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Life cycle of *Entamoeba histolytica*

Introduction

Entamoeba histolytica are pathogenic amoeba that are widely known for causing intestinal and extraintestinal infections in human beings.

Entamoeba histolytica falls under the phylum Protozoa, the class Sarcodina and the order Lobosa. Entamoeba histolytica causes dysentery by invading the mucosa and submucosa layers of the large intestine in human beings.

E. *histolytica* are commonly found in tropical and subtropical countries. The life cycle of E. histolytica begins and ends inside one single host, i.e., an individual human being.

Entamoeba Histolytica is an infectious parasite found in the human intestine and several other primates. Furthermore, in specific chronic scenarios, it can reach to the liver, brain, lung, and other body organs by entering the blood circulation. As a result, it has the capability of causing critical diseases like **amoebiasis** or amoebic dysentery.

Before moving on with the Entamoeba life cycle, first, you must know about its different forms. *E. Histolytica* is found in two different forms, and they are:

Forms

- **Magna or Trophozoite Form**
  This is the adult type of entamoeba which dwells in the anterior portion of the large intestine, which is the colon in humans. Moreover, it is similar to amoeba in terms of structure but distinguishes in parasitic means of life. Plasma lemma covers its body and cytoplasm is divided into endoplasm and ectoplasm.

  Further, a single broad and blunt pseudopodium is formed out of ectoplasm. Also, the endoplasm comprises food vacuoles and a single nucleus of spherical shape. Its nucleus contains an outlying crown of chromatin chunks and also a nucleolus situated at the center.

  By continuous binary fission, trophozoites multiply in number in the intestine walls of a human being. However, some daughter E. Histolytica become adults while few stops growing. Hence, these small size trophozoites are termed Minuta forms.

- **Minuta or Precystic Form**

This form is comparatively small in size and remains a non-pathogenic state. It inhibits the intestinal lumen and is scarcely present in tissues. Moreover, these undergo encystation and assist in the transfer of parasites from one body to another.

Life Cycle

The life cycle of *Entamoeba Histolytica* gets completed in one body only (monogenetic).

Following are the steps of the *E Histolytica* life cycle:

- **Encystment**

  Entamoeba, in its precystic form, stays in the lumen of the intestine only, and they experience encystment. But before encystment, these parasites coil up, defecate food vacuoles and gather quite an amount of materials of food. Moreover, these food materials are in glycogen form and rod-like chromatoid fragments of black color. Also, every parasite releases a colorless, narrow, circular, transparent, and resistant cyst wall that surrounds the main body.

  Furthermore, entamoeba cysts differ in size. The cytoplasm present in it is clear, and every cyst has one nucleus at this phase. One characteristic of E. Histolytica is the existence of chromatoid bodies, and they appear singly or in multiples of two or more. Moreover, the cysts' nucleus always divides two times, such that each of them becomes tetra nucleate.

  However, at this phase, cysts are infective to a new body (host), and the encysted forms eliminate with the fecal matter of an individual.

