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Group – 192 b

Topic – biological bases of parasitism .
Sarcodina class
Entamoeba histolotica

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• Biological bases of parasitism

- Parasitology is the study of parasites, their hosts,
- and the relationship between them.

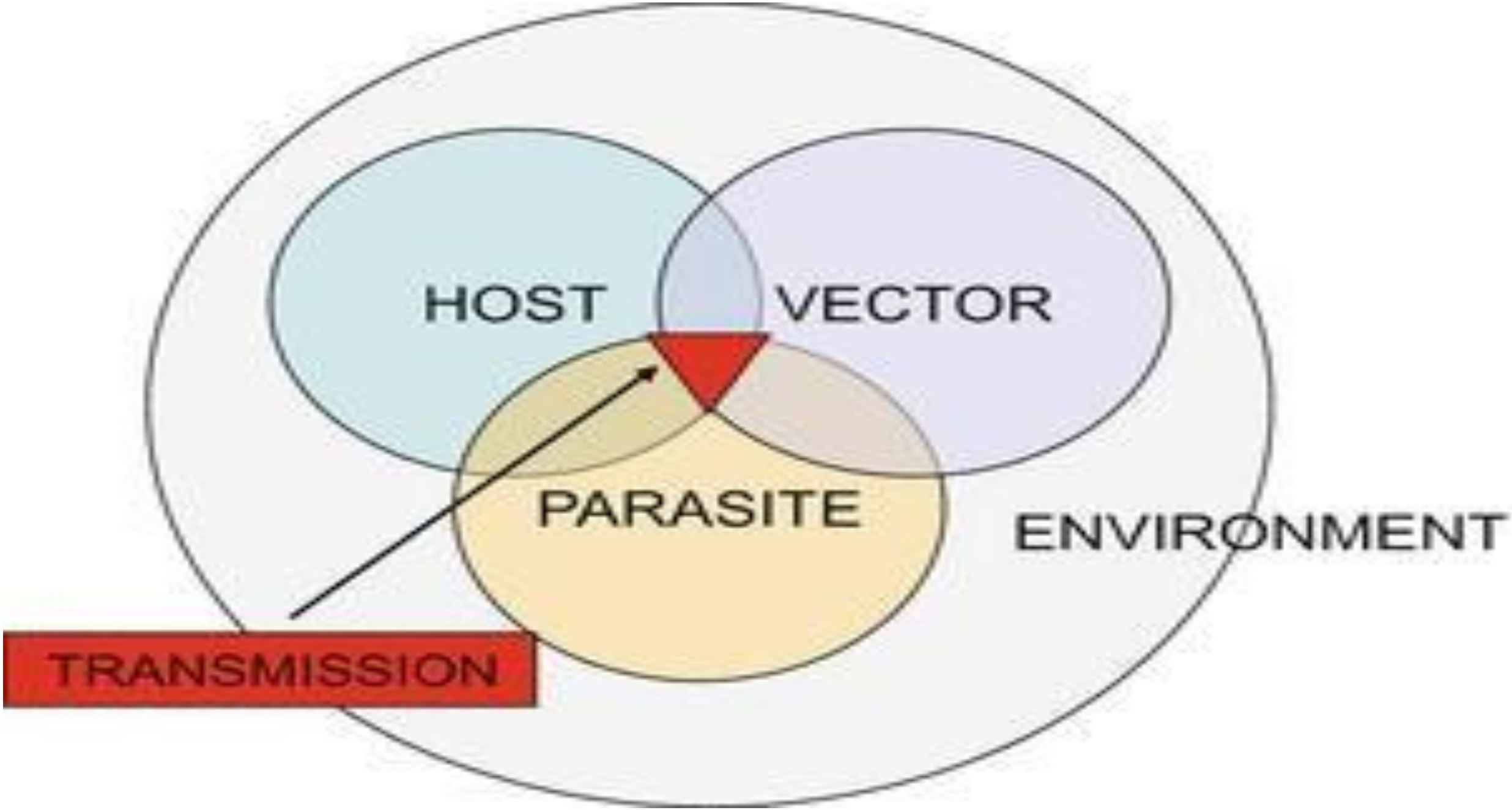
- □ Medical parasitology traditionally has included the
- study of three major groups of animals: parasitic
- protozoa, parasitic helminthes (worms), and those
- arthropods that directly cause disease or act as
- vectors of various pathogens.

