



Lecture (8)

Intestinal Protozoa

Objectives:

 **Not given**

Done by: Moudi aldegether and Joharah almubrad

Reviewd by: member's name



Very important

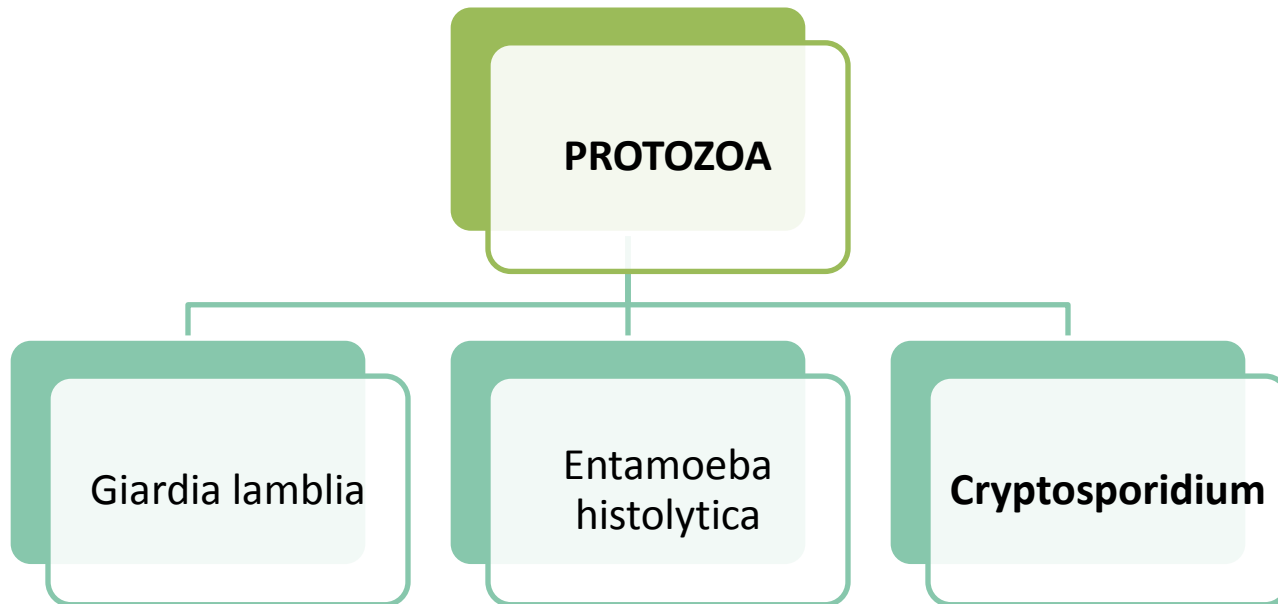
Additional information

Male doctor's notes

Female doctor's notes

MIND MAP

(Intestinal Protozoa)





PROTOZOA	HELMINTHS
Unicellular Single cell for all functions	Multicellular Specialized cells
1:Amoebae: move by pseudopodia. 2:Flagellates: move by flagella. 3:Ciliates: move by cilia 4:Apicomplexa(Sporozoa) tissue parasites	Round worms (Nematodes): - elongated, cylindrical, unsegmented. Flat worms : - Trematodes: leaf-like, unsegmented. - Cestodes: tape-like, segmented.



Intestinal Amoebae

ENTAMOEBEA HISTOLYTICA...

500 million people are infected. 100,000 deaths per year. Worldwide distribution. It is a waterborne infection.

There are 6 species of *Entamoeba*:

E. histolytica

E. dispar

E. hartmanni

E. coli

E. gingivalis

E. polecki

Non pathogenic

Entamoeba histolytica :

E. dispar

amoebae that are pathogenic.

