

Medical classes of protozoa

- **Sporozoa.**
- **Flagellata (zoomastigophora)**
- **Ciliata**
- **Lobosea (sarcodina)**

- - **class :lobosea (sarcodina)** : This class include the amoeba species of human which can be divide into two group based on the location of infection :

- **Intestinal species**

- *Entamoeba histolytica*

- *Entamoeba dispar*

- *Entamoeba hartmanni*

- *Entamoeba coli*

- *Endolimax nana*

- *Iodamoeba butschlii*

- **Extra - Intestinal species**

- *Entamoeba gingivalis* (mouth)

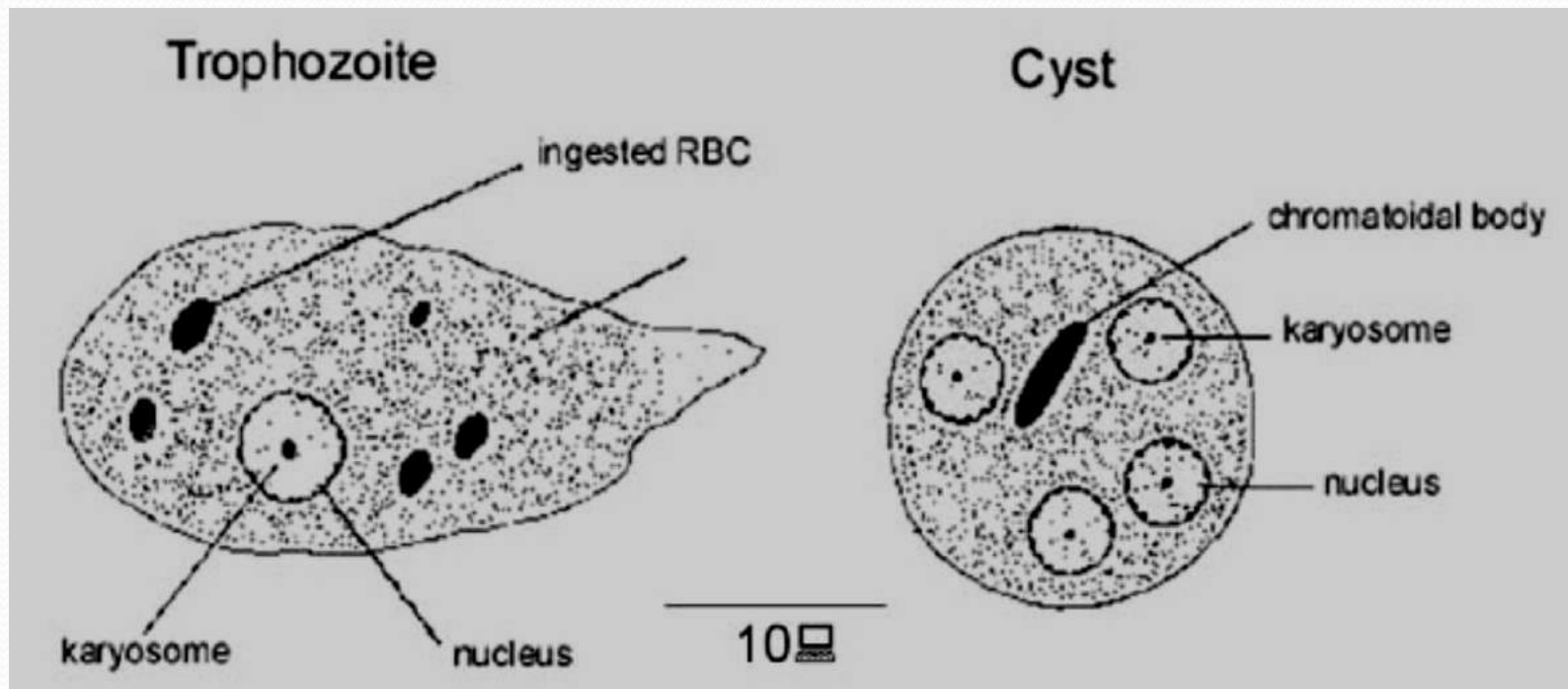
- *Naegleria fowleri* (brain)