Classification of parasite

1. Ectoparasites
2. Endoparasite
3. Obligative
4. Facultative
5. Incidemtal
6. Permanent
7. temprary

TYPES OF HOST

1. Final host
2. Definitive host
3. Intermediate
4. Reservoir
5. Transport host


HOST
VECTOR
PARASITE
ENVIRONMENT
TRANSMISSION

HOST VERSUS PARASITE

HOST	PARASITE
An organism that harbours a parasitic, a mutualistic, or a commensalist guest, the guest typically being provided with nourishment and shelter	An organism that obtains nourishment and shelter on another organism
May either get benefitted, harmed, or neither	Always benefits
Large	Small
Always has a higher organization	Always less organized than the host

Host parasite relation ship

- Host parasite relation ship is a type of symbiotic relationship between organisms of different species, the parasite benefits at the expense of the host, we have different type include:

1-**Commensalism**: the association of two different species or organism in which one is benefited and the other is neither benefited nor harmed. (e.g. non pathogenic intestinal protozoa)

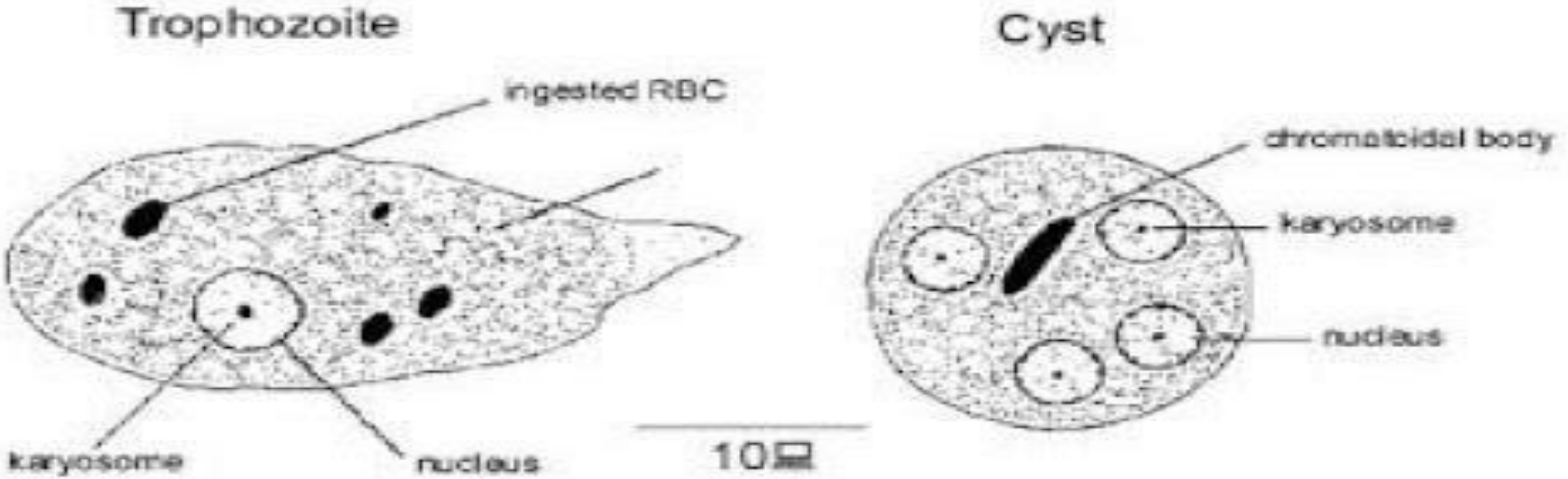
2-**Mutilisim :** the relation is benefit to both associates

3-**Pathogensim :** the relation in which parasite is benefit and host is harm

Protozoa

Class : Sarcodina.
Order : Amoebida.
Family:Endamoebidae.
Genus: Entamoeba.
Speciese: histolytica , coli .