The non invasive form

The 2 amoebae can't be distinguish by microscopic

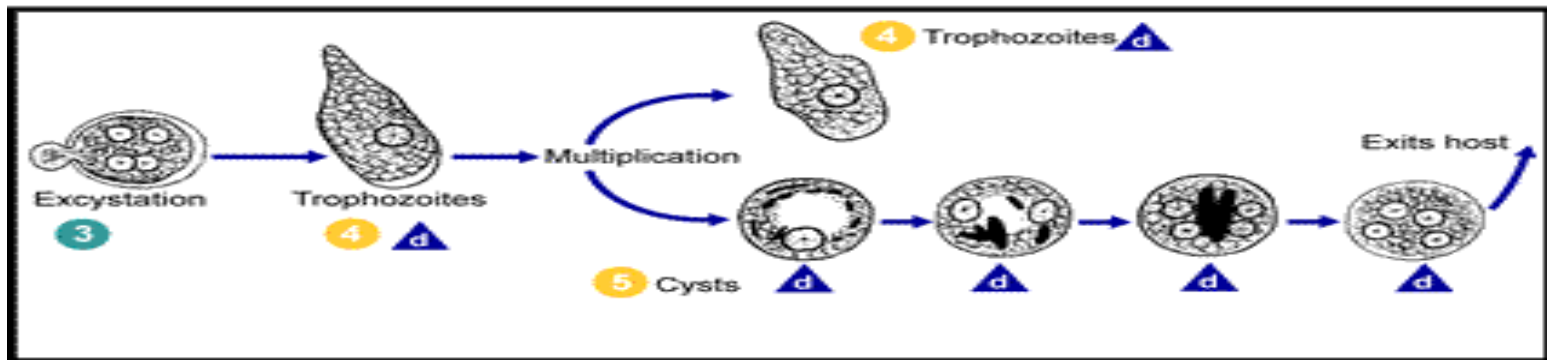
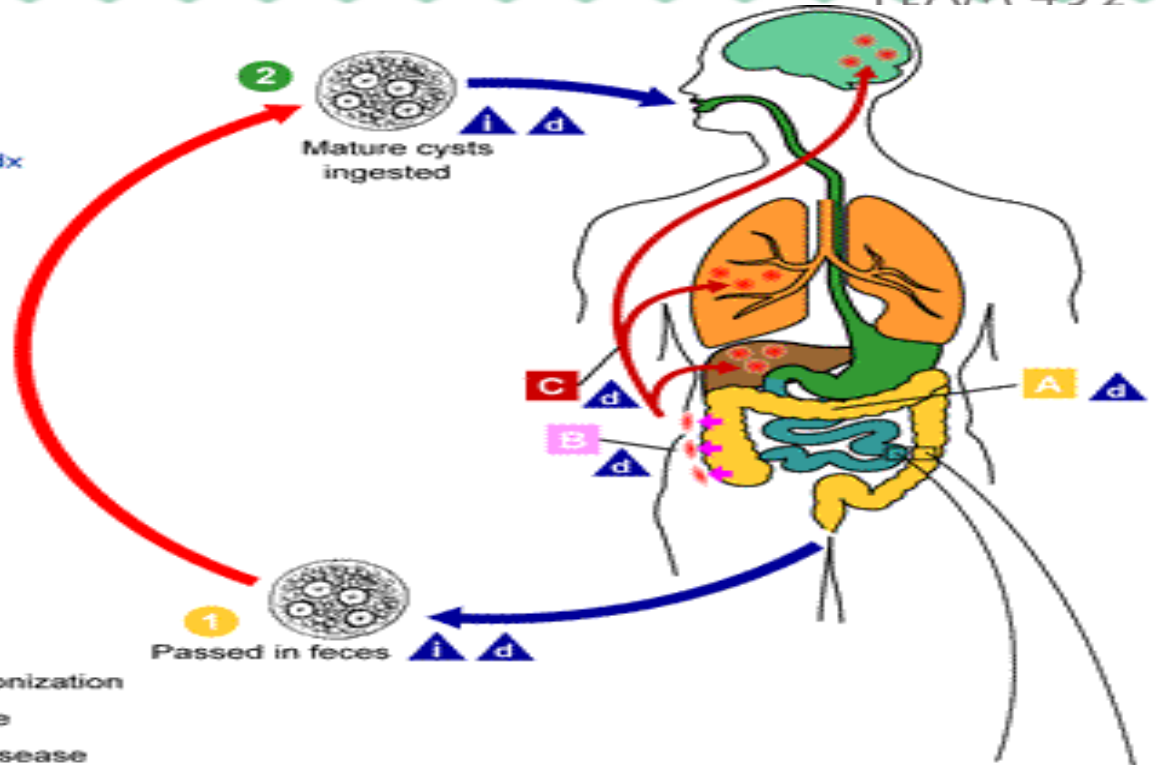
Observation

We need serology tests to differentiate between them





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Summary of the life cycle of *Entamoeba histolytica*

Cysts and trophozoites are passed in feces (**infective and diagnostic stage**).

