Introduction to Parasitology and Protozoan parasites

Paper: 3

Unit:1

Lecture-2,3,4

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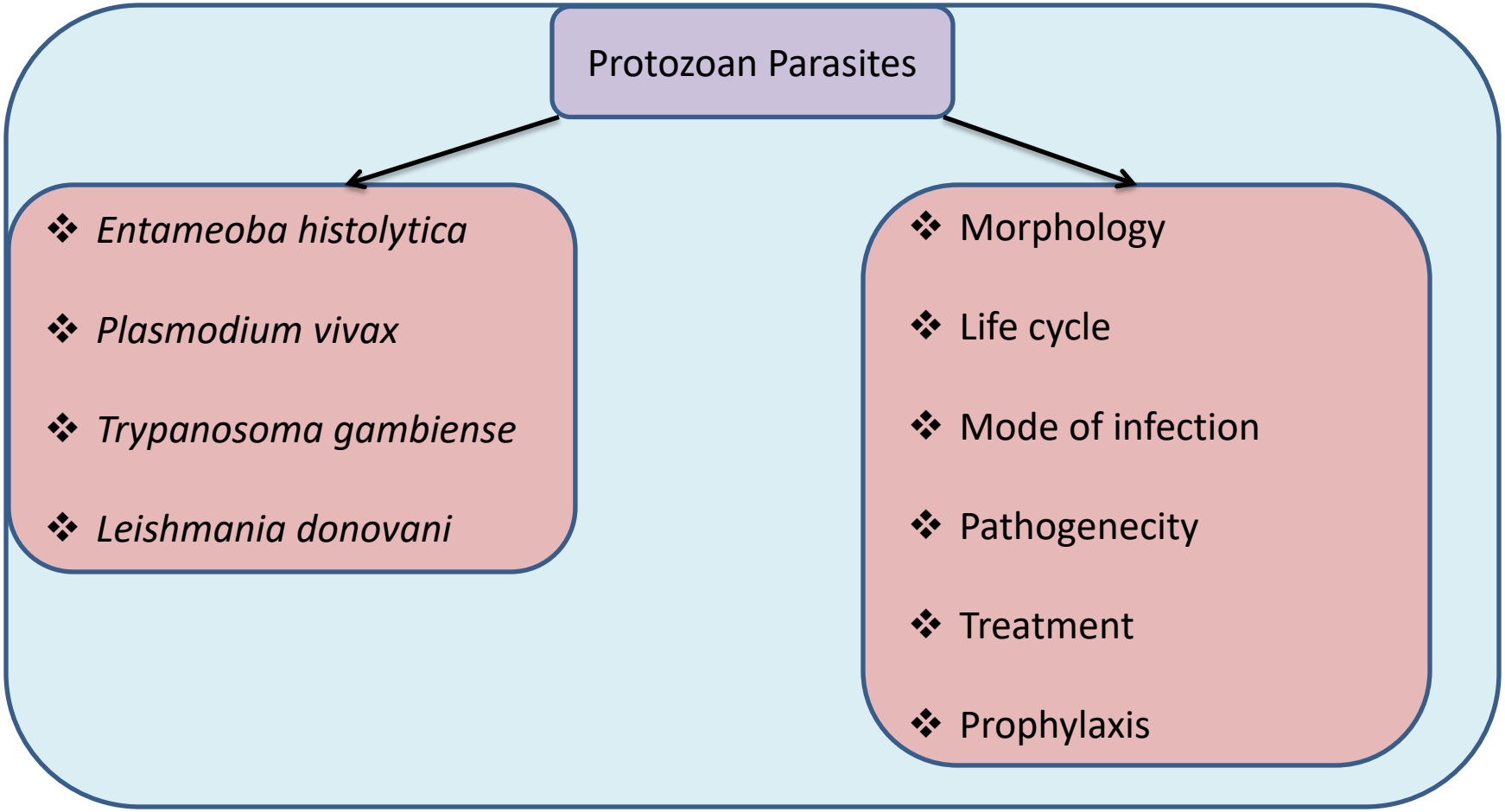
PROTOZOAN PARASITES



Entameoba histolytica

Classification

Phylum: Protozoa

Class: Rhizopodea

Genus: *Entamoeba*

Species: *histolytica*

Entameoba histolytica

Distribution

Cosmopolitan (world wide)

Tropical and Subtropical regions

Mexico, South America, Thailand , China, Philippines, India

High incidence rate in rural area and densely populated urban areas with poor sanitary conditions