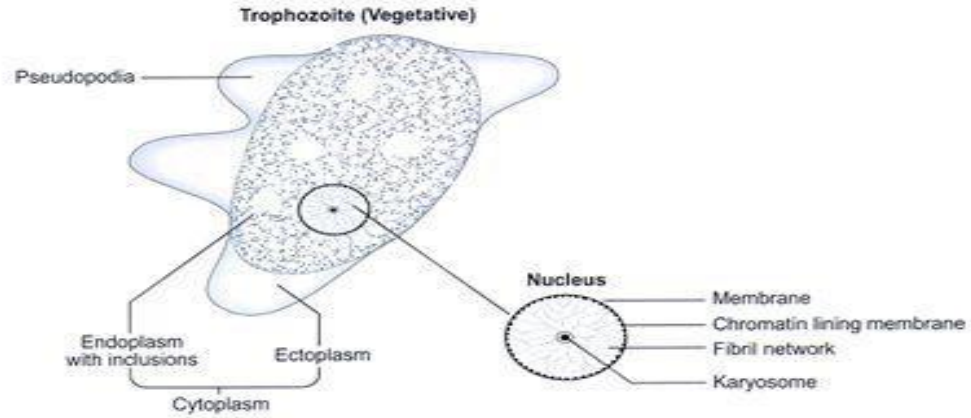
Disease : Amebiasis .
Synonyms : Amebic dysentery .
E. histolytica has been found in all populations Throughout of the world .

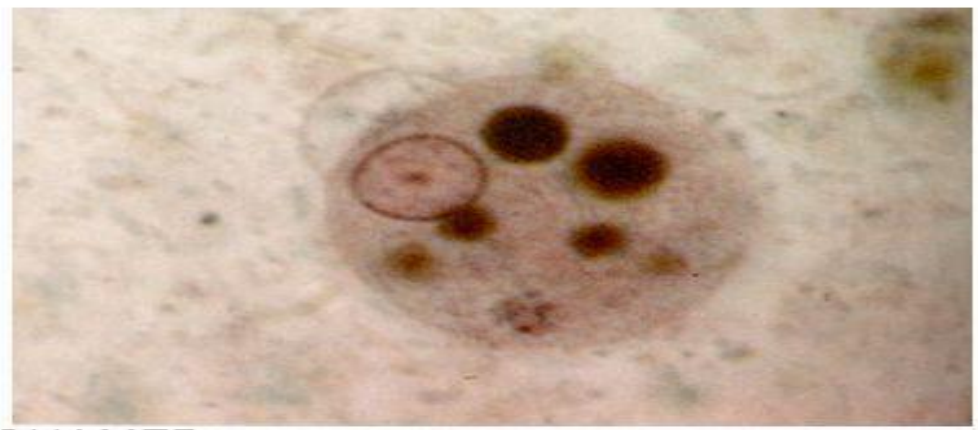

Trophozoite
ingested RBC
karyosome
nucleus
10
Cyst
chromatoidal body
karyosome
nucleus

Entamoeba histolytica

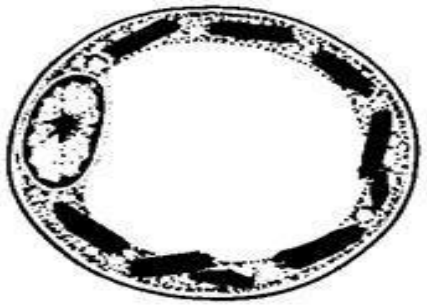
Morphology of Trophozoite(vegetative form):

- 10-60 X 15-30 μ average (20-25 μ)
- Cytoplasm is clearly differentiated into:
- **Ectoplasm:** is clear with well develop-ed pseudopodia.
- **Endoplasm:** dense & fine granular enclosing:
- **Nucleus:** spherical containing central karyosome & peripheral evenly distributed small chromatin dots.
- **Food vacuoles**: contain leucocytes-bacteria-may be RBCs.