Cysts are found in formed stool, whereas trophozoites are found only in diarrheal stool.

Infection by *Entamoeba histolytica* occurs by ingestion of mature cysts in fecally contaminated food, water, or hands

Excystation occurs in the small intestine and trophozoites are released, which migrate to the large intestine.

The trophozoites multiply by binary fission and produce cysts, and both stages are passed in the feces.

Trophozoites تتكاثر

بالامعاء

راح يطلع

cysts in stool

هاذي هي ال

(**infective and diagnostic stage**)

حتى لو طلع

Trophozoites in stool

(infective, diagnostic

stage) تعتبر

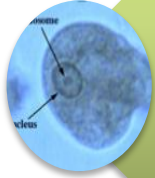
وتتحرك عن طريق

pseudopodia

The cysts can survive days to weeks in the external environment (protection by cyst walls) and are responsible for transmission.

Trophozoites in the stool are rapidly destroyed outside

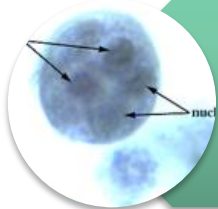




Trophozoite

vegetative stage, must encyst to survive in the environment. It is a fragile structure.

Cyst: infective stage. Resist to the harsh conditions of the environment.



Cyst: infective stage. Resist to the harsh conditions of the environment

Entamoeba histolytica

Mode of infection	<p>Water, food</p> <p>Flies can act as vector.</p> <p>Can be sexually transmitted person - to - person contacts</p> <p>Not a zoonosis</p>
The infective dose	can be as little as 1 cyst
The incubation period	can be from few days to few weeks depending on the infective dose

Cysts can survive for weeks at appropriate temperature and humidity.





(Entamoeba histolytica)
Intestinal amoebiasis :

PATHOLOGY

Ability to hydrolyse host tissues with their active enzymes present on the surface membrane of the trophozoite.

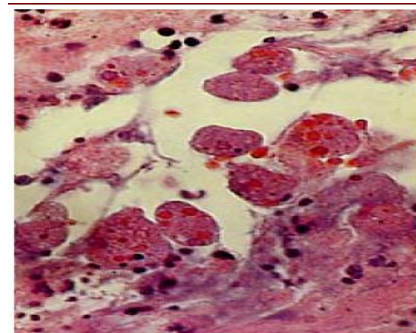
Lesions are found in the cecum, appendix, or colon.

They may heal. If perforation of the colon occurs, this may lead to peritonitis that can lead to death.