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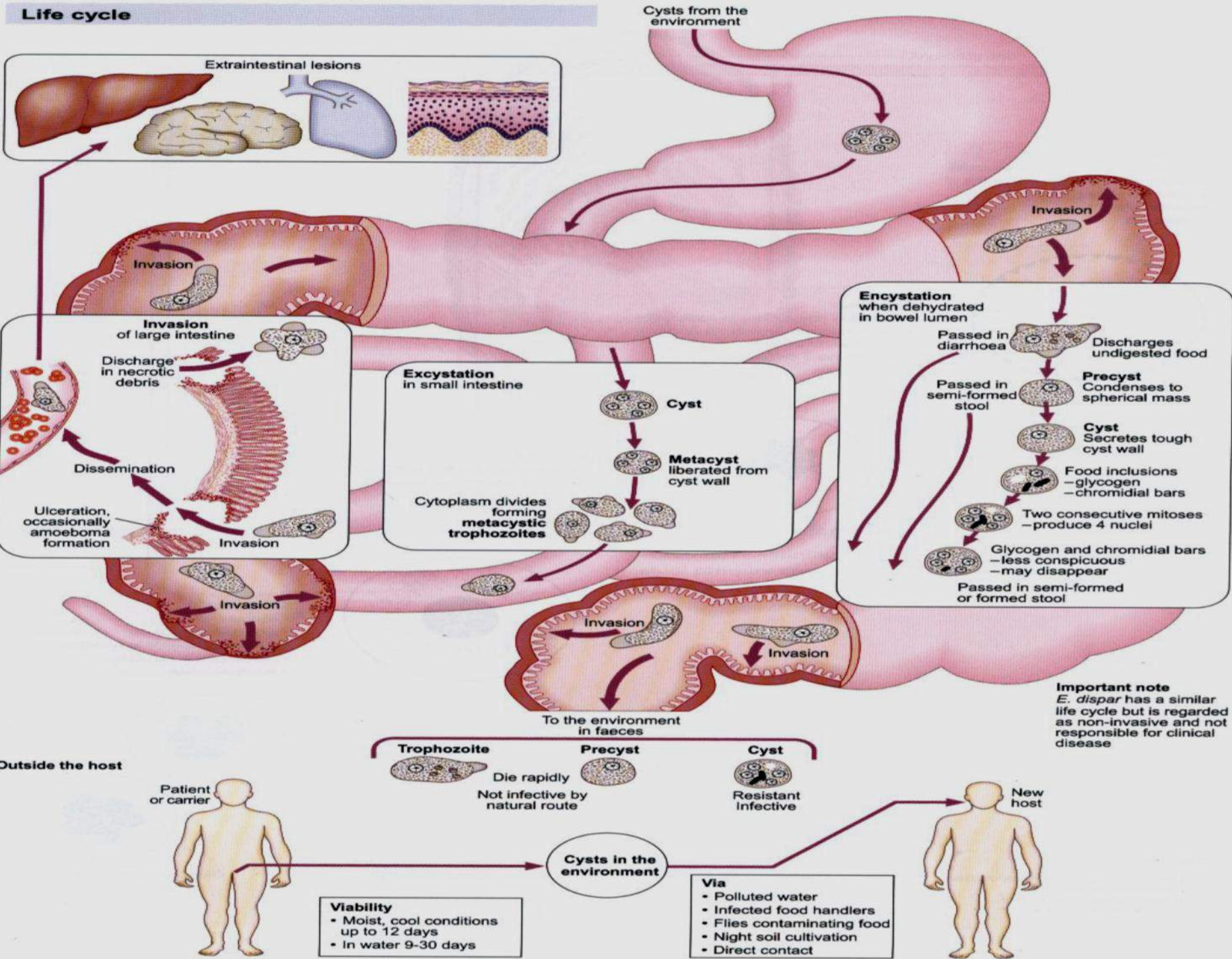
Entamoeba histolytica

- *E. histolytica* produces intestinal and extra – intestinal diseases . it is a leading cause of morbidity and mortality in developing countries . *Entamoeba histolytica* infect more than 10% of the world population. Amoebiasis can affect all age groups and both the sexes

Morphology



Life cycle



Clinical features

Clinical conditions associated with the *E. histolytica* infection are :

Intestinal :

Non- invasive :

asymptomatic

symptomatic

Invasive

acute dysentery

- fulminant colitis
- toxic megacolon
- chronic colitis
- amoeboma
- perianal ulceration

Extra – intestinal

liver abscess.

Lung abscess .

Brain abscess.

Genitor – urinary disease.