Entameoba histolytica

Habit and Habitat

Microscopic

Endoparasite--- Upper part of large intestine colon

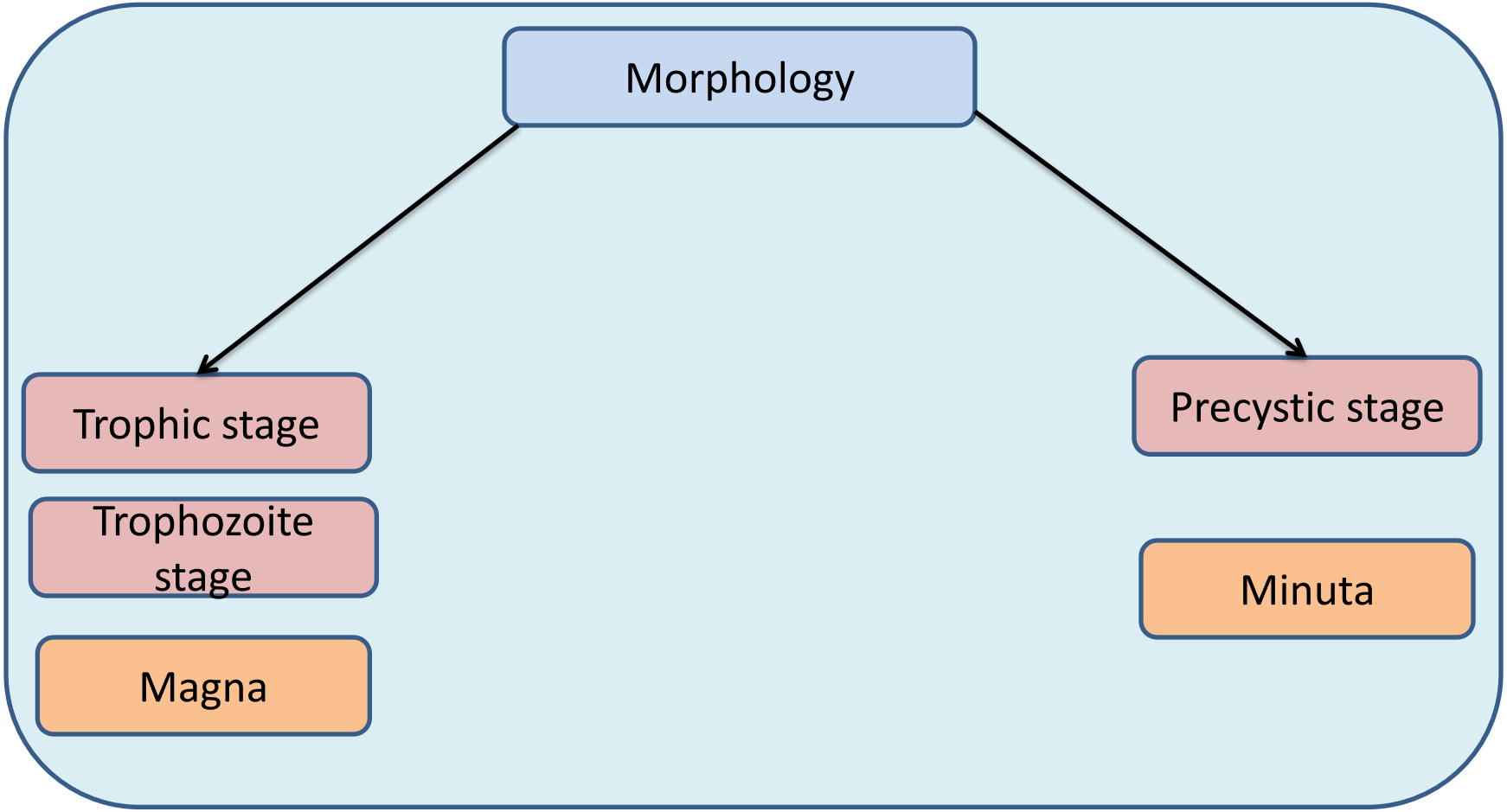
Mucosa and submucosa

Ulcers and abscessess

Chronic cases: Liver, Lung, Brain and other organs

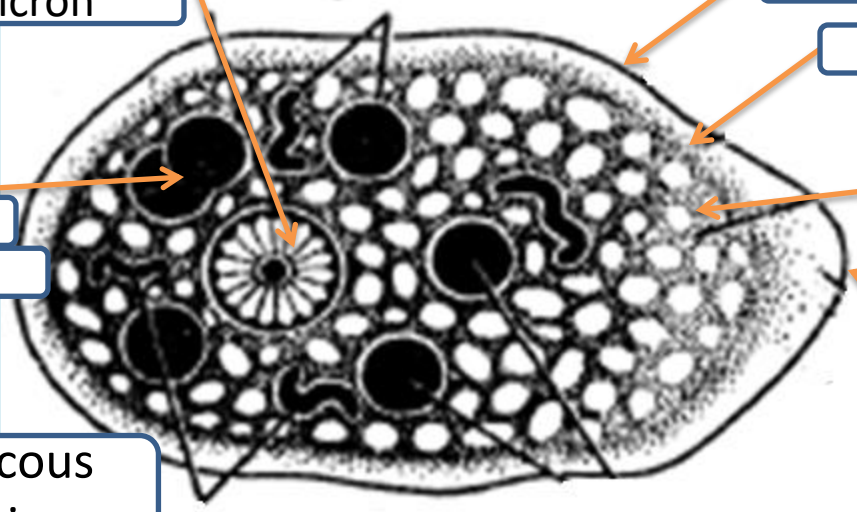
Other mammals

Entameoba histolytica



Entameoba histolytica

Trophic form



Entameoba histolytica

Minuta form

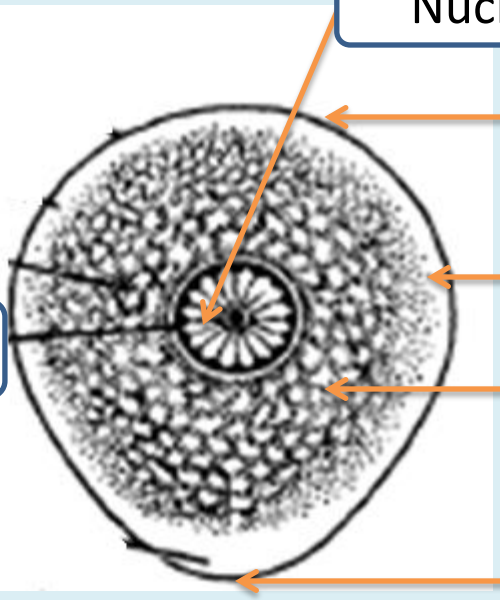
Non-feeding stage

Non-pathogenic to man

7-15micron

Undergoes encystment

Infection of new host



Nucleus

Plasmalemma

Ectoplasm

Endoplasm

Pseudopodia

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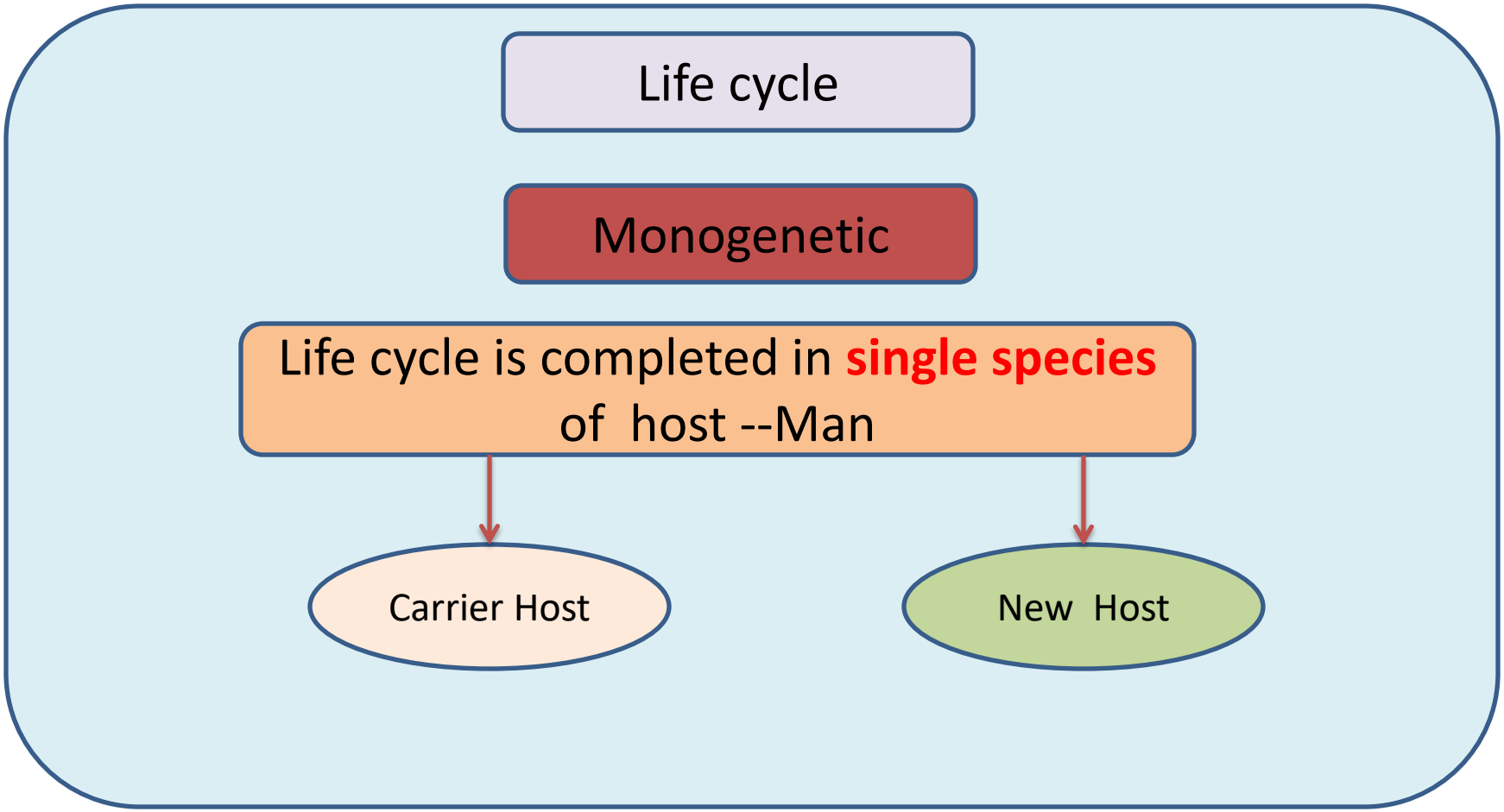

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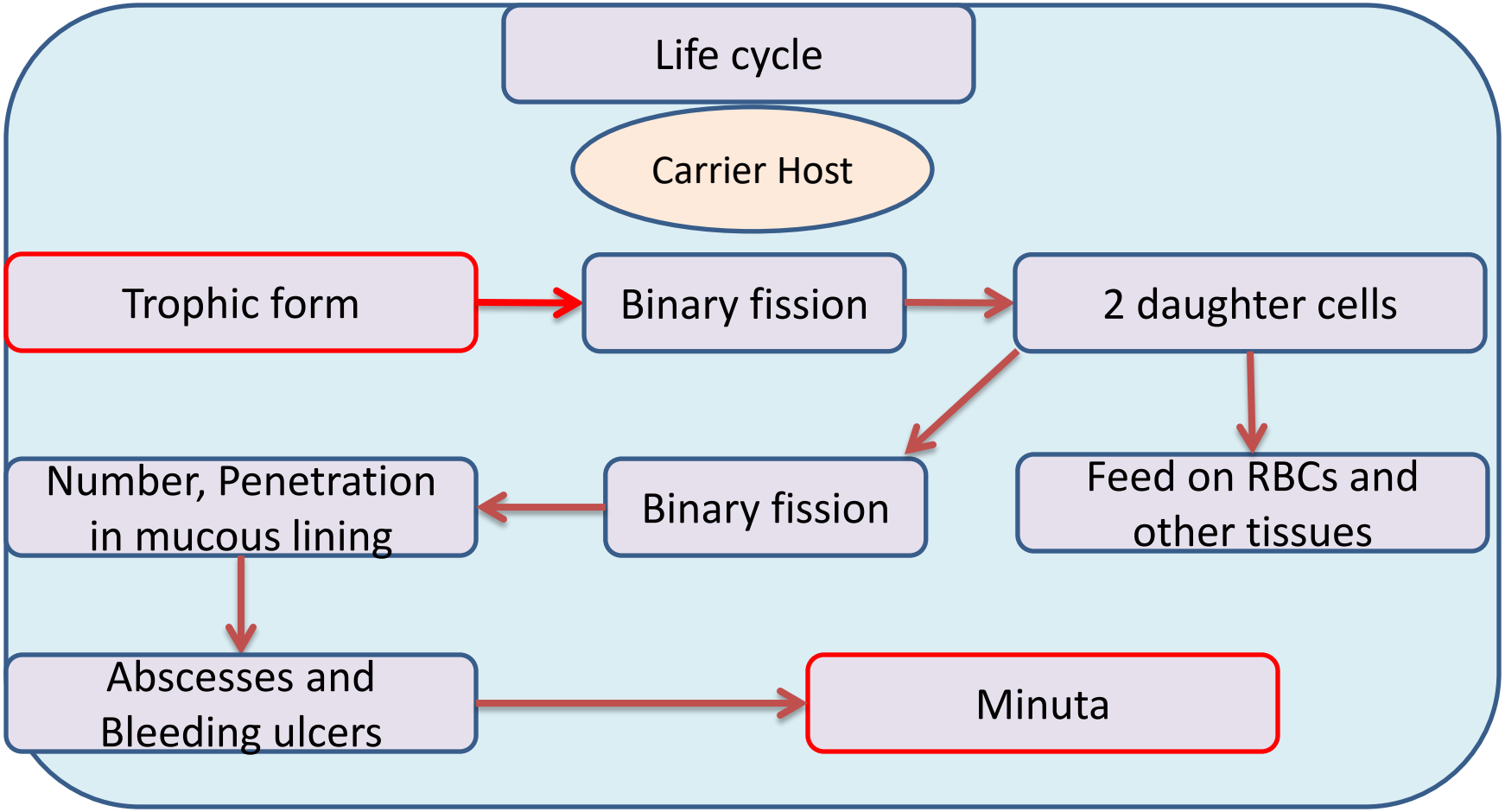

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Life cycle

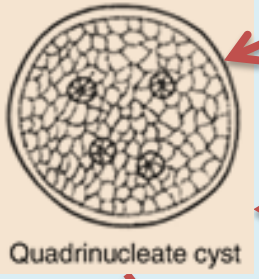
Carrier Host

Minuta

Encystation
Lumen of intestine

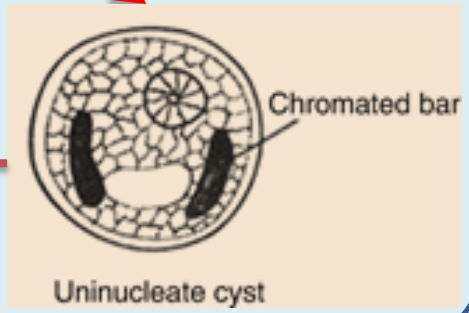
Thin, Flexible, Colourless, Transparent , Resistant cyst wall

Infective stage



Quadrinucleate cyst

Binucleate cyst



Uninucleate cyst

Escapes outside the carrier host along faeces

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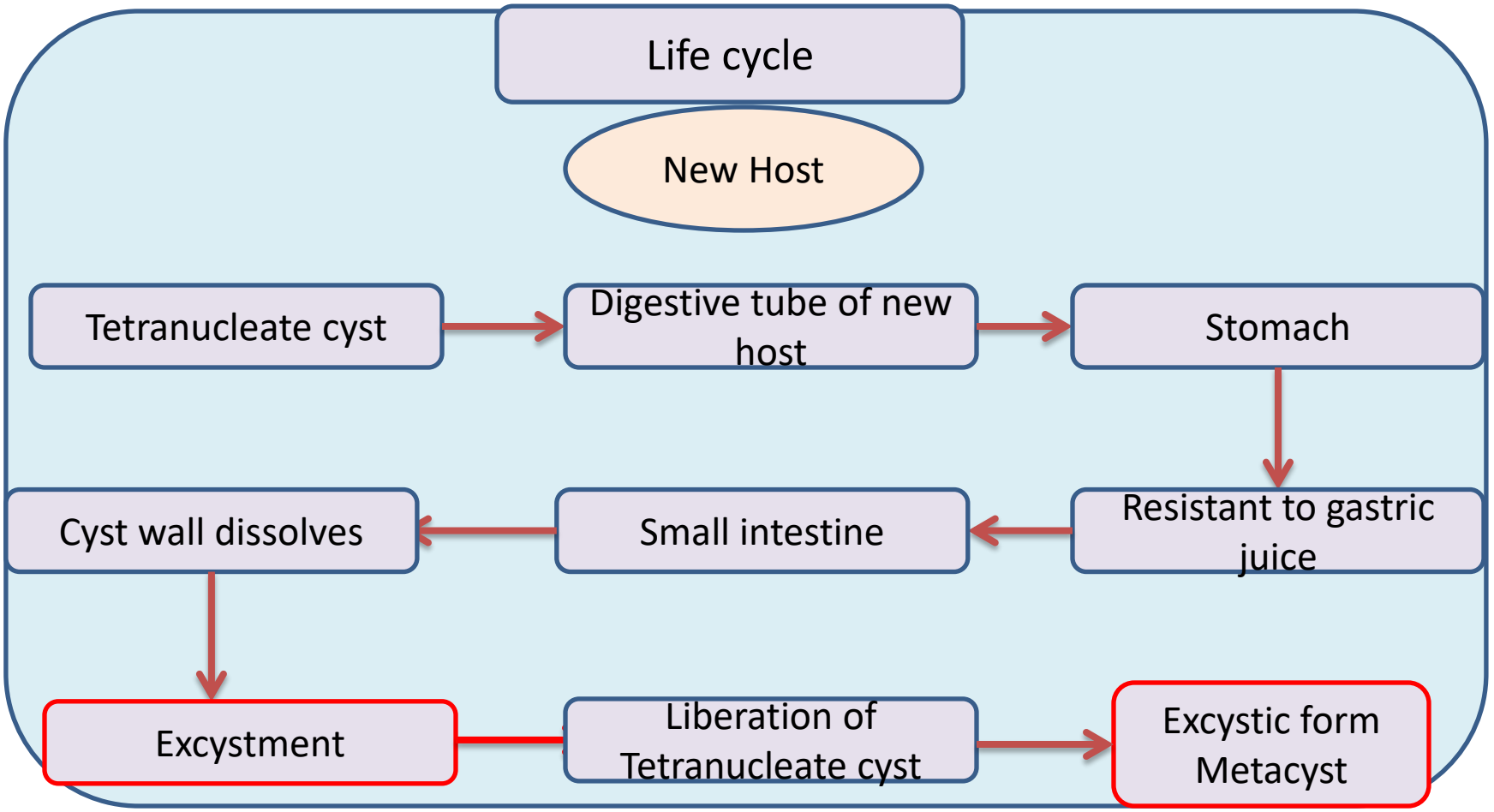