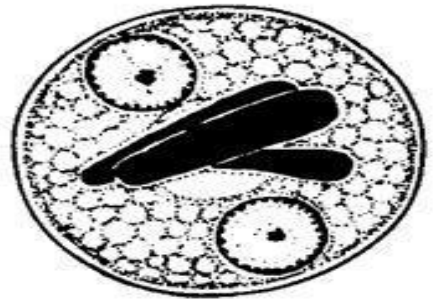




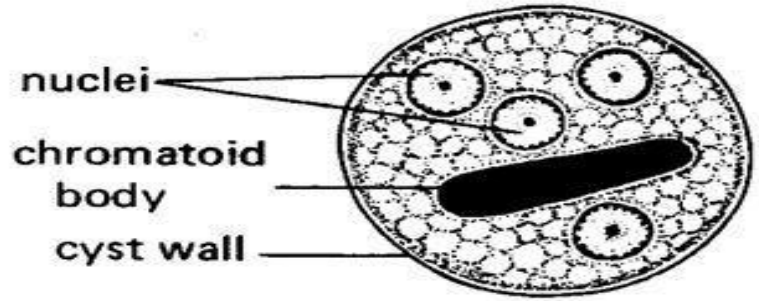
Entamoeba histolytica



A. Uninucleate



B. Binucleate



C. Quadrinucleate

Precyst stage:-

10-60 X 15-30 μ average (15-20 μ)

-Round or oval with a blunt pseudopodia.

-Absent cyst wall

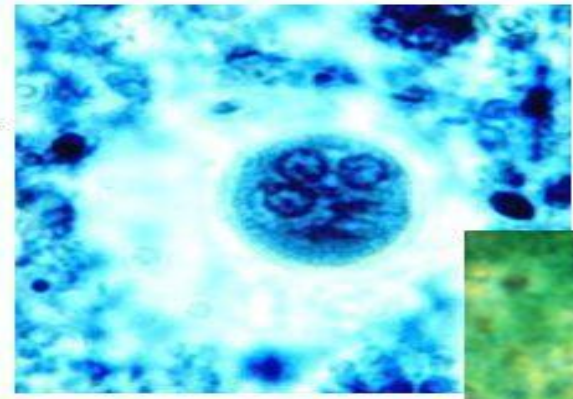
-Single nucleus present.

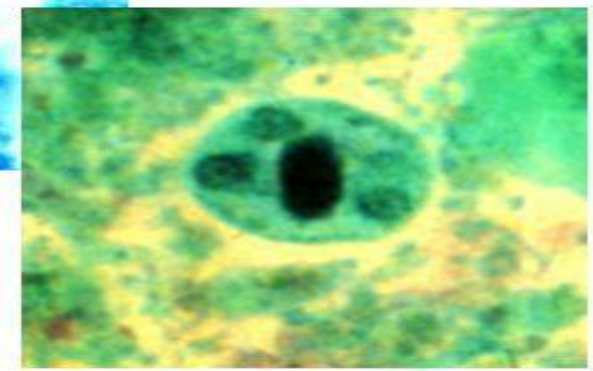
Cyst stage:-

10-20 μ average (15 μ)

-Four nuclei are present in mature quadrinucleated cyst

-Glycogen mass & chromatoid bodies are present in immature cysts –disappear in mature ones.





