# HYMENOLEPSIS NANA

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The name Hymenolepsis refers to the thin membrane covering the eggs (Greek hymen- membrane, lepis- rind of covering) and nana to its small size (nanus- dwarf). It was first discovered by German physician Theodor Bilharz in 1857.

***Hymenolepis nana*** **is the most common cause of all cestode infections, and is encountered worldwide. In temperate areas its incidence is higher in children and institutionalized groups.** ***H. nana*** **is the most common cause of all tapeworm infections in humans and is a major cause of morbidity in developing countries, mainly in areas with poor hygiene and sanitation**

. It has a high prevalence in children up to 15 years of age, and it is estimated that there are between 50 and 75 million carriers worldwide. Likewise, it has a cosmopolitan distribution with socioeconomic and medical importance and is endemic in Asia, southern and eastern Europe, Central and South America, and Africa. The prevalence ranges from 5% to 25% of the population; however, in poor communities, the prevalence can reach up to 50%

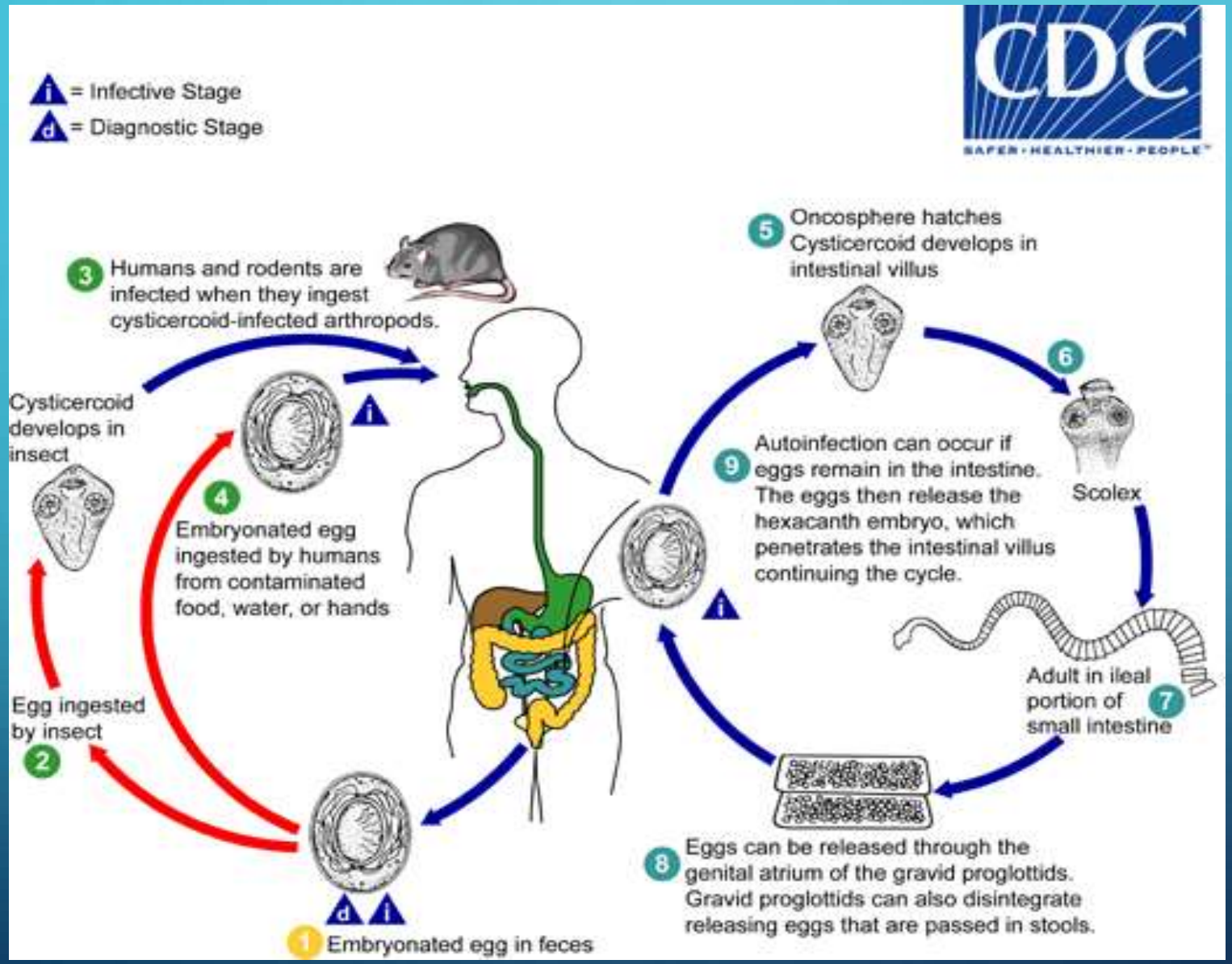
# MORPHOLOGY:

The adult *H. nana* parasite measures between 1.5 and 4 cm and consists of a scolex with 4 hooks, a neck, and a strobile with 150 to 200 proglottids. The proglottids contain the genital organs, with a lateral pore from which the eggs emerge (they measure between 30 and 47 µm).

The adult worm lives in the proximal ileum of man.

The egg is roughly spherical or ovoid, 30-40 µm in size and contains an oncosphere with 3 pairs of hooks and are the infectious forms that come out along with the rodent's feces [6].

*Hymenolepis nana*, a tiny intestinal tapeworm, is one of the most common human cestodes; the life cycle does not require an intermediate host.


i = Infective Stage
d = Diagnostic Stage
CDC
SAFER·HEALTHIER·PEOPLE
1 Embryonated egg in feces
2 Egg ingested by insect
3 Humans and rodents are infected when they ingest cysticercoid-infected arthropods.
4 Embryonated egg ingested by humans from contaminated food, water, or hands
5 Oncosphere hatches Cysticercoid develops in intestinal villus
6 Scolex
7 Adult in ileal portion of small intestine
8 Eggs can be released through the genital atrium of the gravid proglottids. Gravid proglottids can also disintegrate releasing eggs that are passed in stools.
9 Autoinfection can occur if eggs remain in the intestine. The eggs then release the hexacanth embryo, which penetrates the intestinal villus continuing the cycle.
Cysticercoid develops in insect