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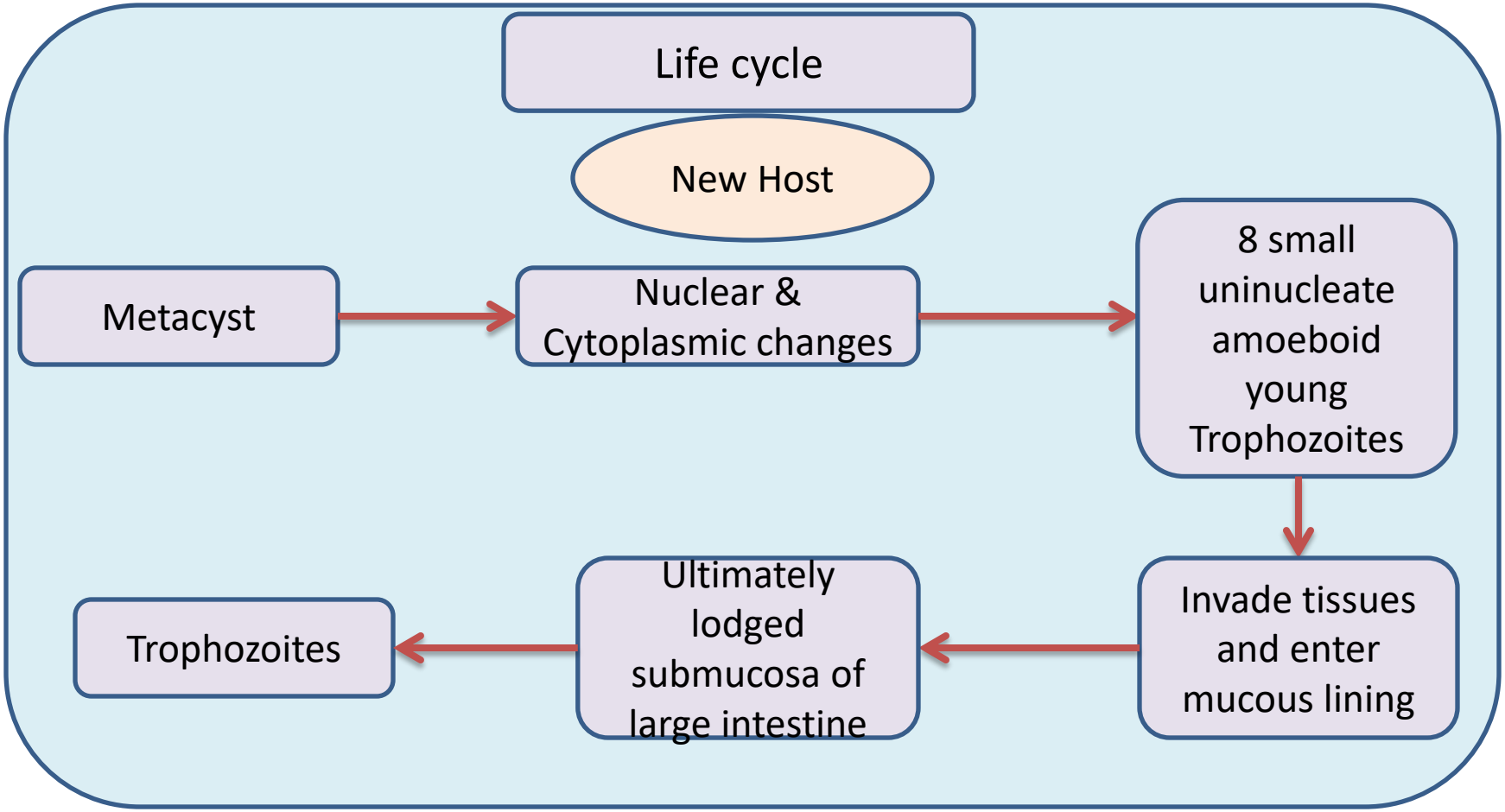

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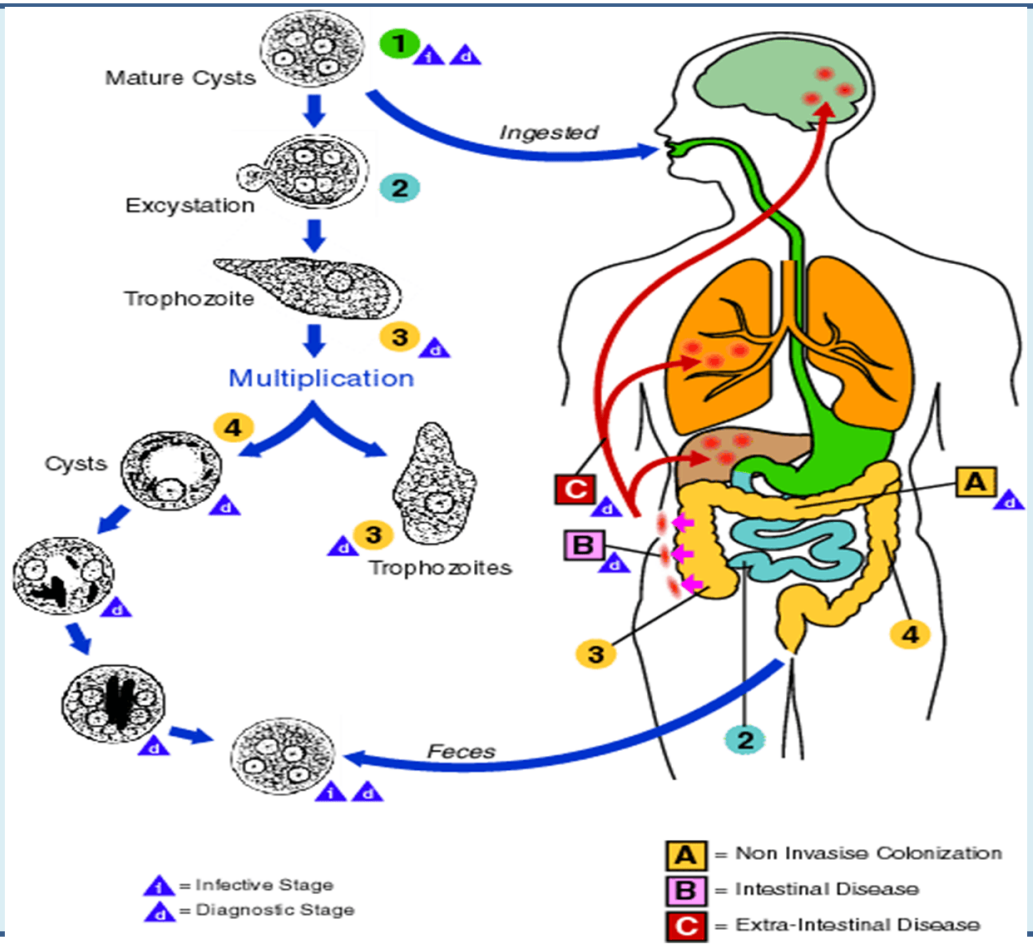

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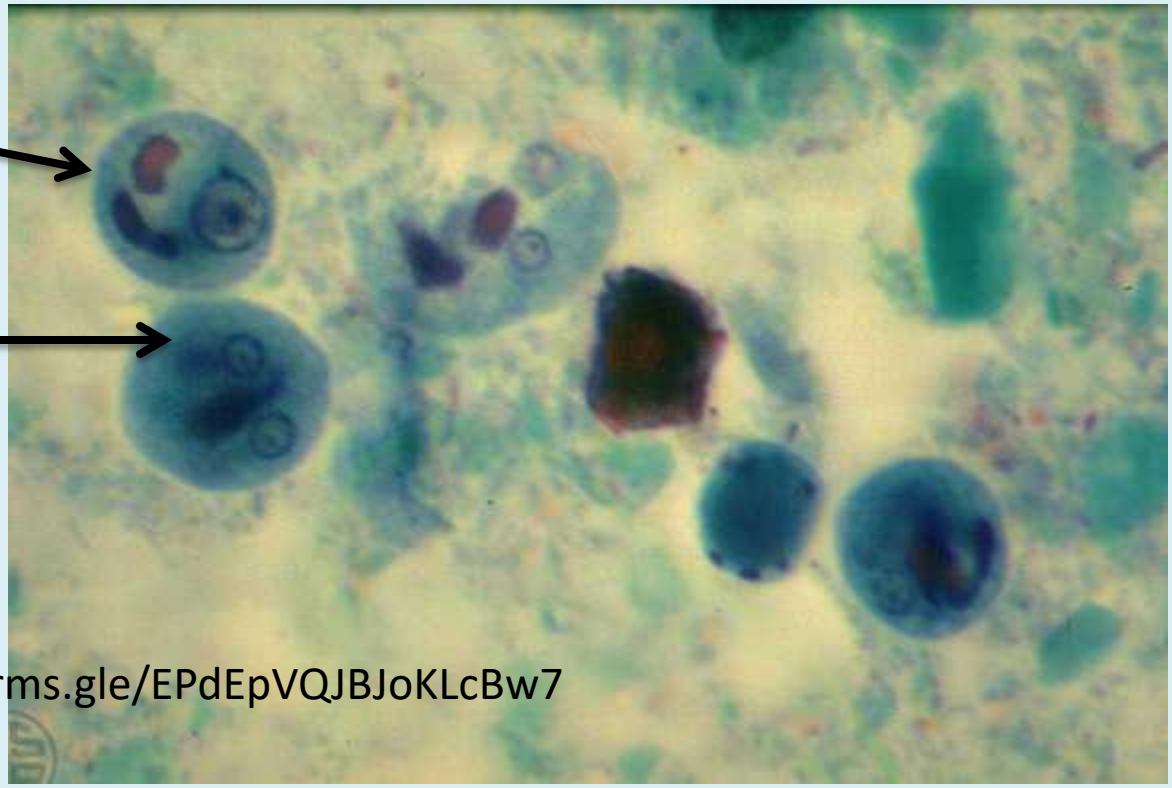