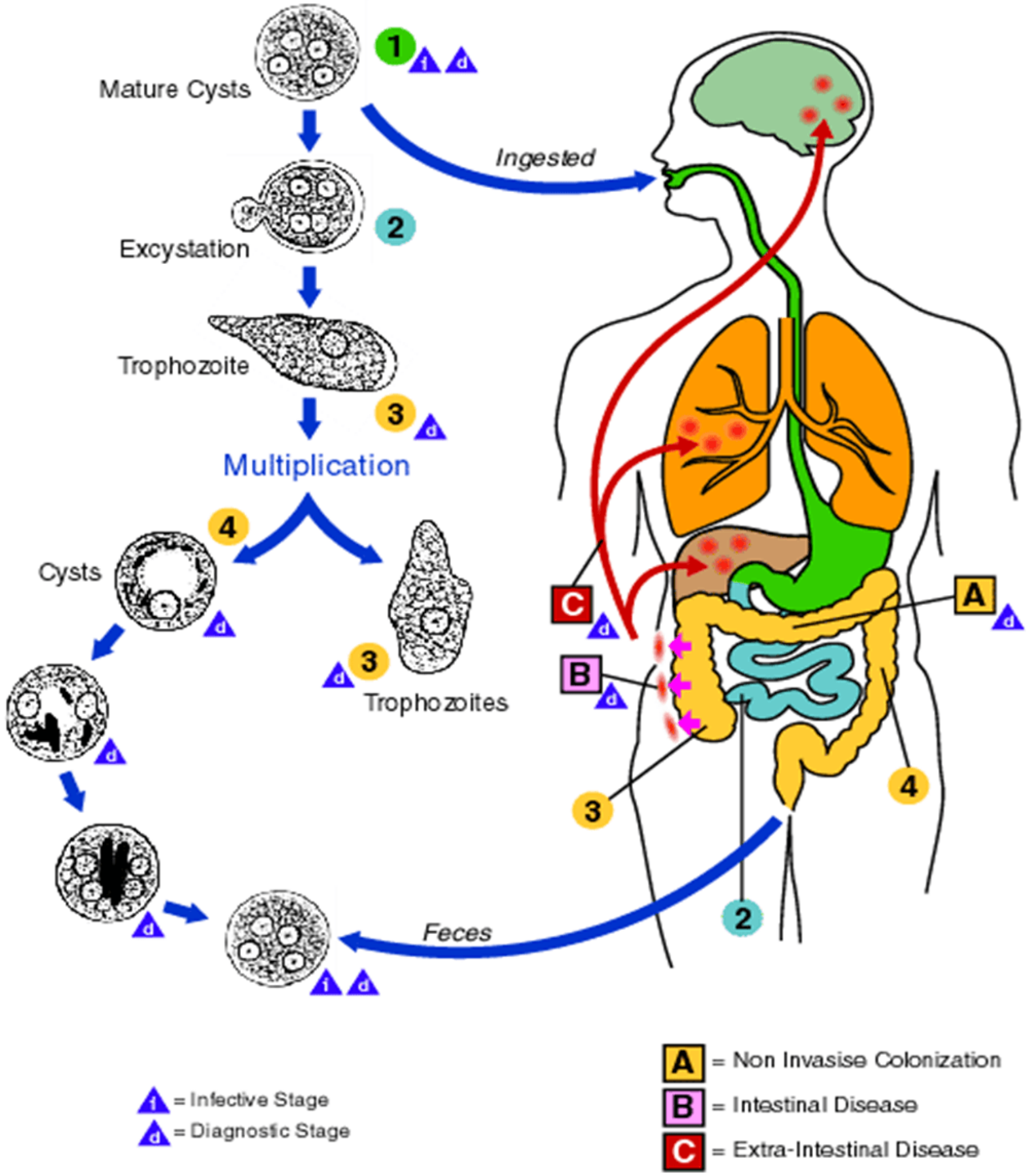
- **Transmission to Another Host**

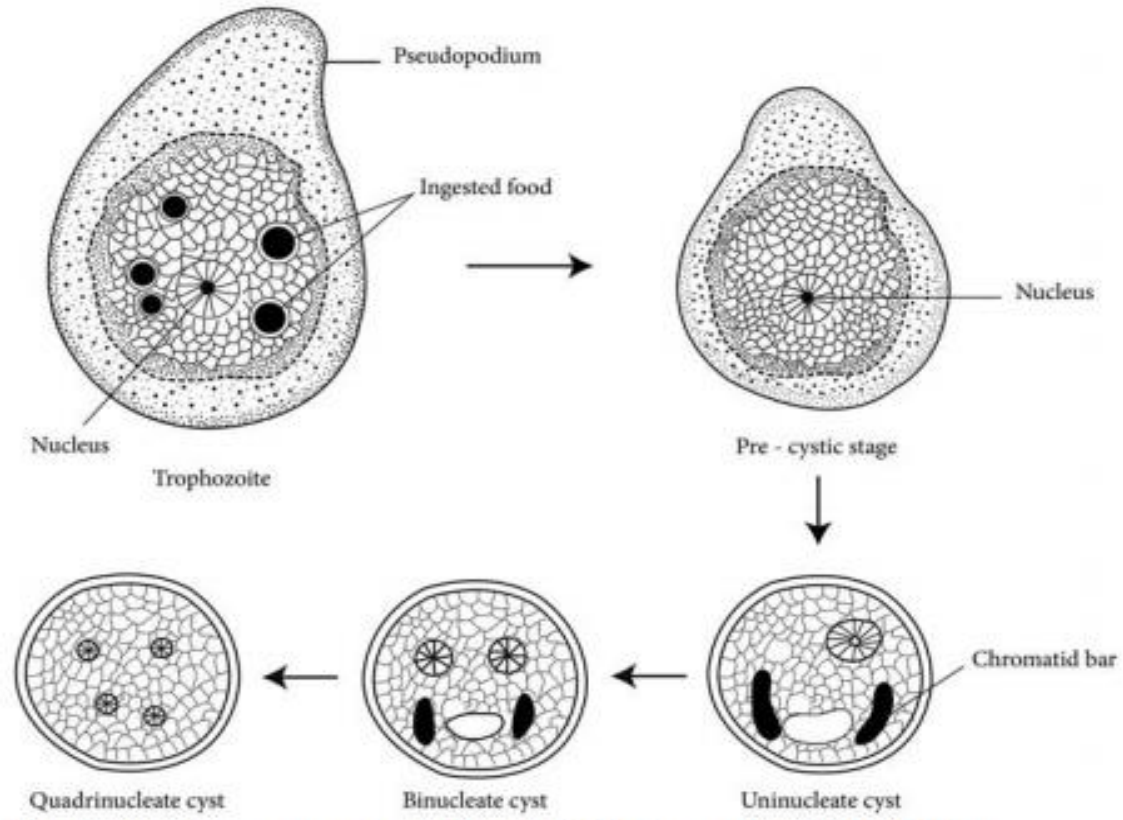
  Cysts that are infectious stay outside the host's intestine in working mode for a considerable period, under suitable environmental conditions. Infection among new human bodies occur when they intake drinks and food infected with cysts.

- **Excystment**

  The trophozoites sustain on the intestinal products and enlarge to become trophozoites of the succeeding generation. Also, these trophozoites remain in the intestinal lumen for a certain period and may strike an attack on the intestinal walls and resume their life cycle. Furthermore, E. Histolytica is responsible for causing abscesses in the lungs, liver, and brain, non-dysenteric infections, and amoebic dysentery.

Life Cycle of *Entamoeba histolytica* Diagram





Trophozoite, precyst and cyst of *Entamoeba histolytica*

Below are several measures which may prove helpful in safeguarding the human body from E. Histolytica causing diseases:

- Hygienic elimination of feces.
- Appropriate sanitation and filtration of water and vegetables against dirt.
- Proper cleaning of hands with soap or handwash before consuming food.
- Preparing clean food and also cleaning the surrounding area of cooking.
- Preventing food materials and drinks from the infection of flies, cockroaches, etc.
- Avoid eating undercooked or raw food.