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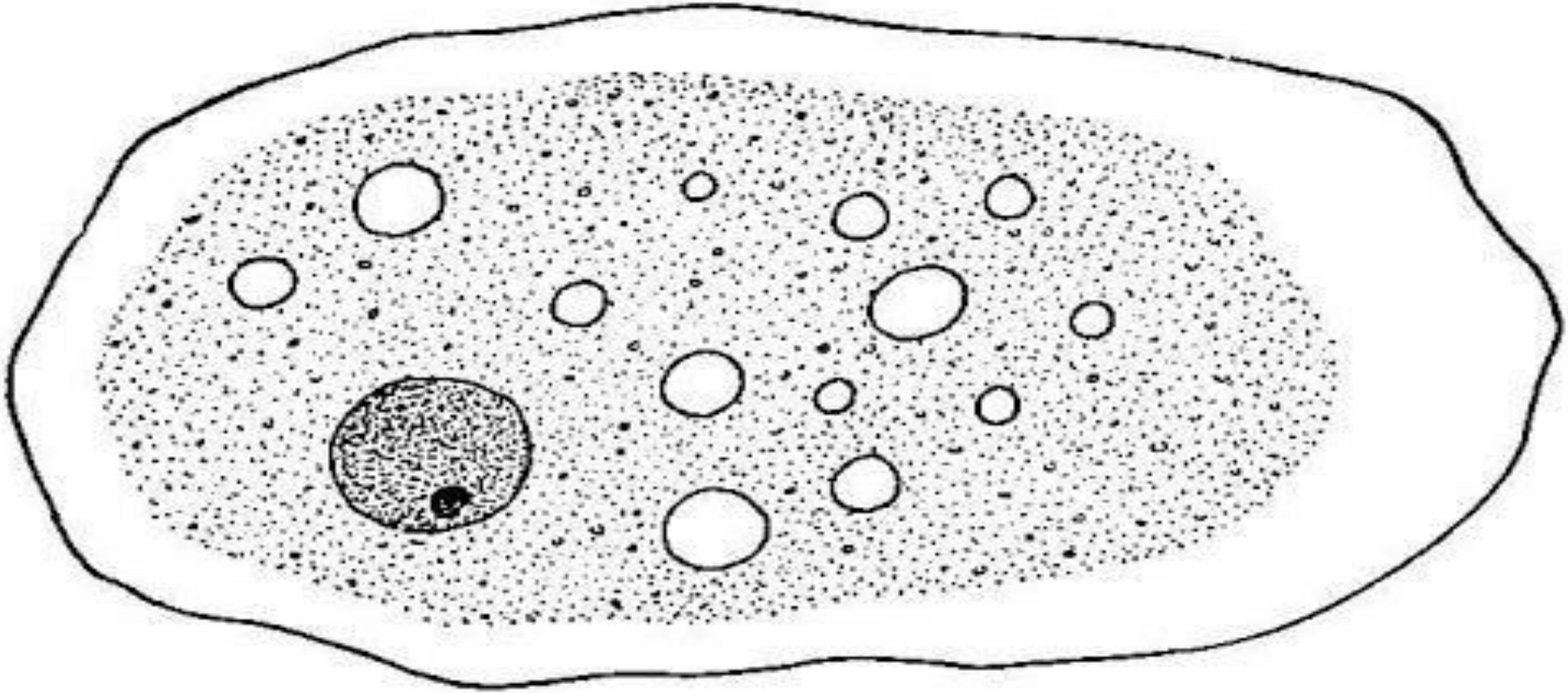