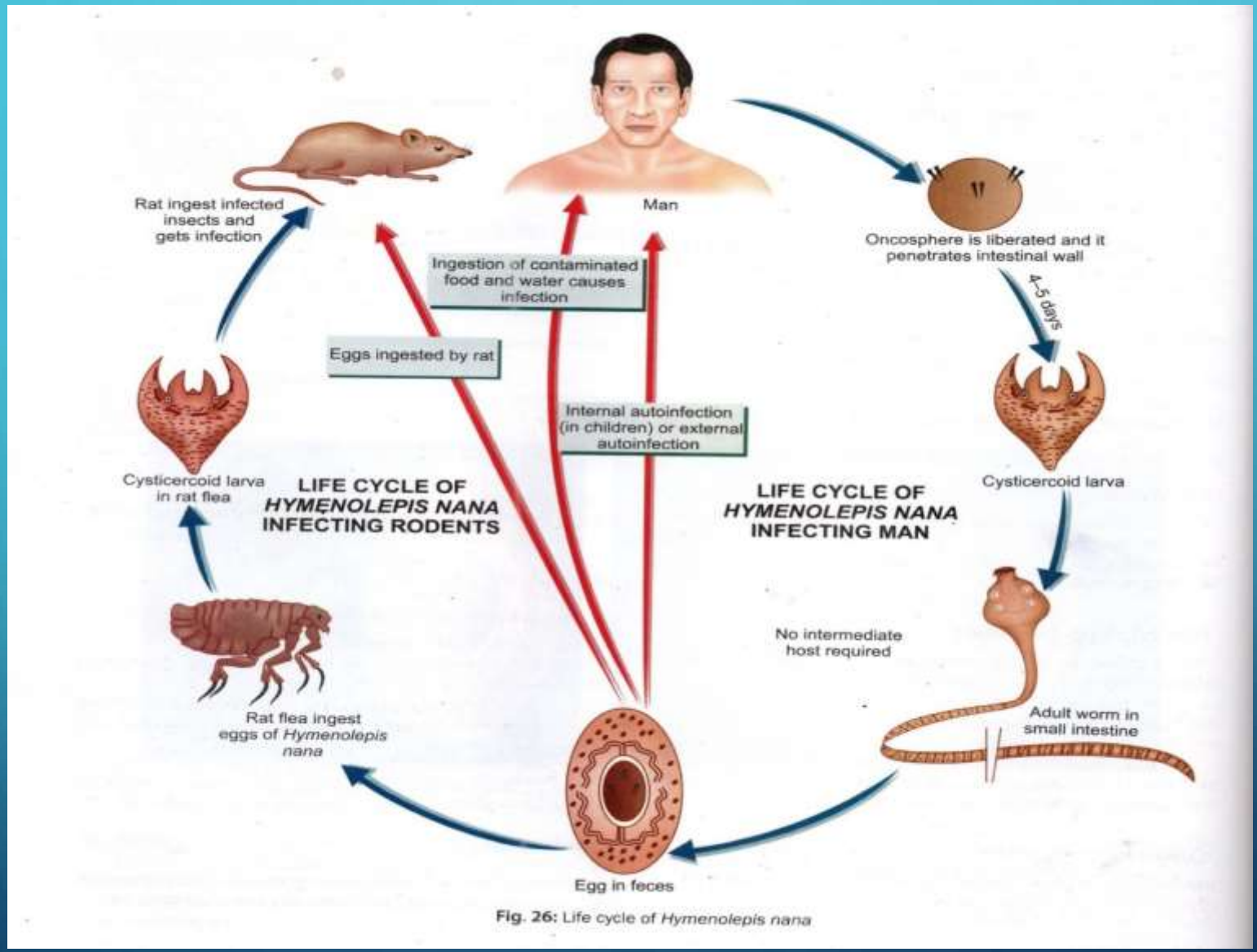