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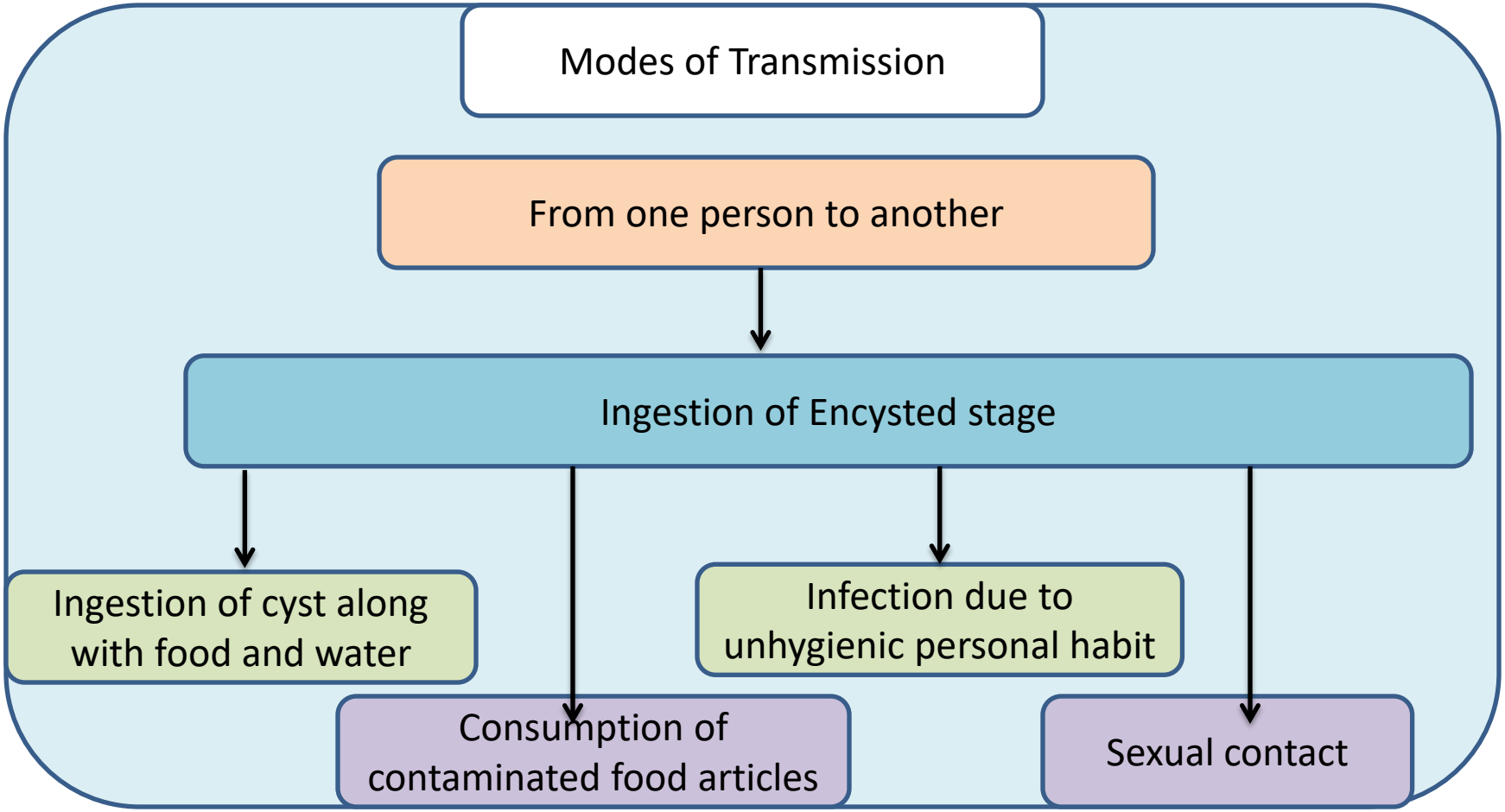

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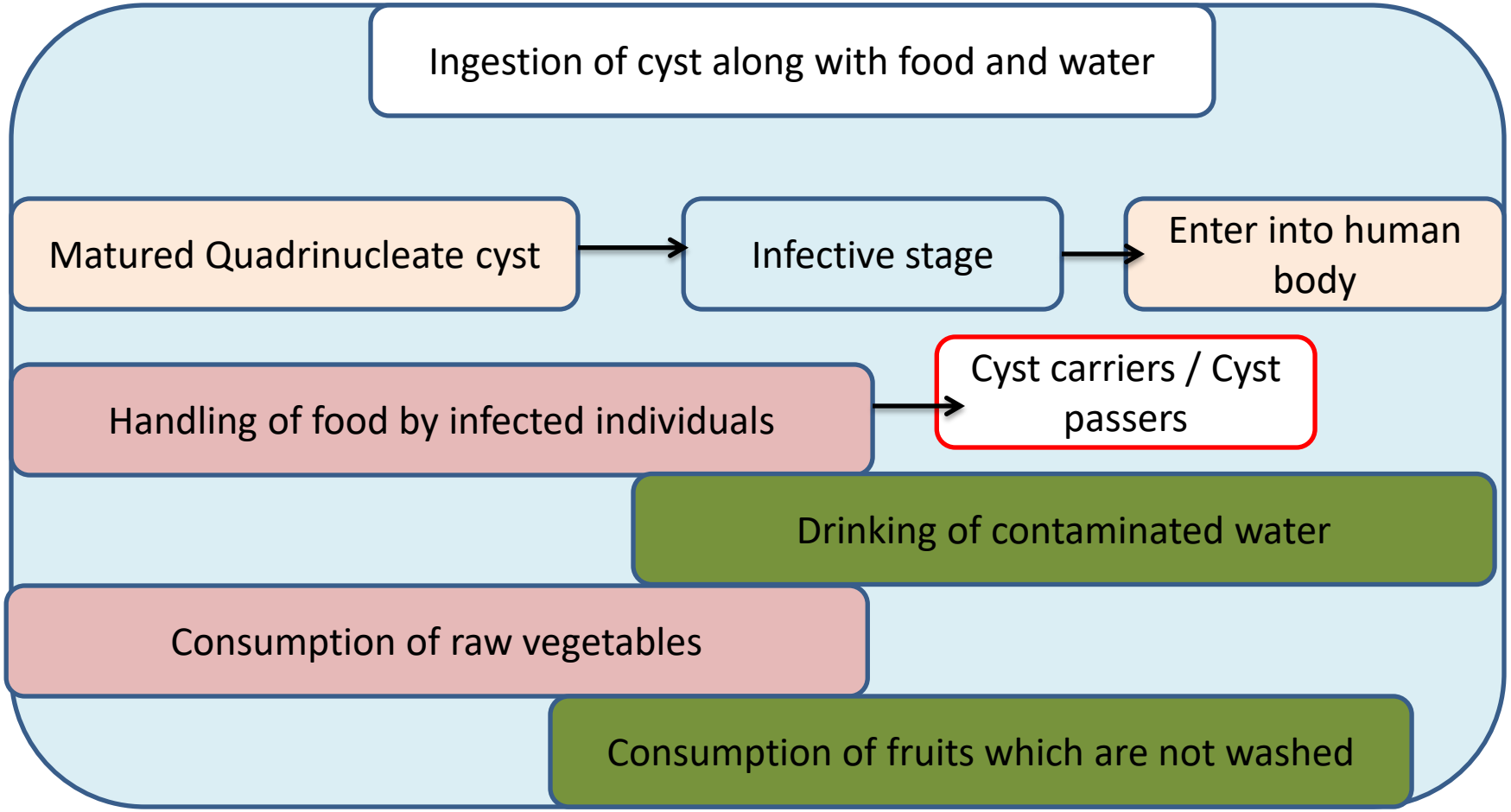

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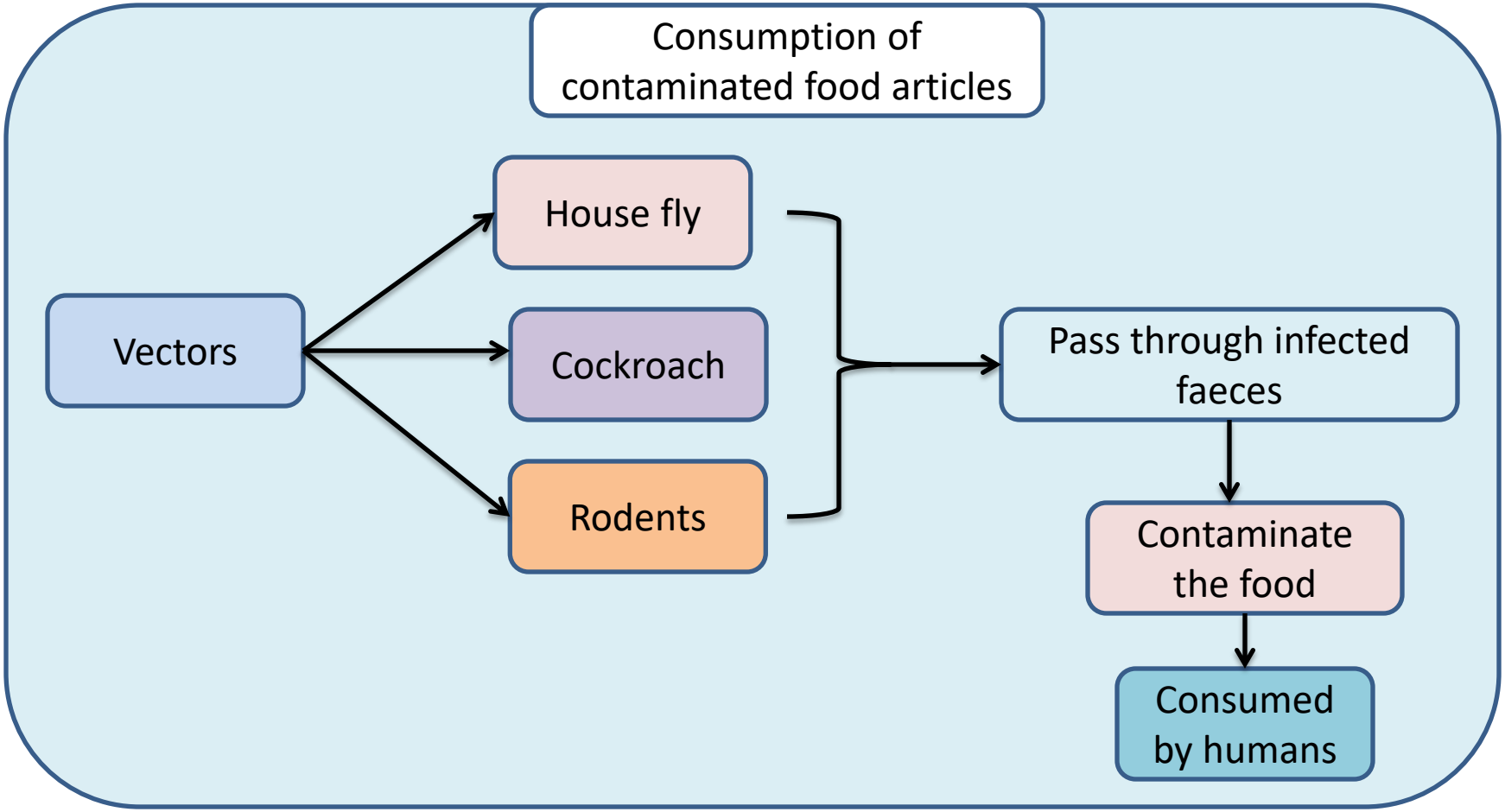