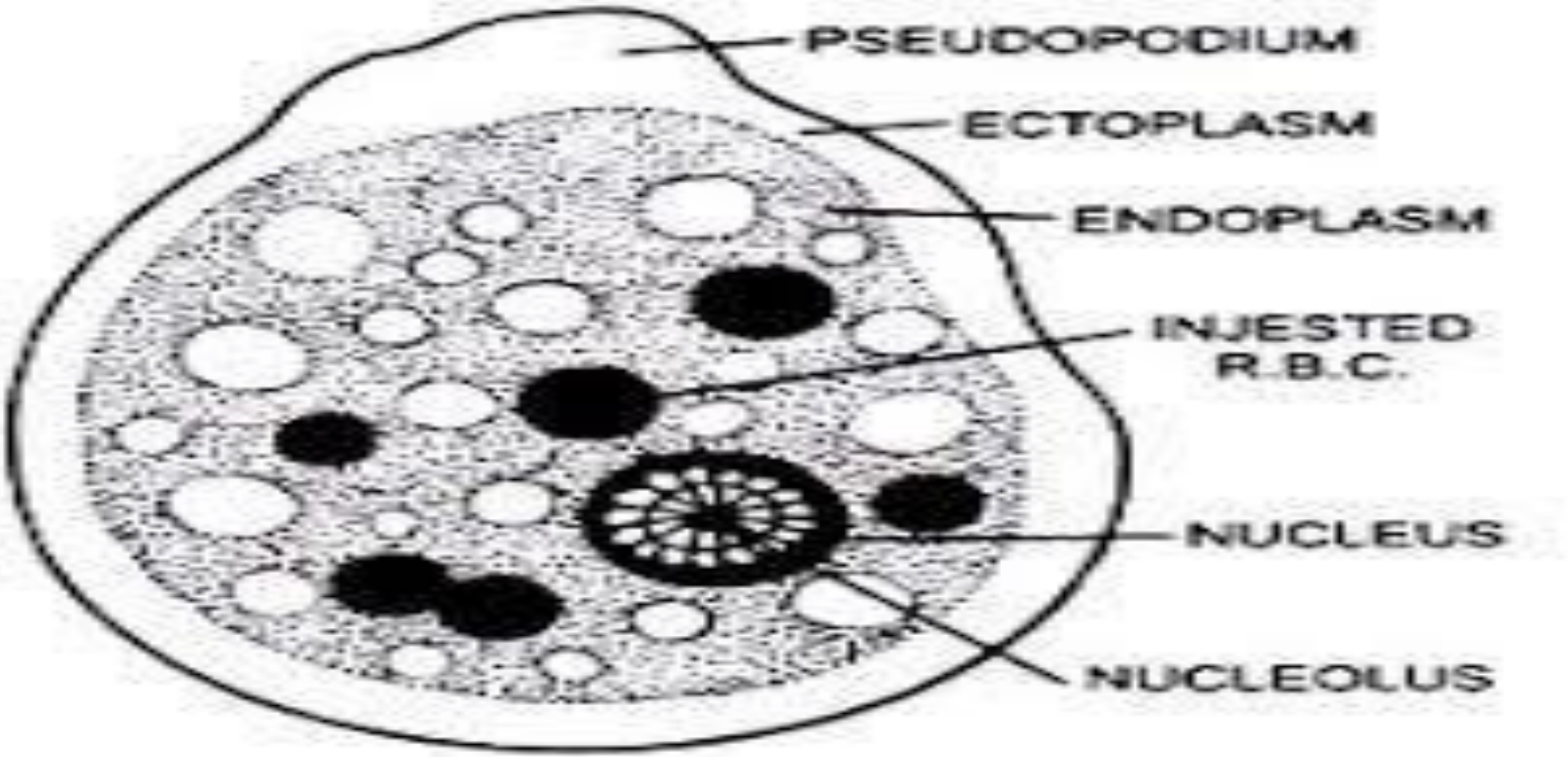
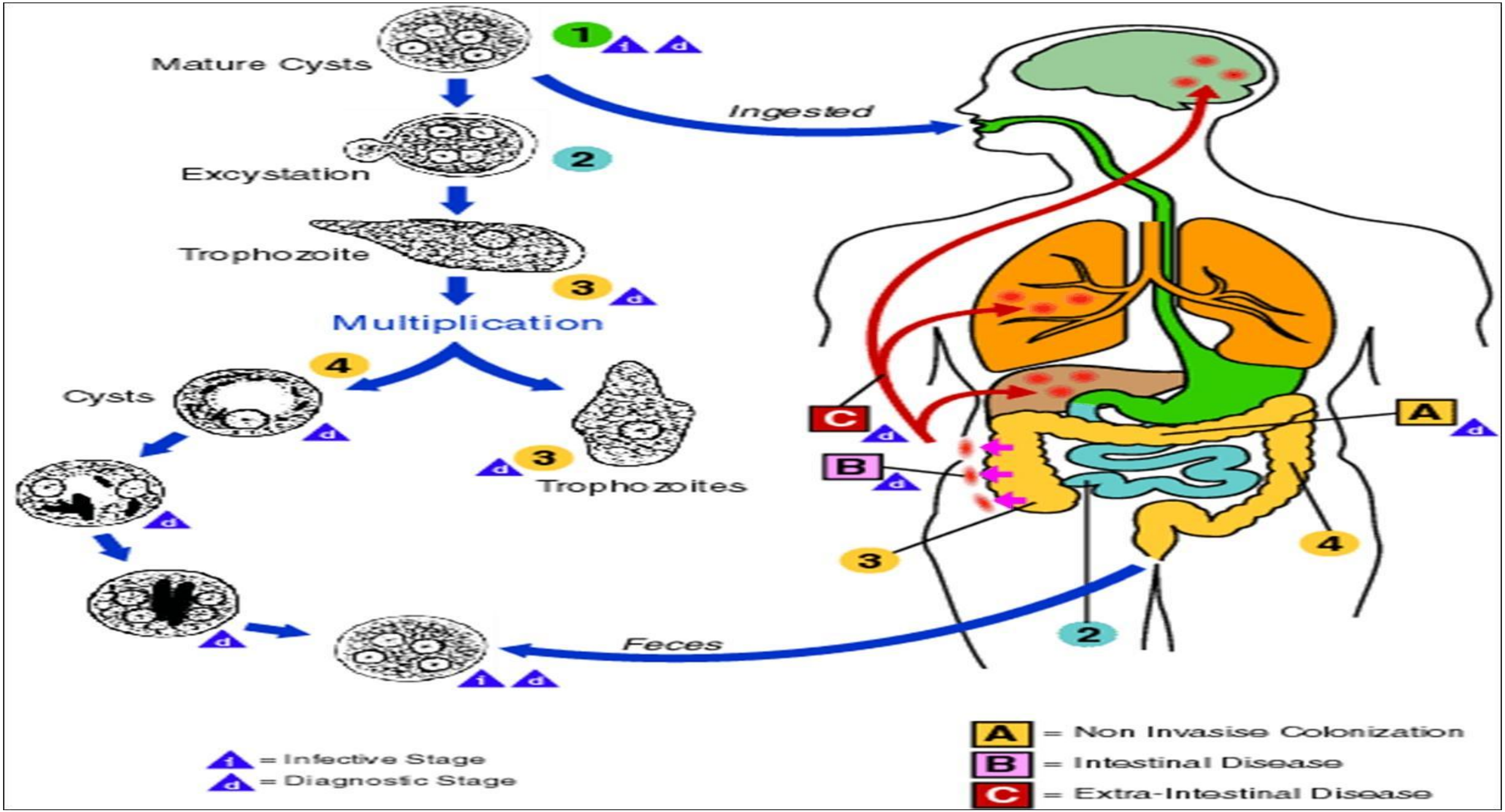
