel)
- Repeat treatment 2-3 times, at 2-4 week intervals because of auto infection
- Treat entire household at once

Prevention & control

Personal level

Good personal hygiene very important

- nails & hands

- underwear

- night cloths

- bed sheets, towels

- bathe every morning

Wash in hot
water

Clean environment

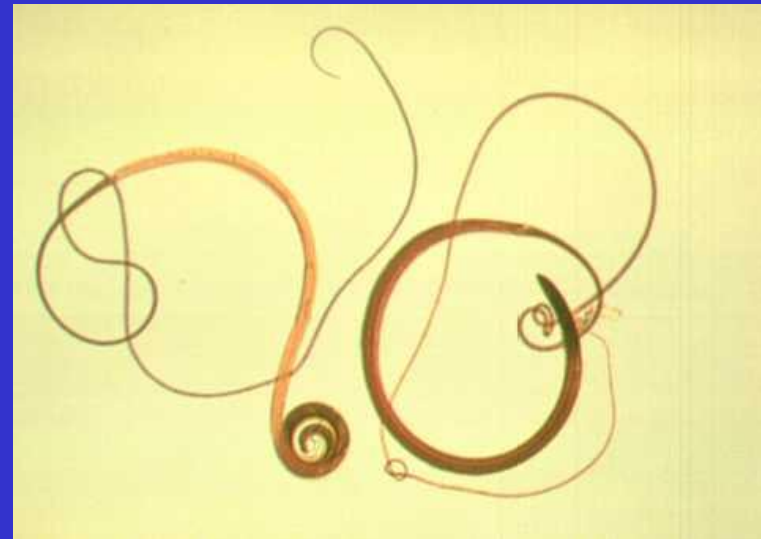
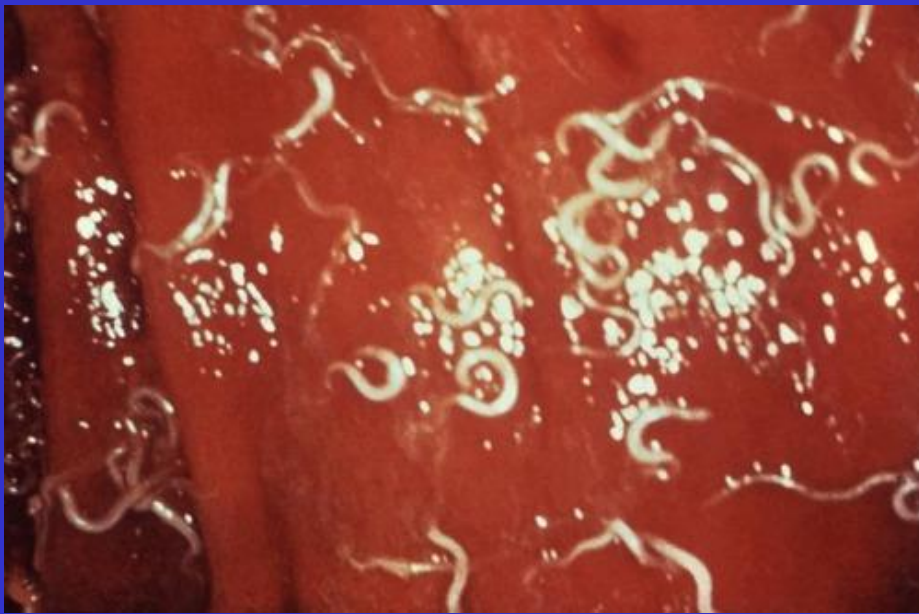
disinfect furniture & other fomites
after treatment of infected persons