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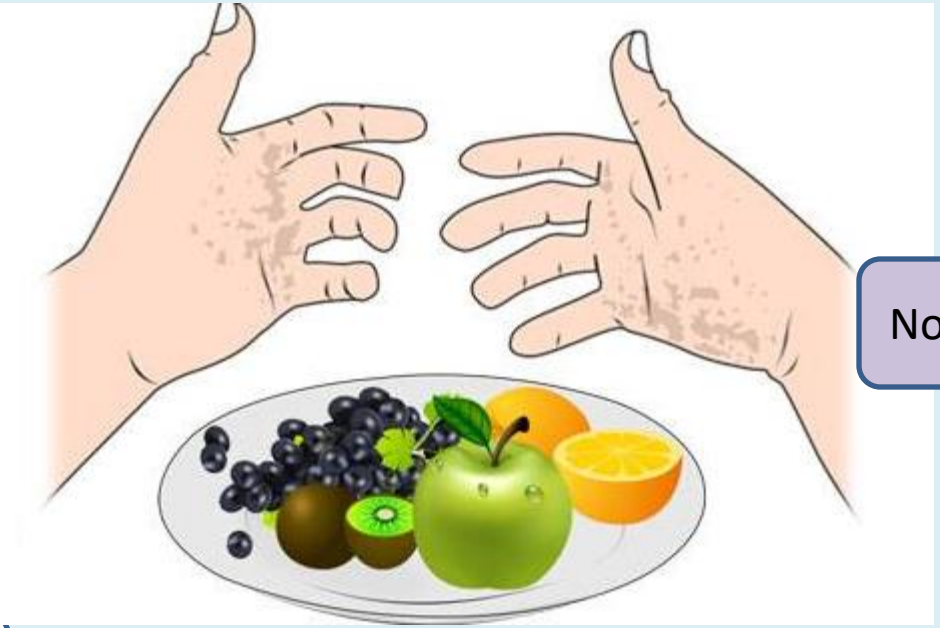
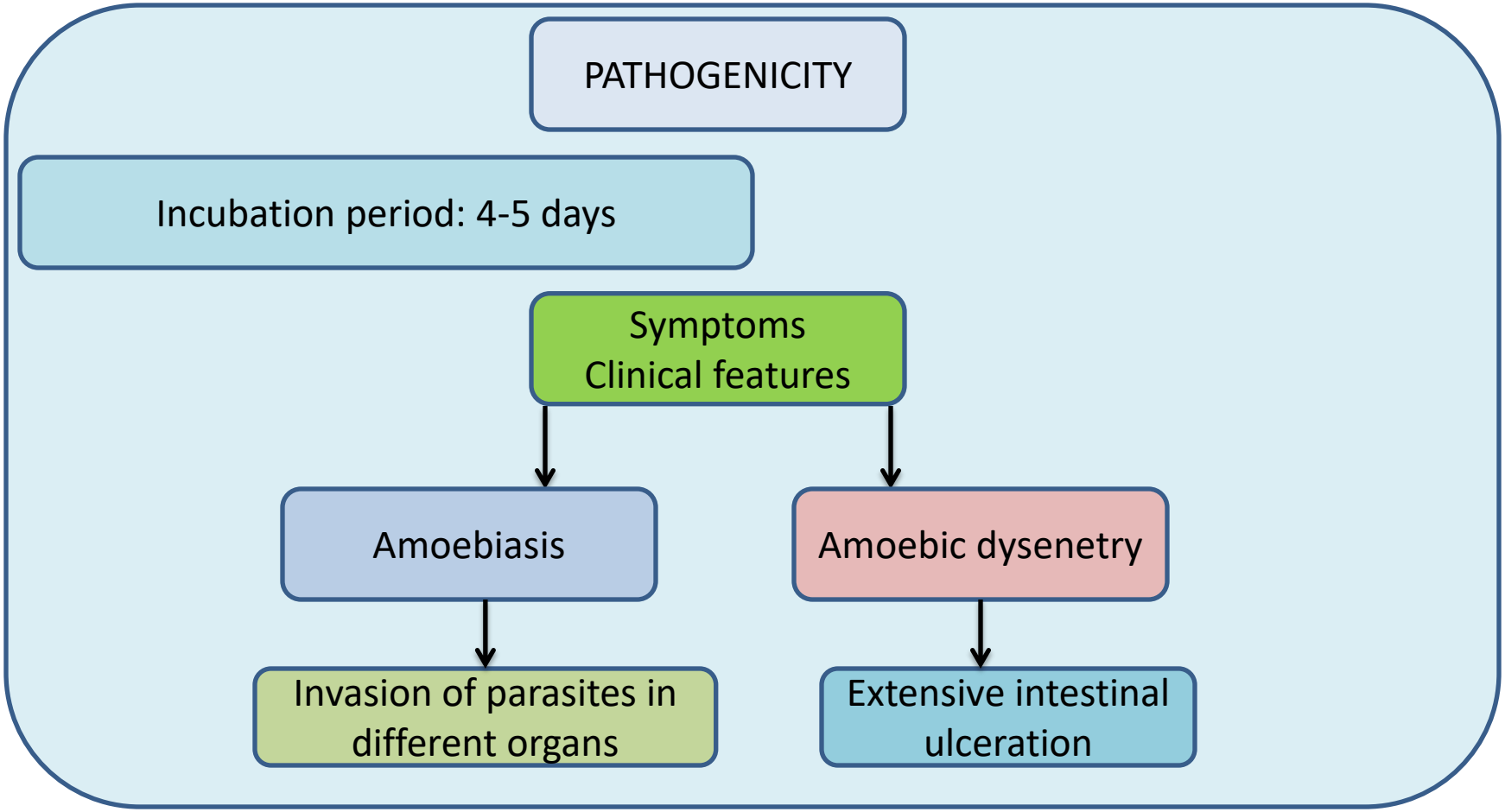
Infection due to unhygienic personal habit



Not washing hands

- After visiting toilet
- Before cooking food
- Before eating food

Entameoba histolytica



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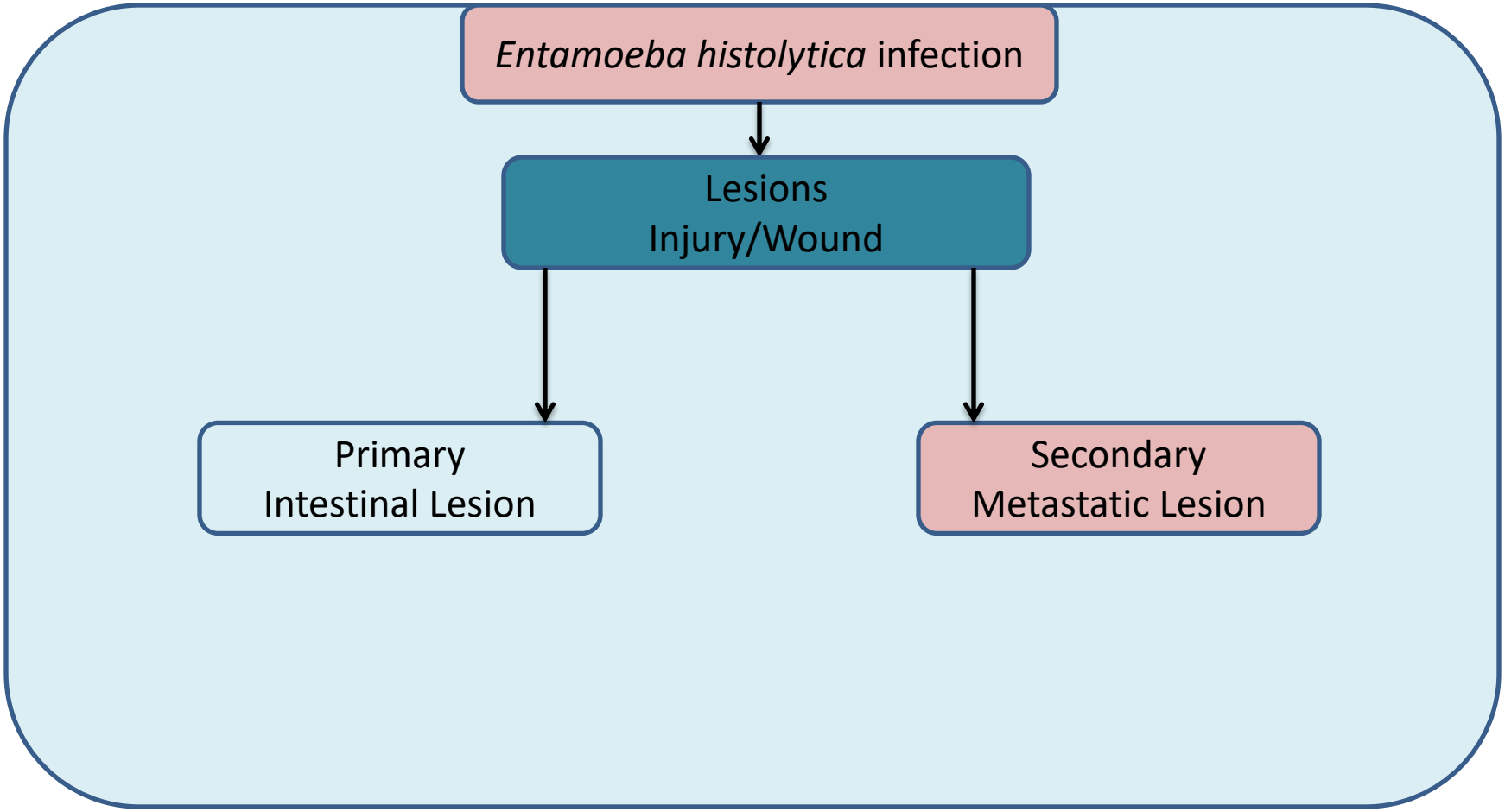

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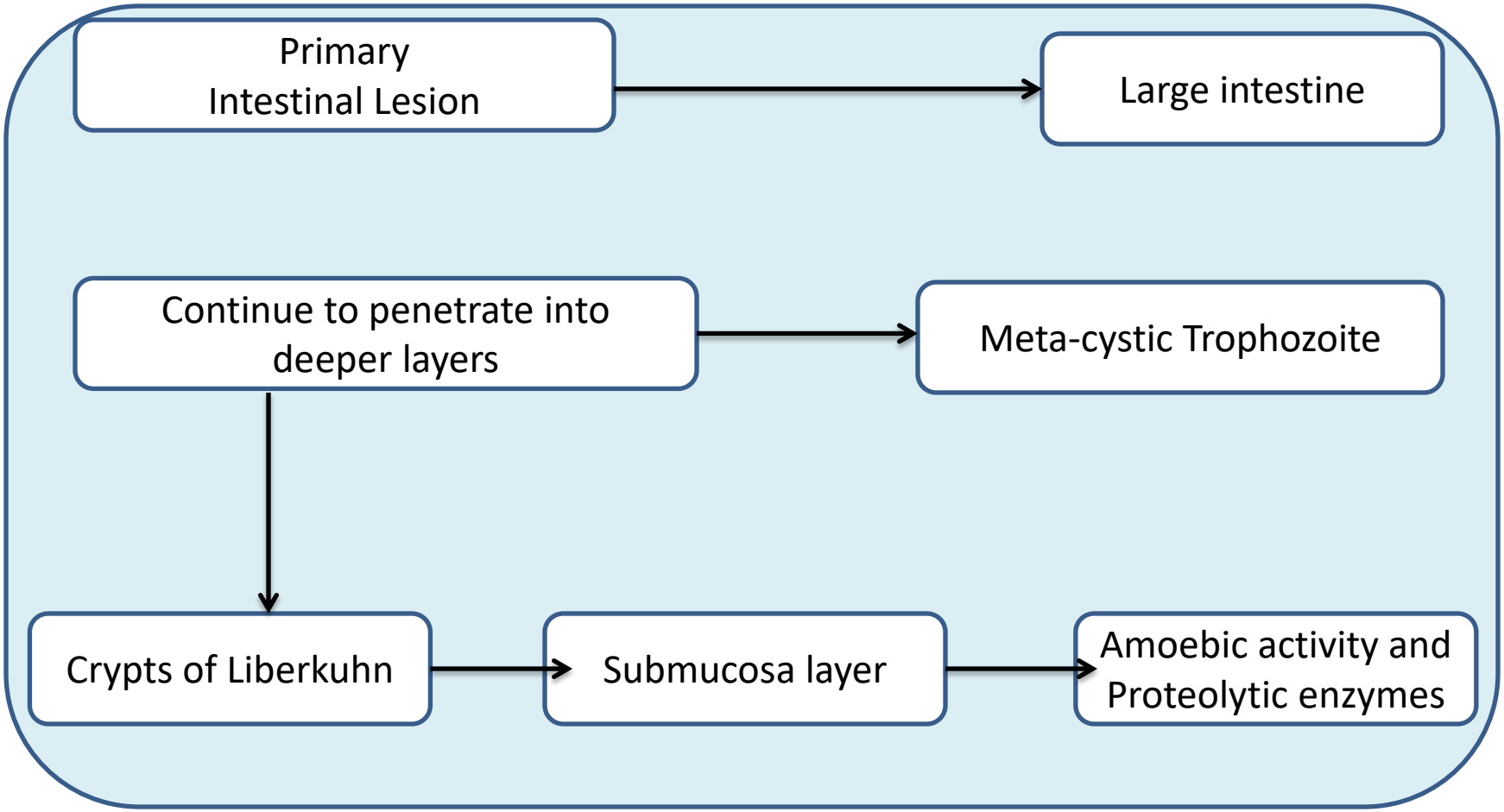