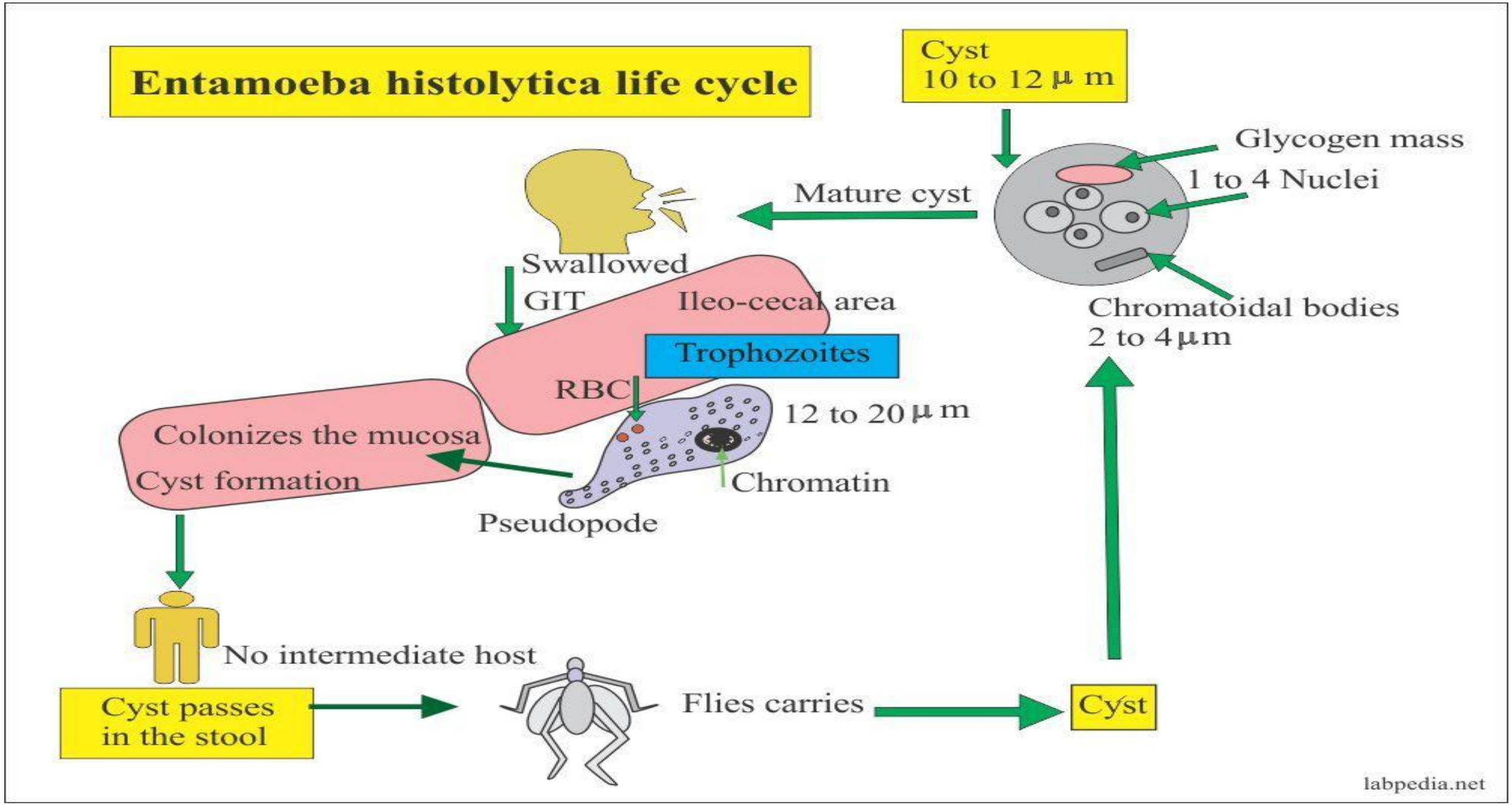