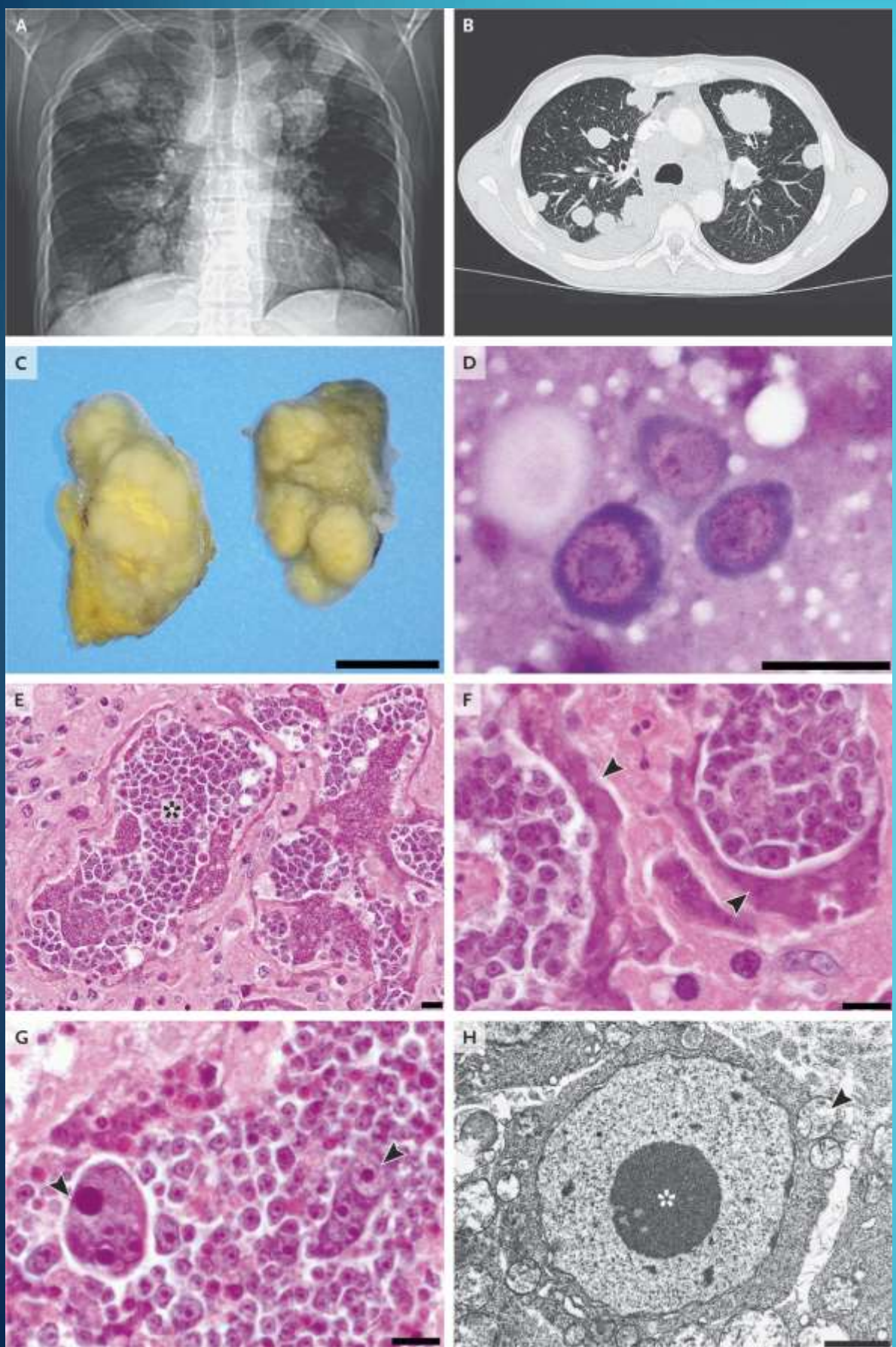