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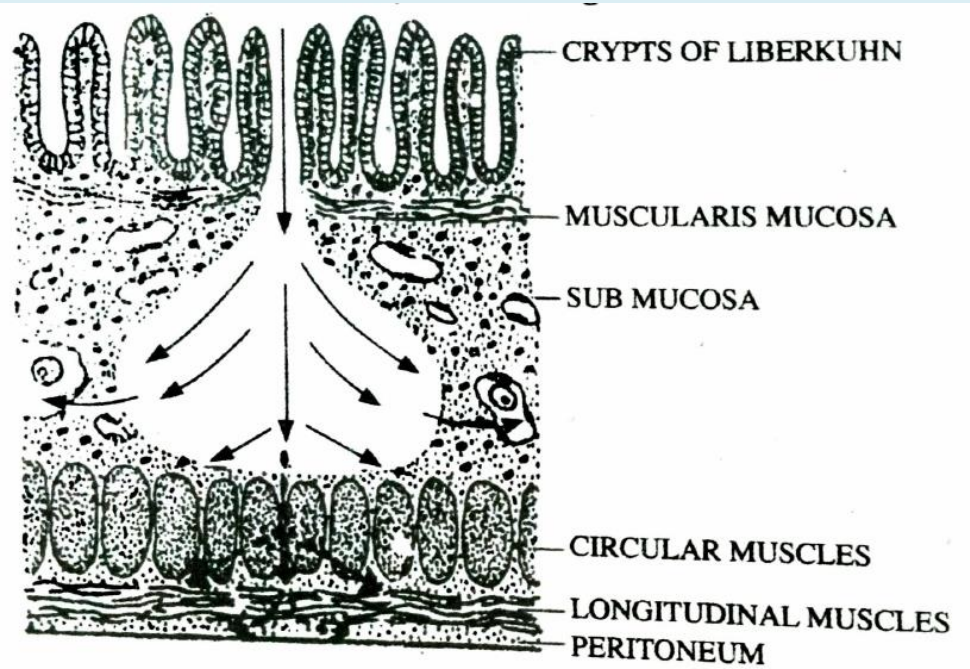
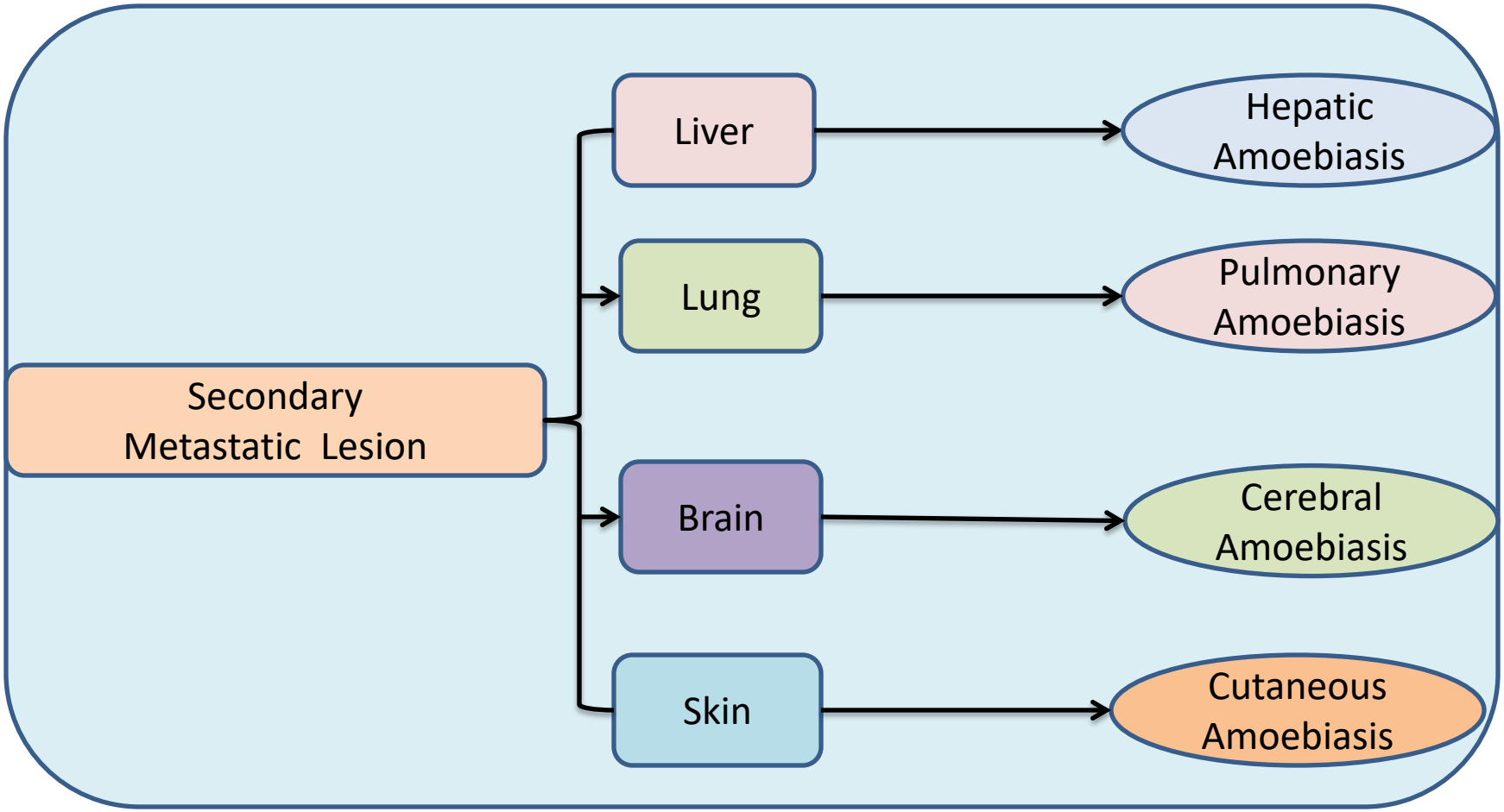


T.S of Intestine of man showing the process of tissue necrosis.
The flask shaped clear area indicates the process of tissue necrosis.
The arrows indicates the movement of parasites in different directions

Entameoba histolytica



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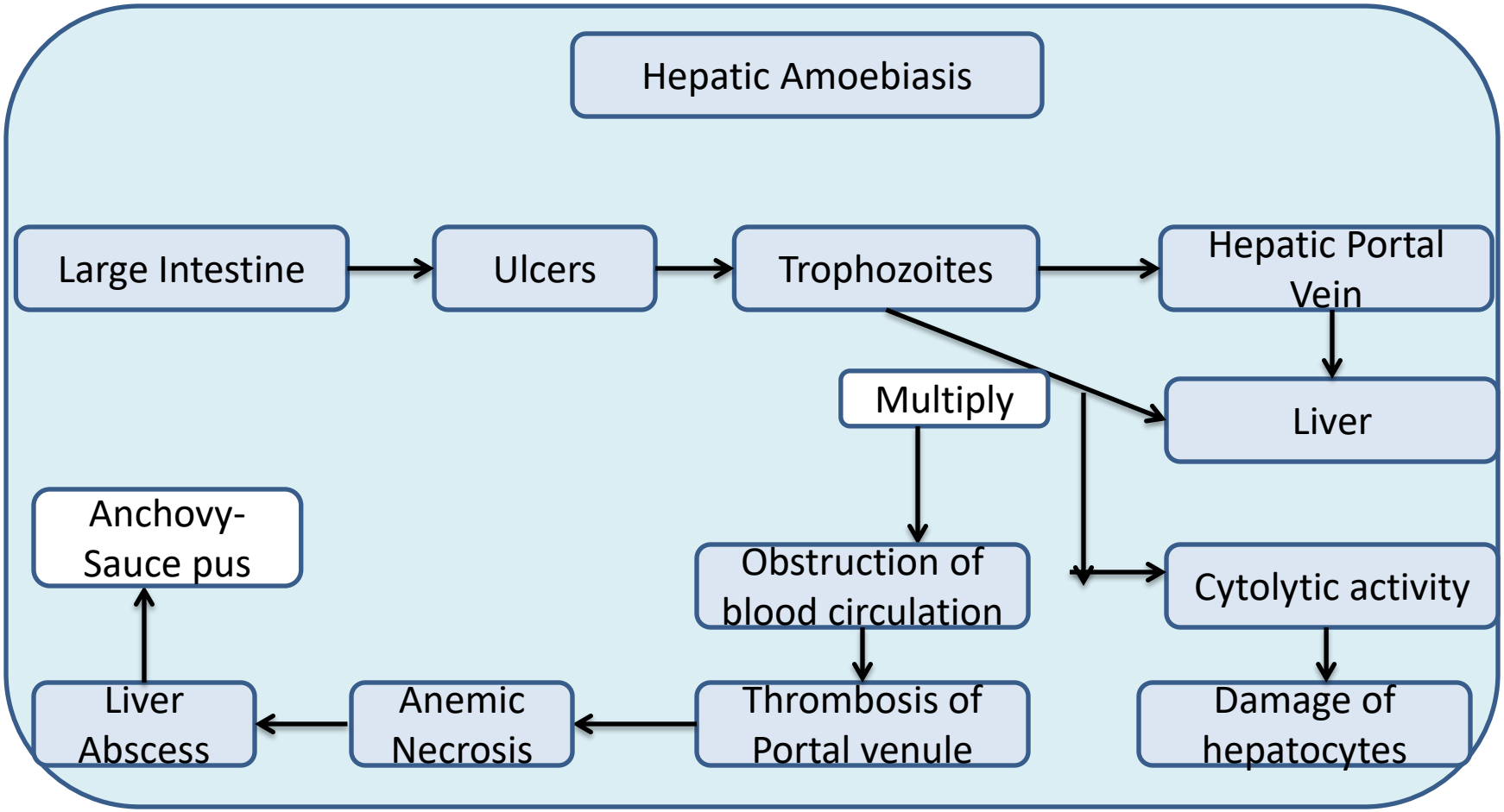