Fig. 5.1. Entamoeba histolytica


Mature Cysts
1
i
d
Ingested
Excystation
2
Trophozoite
3
d
Multiplication
4
Cysts
d
3
d
Trophozoites
C
d
A
d
B
d
3
4
2
Feces
i
d
i = Infective Stage
d = Diagnostic Stage
A = Non Invasise Colonization
B = Intestinal Disease
C = Extra-Intestinal Disease


Entamoeba histolytica life cycle
Cyst
10 to 12 µ m
Glycogen mass
1 to 4 Nuclei
Mature cyst
Swallowed
GIT
Ileo-cecal area
Chromatoidal bodies
2 to 4 µm
Trophozoites
RBC
12 to 20 µ m
Colonizes the mucosa
Cyst formation
Chromatin
Pseudopode
No intermediate host
Cyst passes
in the stool
Flies carries
Cyst
labpedia.net

Pathogenesis of Amebiasis

- NON-INVASIVE
  - ameba colony on intestinal mucosa
  - asymptomatic cyst passer
  - non-dysenteric diarrhea, abdominal cramps, other GI symptoms
- INVASIVE
  - necrosis of mucosa → ulcers, dysentery
  - ulcer enlargement → dysentery, peritonitis
  - metastasis → extraintestinal amebiasis

TREATMENT

Treatment of amoebiasis is based on the use of amoebicides drugs

Amoebicides with luminal action

- Di-iodohydroxyquin
- Diloxanide furoate
- Paromomycin

Amoebicides effective in the liver, intestinal wall and other tissues

- Emetine
- Dehydroemetine

Diagnosis

1-Parasitic diagnosis

a-Intestinal amoebiasis

-**stool**

-rectal (exudate) swab

-material collected from the base of rectal ulcers

b-Amoebic liver abscess

-aspirated pus

Reference

https://youtu.be/wBPh9svlU9Q

https://youtu.be/7V4aT-LwwFY

https://youtu.be/0DcfxgQocuQ

Thank you for attention