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Pathology



Pathology of *E. histolytica*

- Trophozoites can invade tissue after penetrating through the intestinal mucosa . the cyst lack this ability . trophozoite can come in contact with colonic mucosa when colonic mucus is depleted. Trophozoites attach to interglandular epithelium by surface lectins present on the surface of *Entameoba*. these lectins attach to receptors on mucosal cells. On contact with these cells trophozoites release **phospholipase-A** and **amoebopore** (a pore forming complement – like protein) this protein responsible for lysis of the cells. And *Entameoba* produce other enzymes that degrade collagen , elastin of extracellular matrix and disrupt glycoprotein bonds between mucosal epithelial cells in the gut. The trophozoite can lyse neutrophils , monocyte, lymphocytes and other cells .

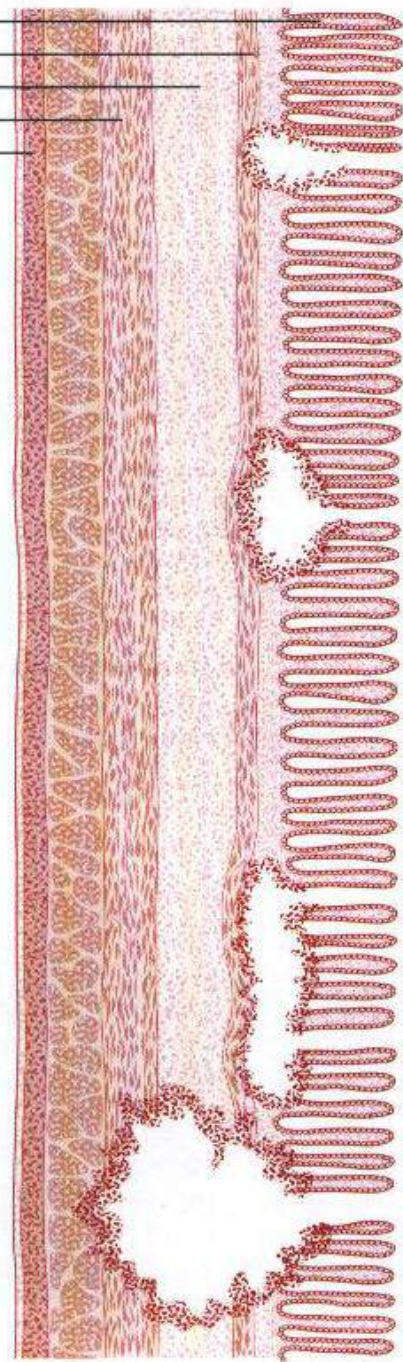
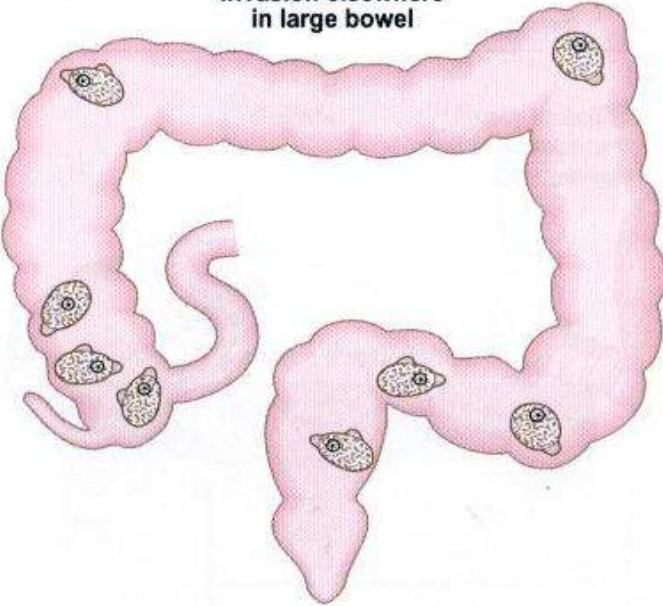
Invasion of the large intestine

Mucosa
Muscularis mucosae
Submucosa
Muscle layers
Subserosa

Site of entry
Initially minute then irregular ulcer shape, typically flask-like edges overhanging floor; necrotic lysed tissue; amoebae invading around discharge; necrotic debris, mucus and amoebae



Invasion elsewhere in large bowel



The primary ulcer

Invasion of mucosa via crypts
Repair may:
-overtake necrosis with healing
-keep pace with necrosis causing persistent superficial lesions

'Flask-shaped'