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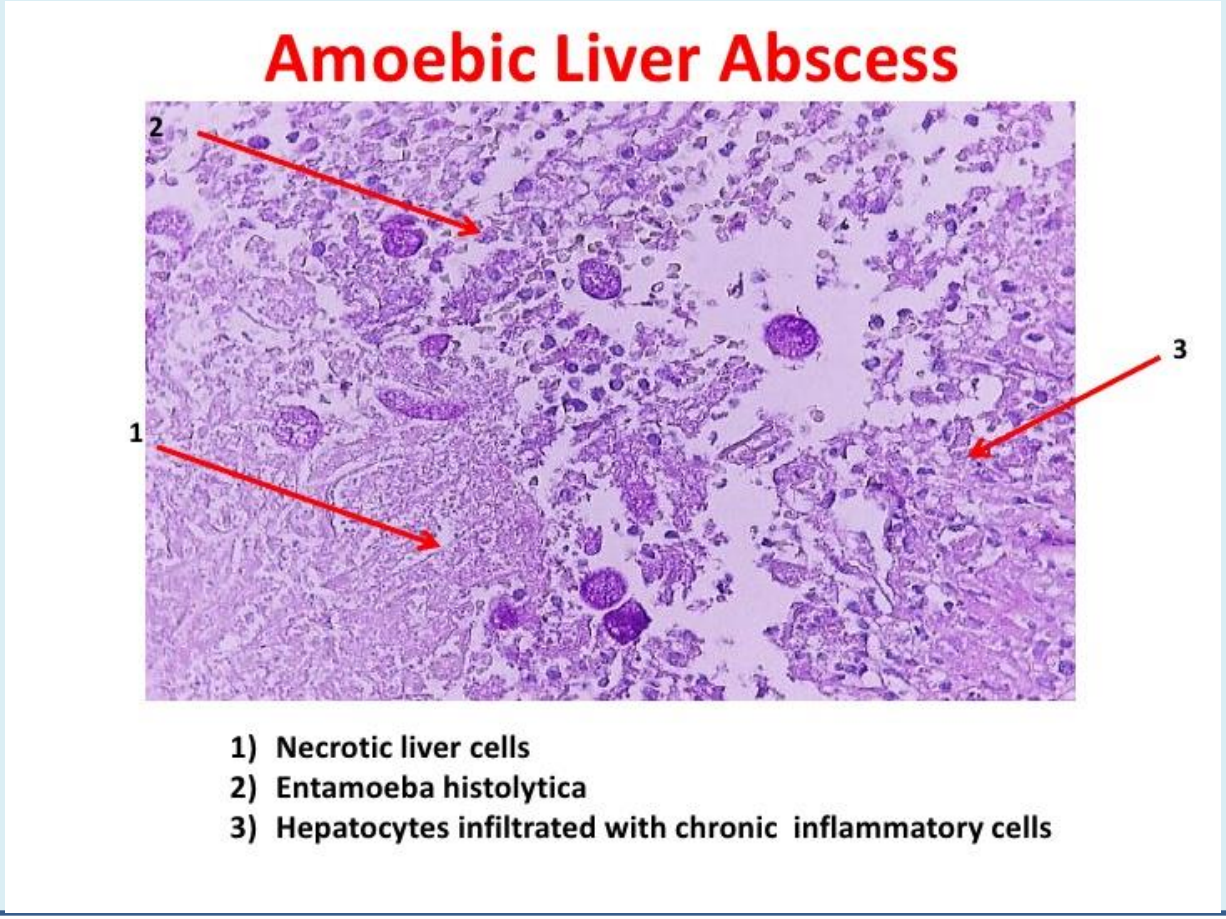

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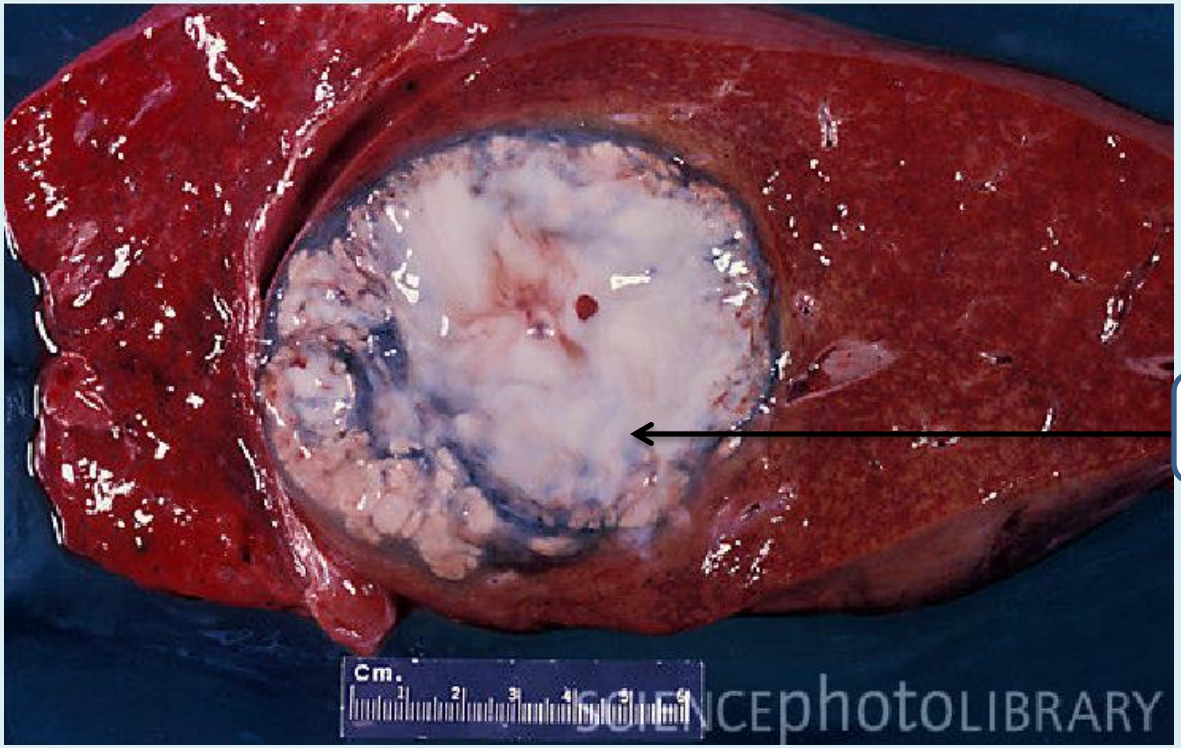

Amoebic
Liver Abscess

Entameoba histolytica

Pulmonary Amoebiasis

Single Abscess → Lower Lobe of Right Lung → Direct Extension of Liver Abscess

Entry of parasite into the lungs from intestinal wall via portal circulation is a rare case

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Cerebral Amoebiasis

Abscess formation in brain due to the infection of *Entamoeba histolytica* is rare

It arises as a complication of either hepatic or pulmonary abscess or both

The abscess is small, usually single and it is found in one cerebral hemisphere

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Cutaneous Amoebiasis

Rare reported complication

Occurs in areas adjoining visceral lesion

Patient with amoebiasis liver abscess, with perforation of abscess through abdominal skin.

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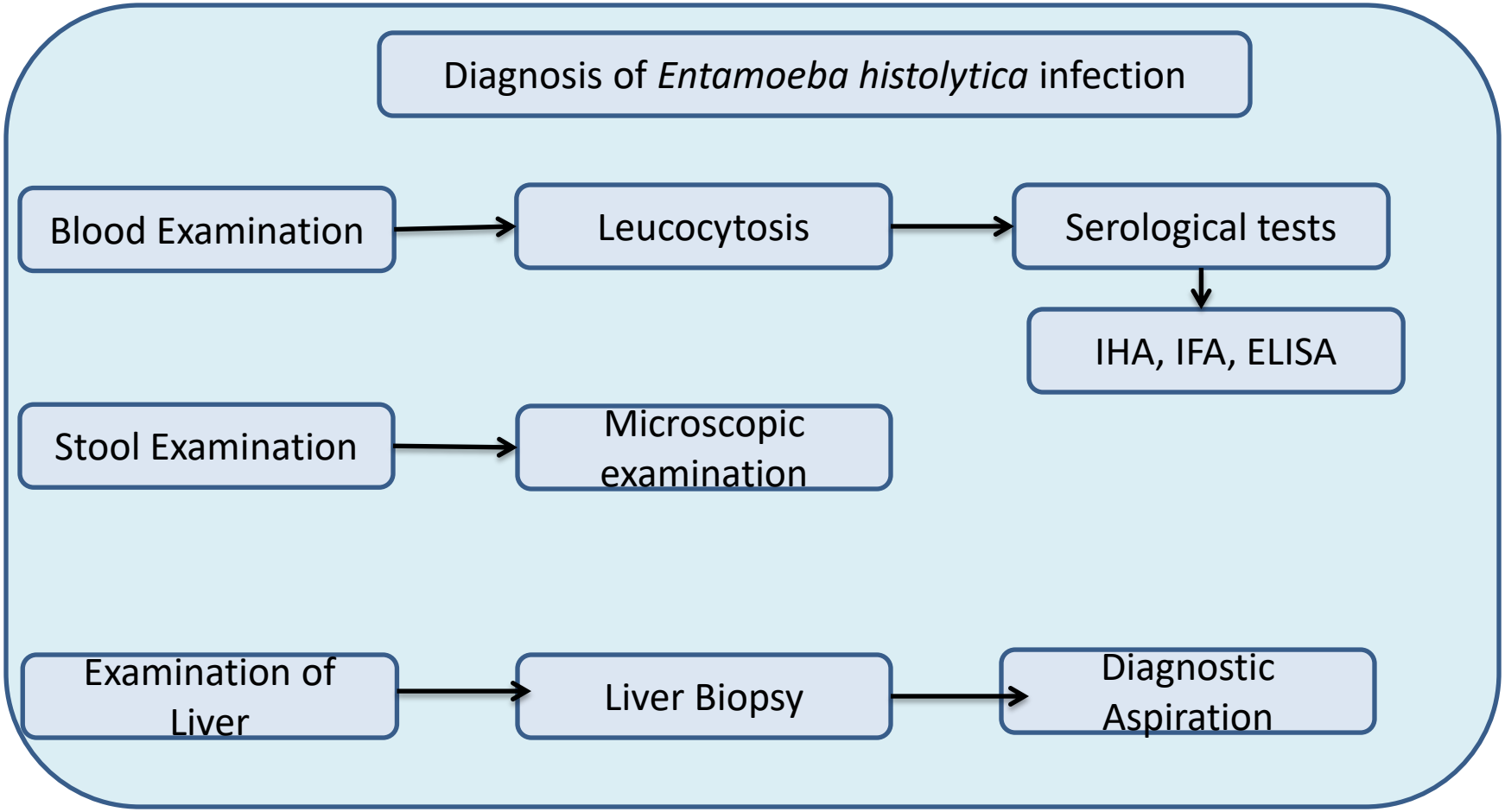