**Fig. 26:** Life cycle of *Hymenolepis nana*

## LIFE CYCLE

*H. nana* is unique among tapeworms in that it can complete its life cycle in the small intestine, without the need for an intermediate host. Such autoinfection can persist for years and lead to a high parasite burden, particularly in immunocompromised hosts.

Infections are generally limited to the gastrointestinal tract, where eggs released in the small bowel by adult tapeworms hatch. The embryos oncospheres (larval form of tapeworm) invade the host intestinal villi, where they are transformed into larvae (cysticercoids) before breaking out and reattaching to the mucosal lining


A
B
C
D
E
F
G
H

Ingestion of parasite eggs on fecally contaminated food or fomites allows the initial infection. Once in the intestine, the eggs hatch to form oncospheres, which penetrate the mucosa to encyst as cysticercoid larvae

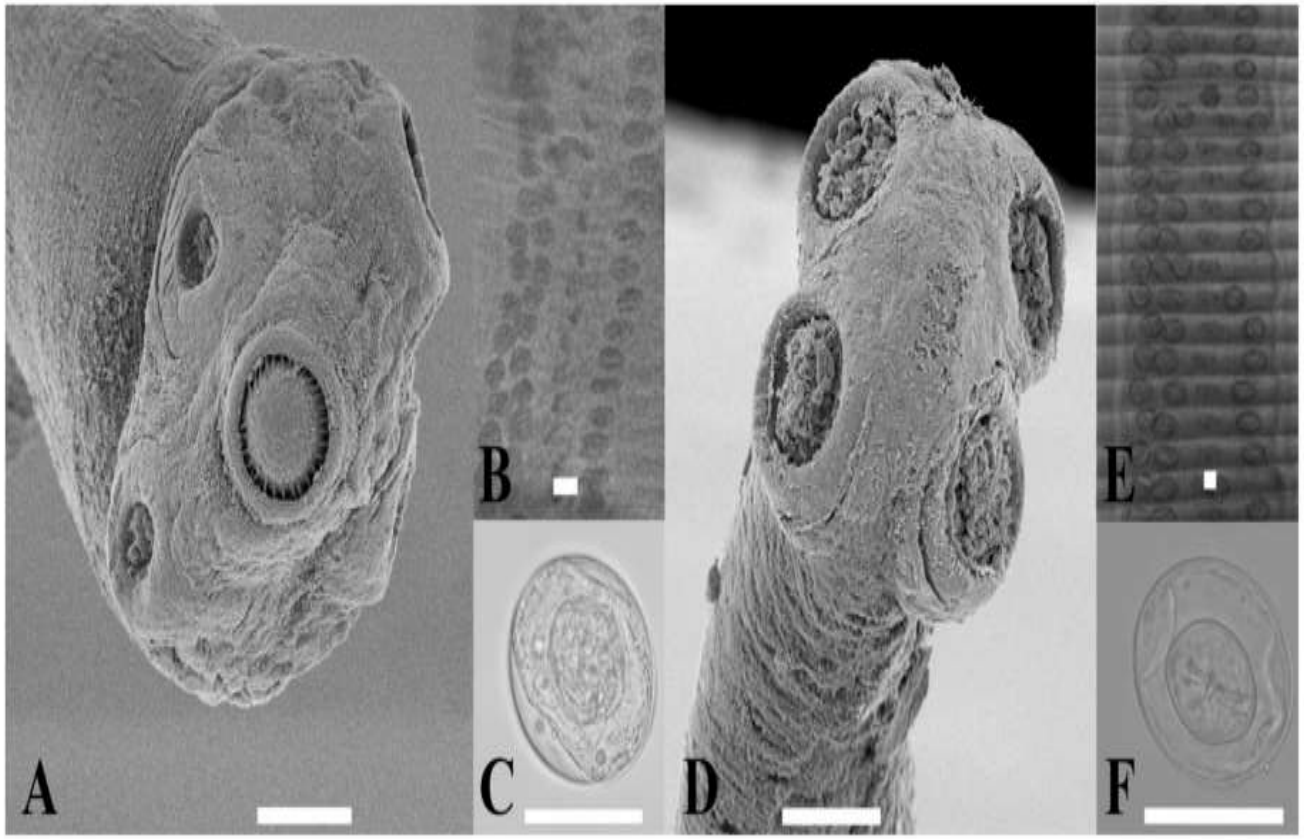



**Fig. 2.** Hymenolepidid cestodes recovered from synanthropic rodents in Yucatan. A, scolex of *Hymenolepis microstoma* isolated from *Mus musculus*; B: inmature proglotid of *H. microstoma*; C, egg of *H. microstoma*; D, scolex of *Hymenolepis diminuta* isolated from *Rattus rattus*; E, mature proglotid of *H. diminuta*; F, egg of *H. diminuta*. Scale bars = 50 μm.

Four or 5 days later, the larval cyst ruptures into the lumen to form the relatively small, adult *H. nana* tapeworm (15 to 50 mm in length). Internal autoinfection may occur as parasite eggs are released from gravid proglottids in the ileum.

In addition, poor sanitary practices promote external (fecal-oral) autoinfection as well as transmission to others sharing the same living quarters. Heavy infection is common among children and may be associated with abdominal cramps, anorexia, dizziness, and diarrhea.

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2. www.cdc.gov/parasites/.

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Roberto Darwin Coello Peralta [1,A,B,C,D,E,F,G,✉], María de Lourdes Salazar Mazamba [1,B,C,D,G], Betty Judith Pazmiño Gómez [2,D,E,F], Diego Martín Cushicóndor Collaguazo [1,B,C,D], Eduardo Alfredo Gómez Landires [3,E,F], Geraldine Ramallo [4,A,B,C,D,E]

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*5.* ***Malignant Transformation of Hymenolepis nana in a Human Host***

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# THANK YOU