Lag behind - extension

Extension in mucosa

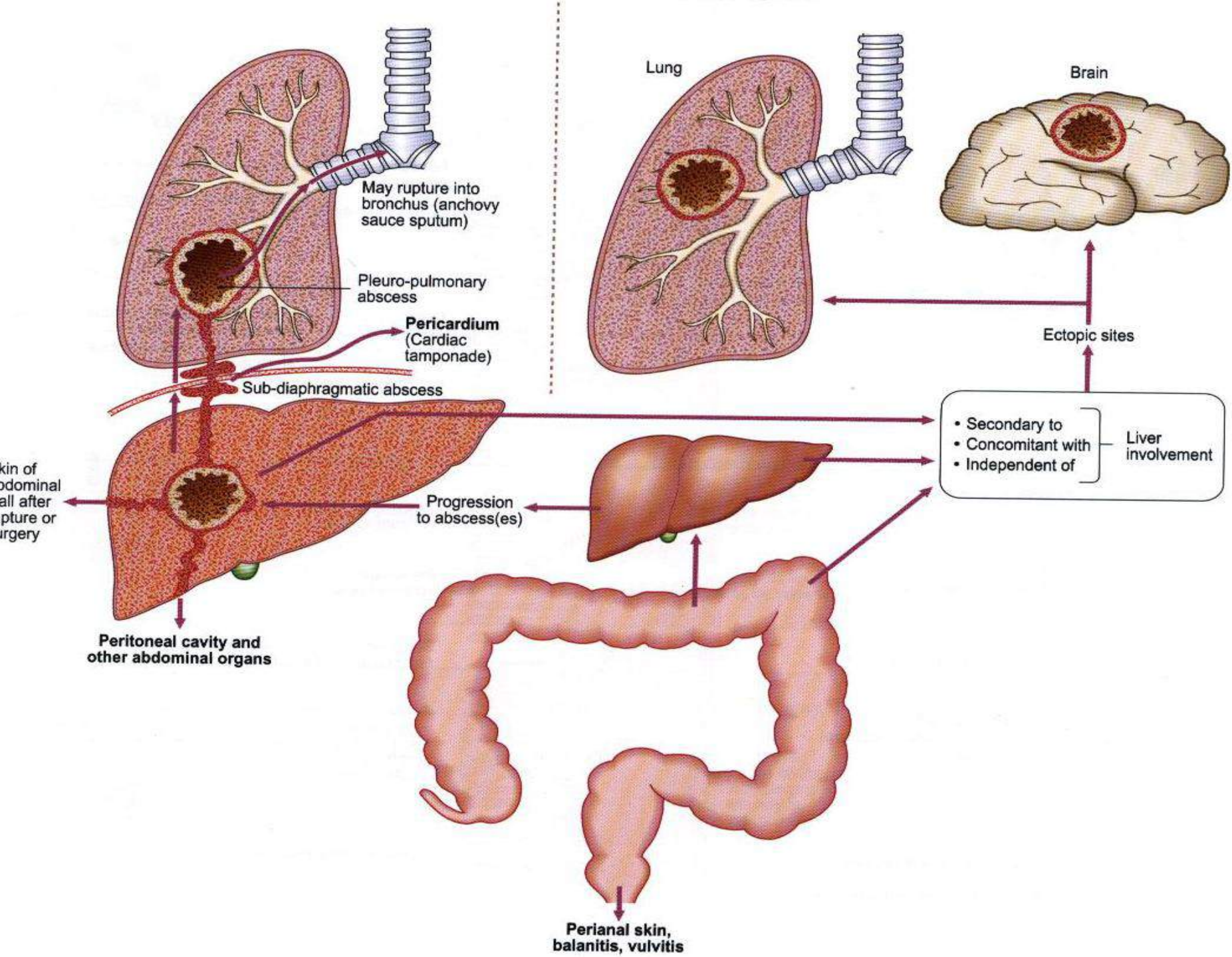
Muscularis mucosae relatively resistant
Accumulation of amoebae superficial to it
Lateral extension of lytic necrosis

Formation of sinuses

Abscesses may coalesce under intact mucosa
Later mucosa may slough with widespread ulceration

Deep extension

Muscularis mucosae eventually pierced (directly or via vessels)
Deep necrosis of sub-mucosa, even muscle and sub-serosa





- **Treatment :**

- In the treatment of amoebiasis , imidazole drug as metronidazole , tinidazole and ornidazole (750mg tid for 10 days).



Class two :The Ciliated Protozoa

Class : Ciliata

Balantidium coli