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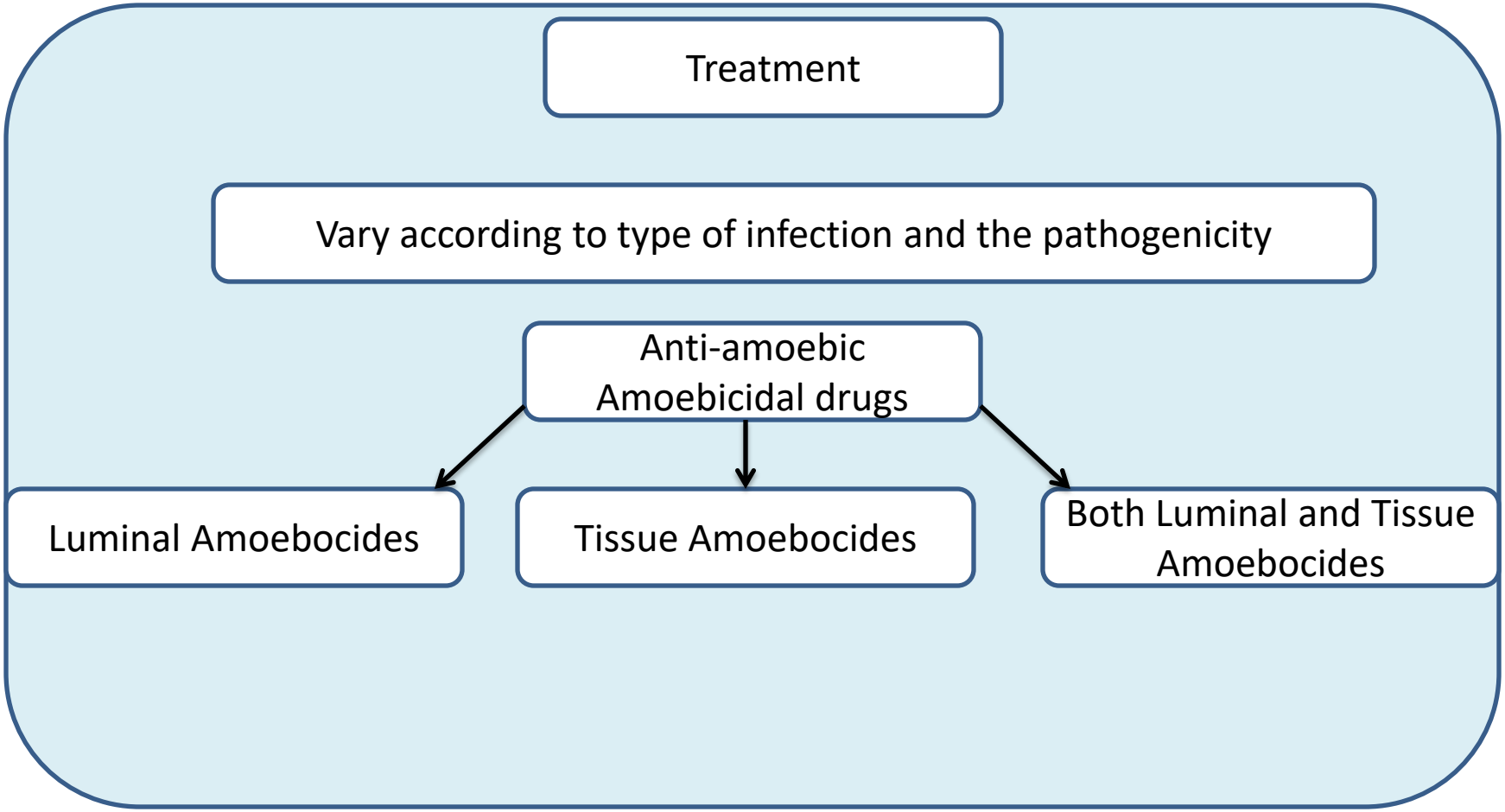

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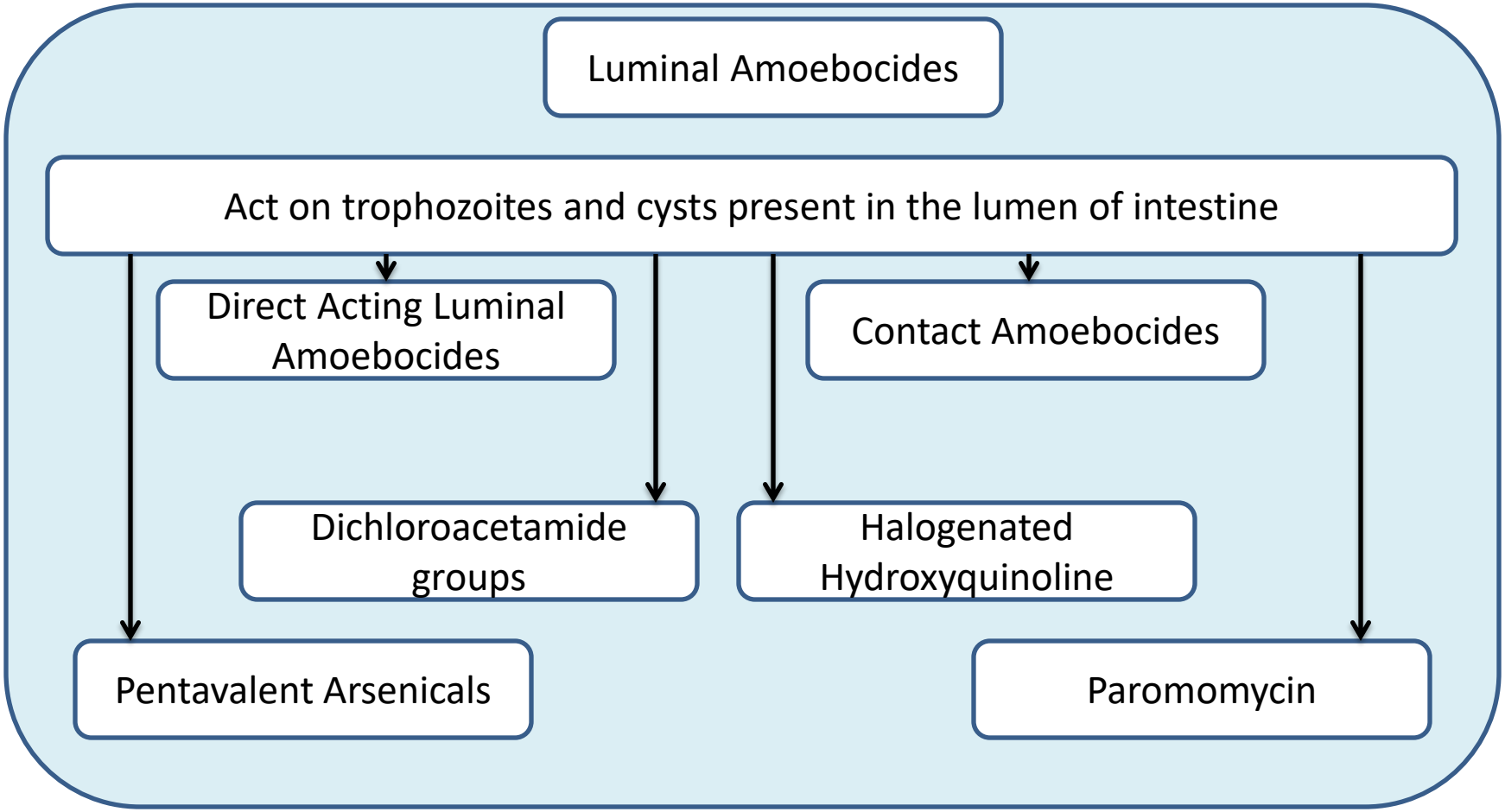

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Tissue Amoebocides

Act on trophozoites of *E. histolytica* in the intestinal wall, liver, lungs and other metastatic areas

Carapichea ipecacuanha

Emetine

Synthetic Emetine

↓

Less Toxic than natural Emetine

Chloroquine Phosphate

Highly toxic

Nausea, Vomiting, Diarrhoea, Muscle pain, Weakness, Dyspnoea

Entameoba histolytica

Both Luminal and Tissue amoebocides

These drugs act on parasites occurring both in the lumen of alimentary canal and in various organs

Relatively Non- toxic
Nausea, Vomiting

Niridazole

Highly Toxic
Nausea, Vomiting, Headache, Abdominal pain, Neurophysiological problems

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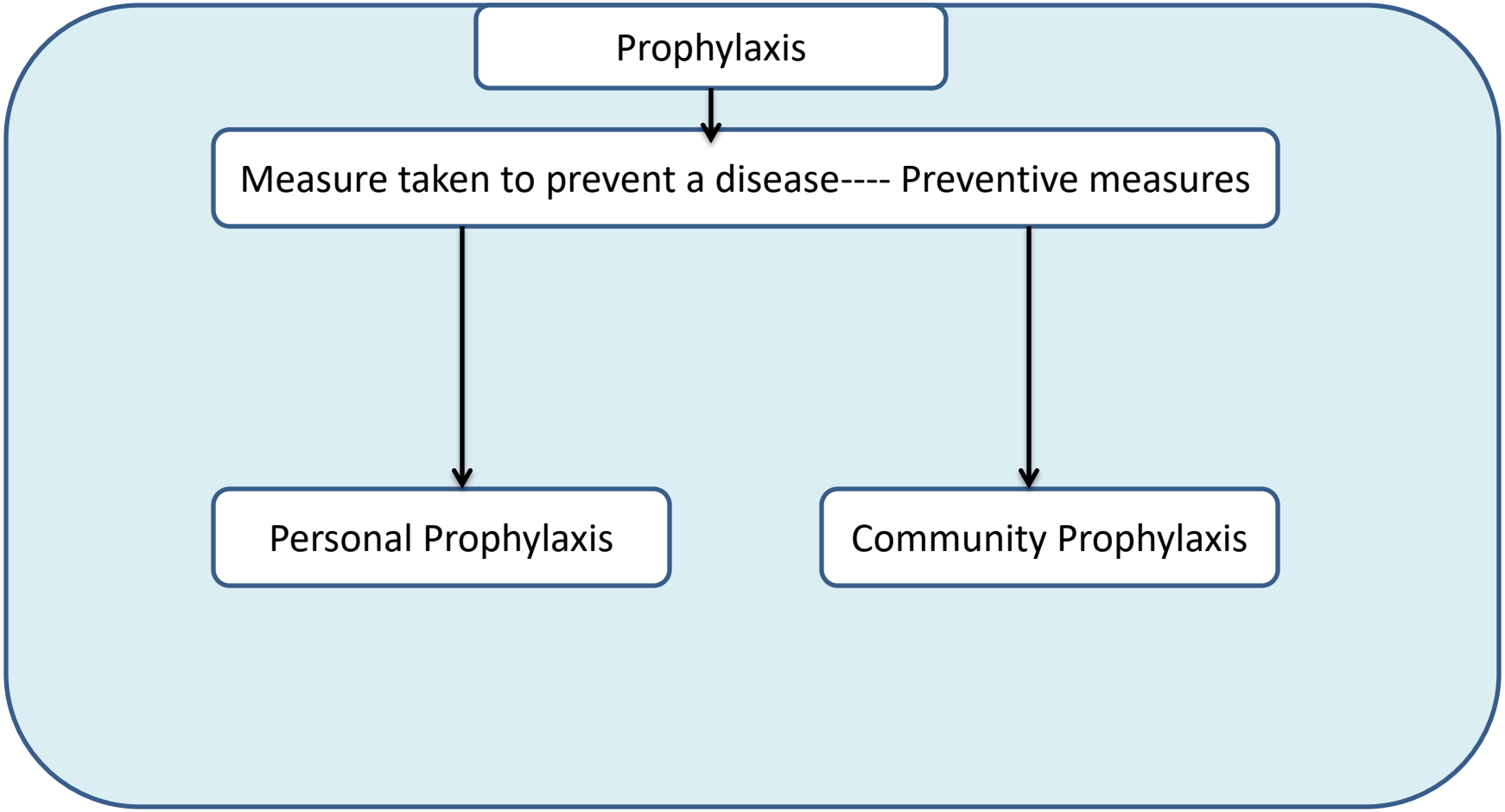

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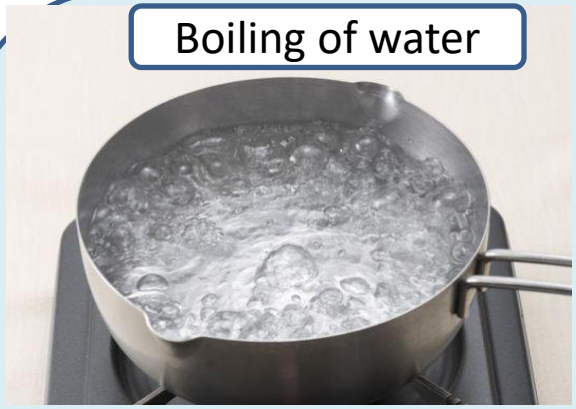
Personal Prophylaxis

Boiling of water



Washing of fruits and Vegetables

Avoid food contamination by vectors

General Cleanliness

Entameoba histolytica

Community Prophylaxis

Quick and proper disposal of human faeces should be managed. Underground sewage system should be developed.

Irrigation of land for growing vegetables with contaminated water should be avoided

Cysts may be killed by 50% alcoho, 1% formaldehyde, Phenol, Chlorine, Mercuric Chloride Caustic soda, HCl, Potassium Permanganate