Community level

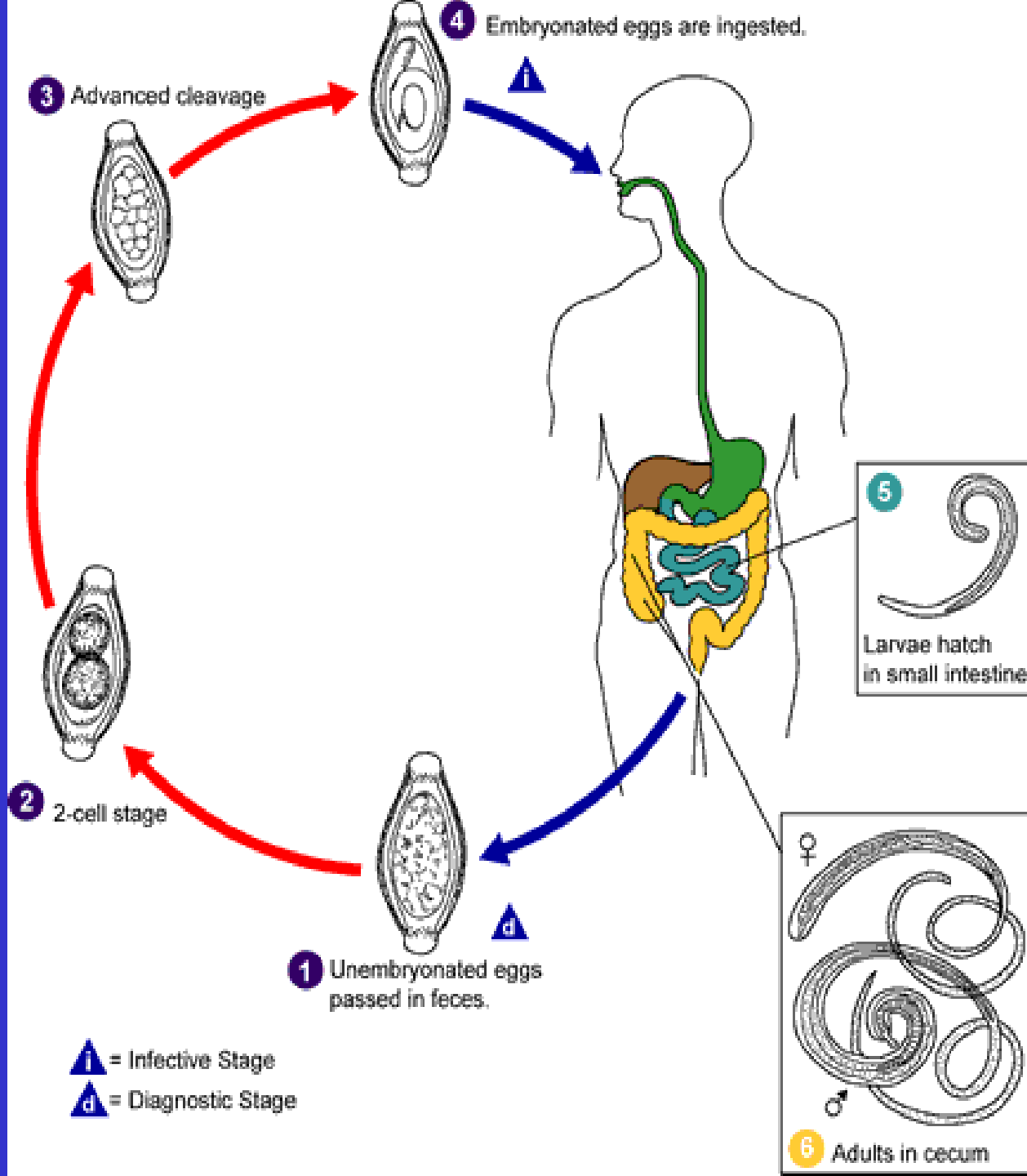
health education

Whipworm

Scientific name: *Trichuris trichiura*



Adult worms: 3 – 5 cm in length



Life cycle

- Single host: only parasitizes humans
- Adult worms live in large intestine; eggs passed out in faeces; obligatory period of development in soil
- Ideal climatic conditions similar to those required for roundworm eggs
- New infections acquired by ingestion of infective eggs
- No larval migration

Clinical features

- Malnutrition and stunting of growth in children
- Impaired learning ability
- In heavy infections:
 - Dysentery
 - Rectal prolapse

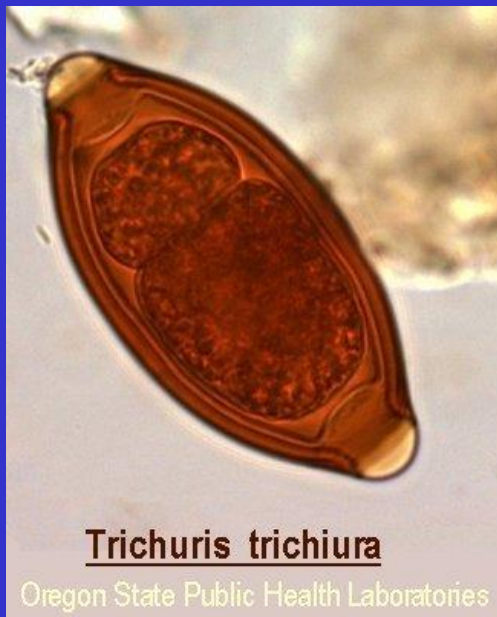
Epidemiology

As for roundworm



Diagnosis of whipworm infection

Examine faecal smears under microscope and look for eggs



Whipworm eggs

Treatment of worm infections

- Deworming medicines are very effective, safe, and cheap
- Need to be given regularly because of re-infection
 - Mebendazole
 - Albendazole

Prevention and control

- Mass deworming of children
- Improved sanitation
- Health education