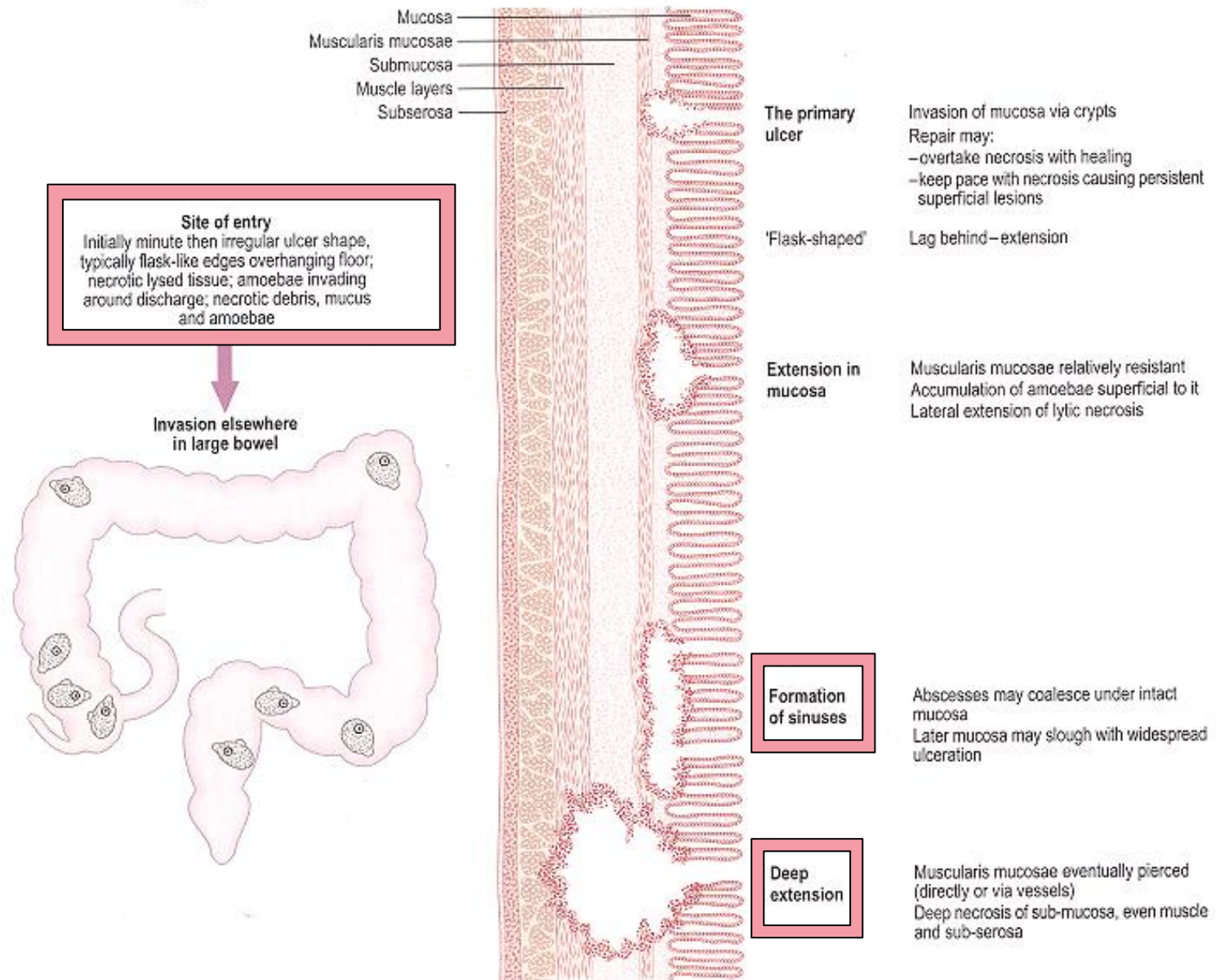
Amoeboma : Granulomatous mass obstructing the bowel

***E. Histolytica* in mucosa.**

Numerous trophozoites can be seen with ingested erythrocytes.



Invasion of the large intestine



PATHOLOGY : Intestinal amoebiasis

Complications

Complications and sequelae

**Perforation
Haemorrhage (rare)**

Secondary infection

Amoeboma (rare)
(Clinically simulates neoplasm)
- intussusception
- obstruction

Invasion of blood vessels

Direct extension outside bowel



Peritonitis
Haemorrhage

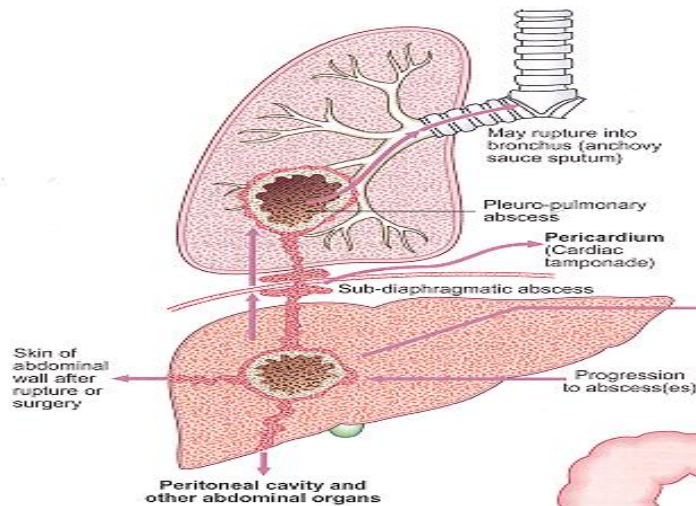
Surrounding inflammatory reaction and
fibroblastic proliferation

A mass under oedematous mucosa with
- internal abscesses of necrotic tissue and amoebae
- surrounding granulomatous tissue zone with eosinophils,
lymphocytes and fibroblasts
- outer firm nodular fibrous tissue

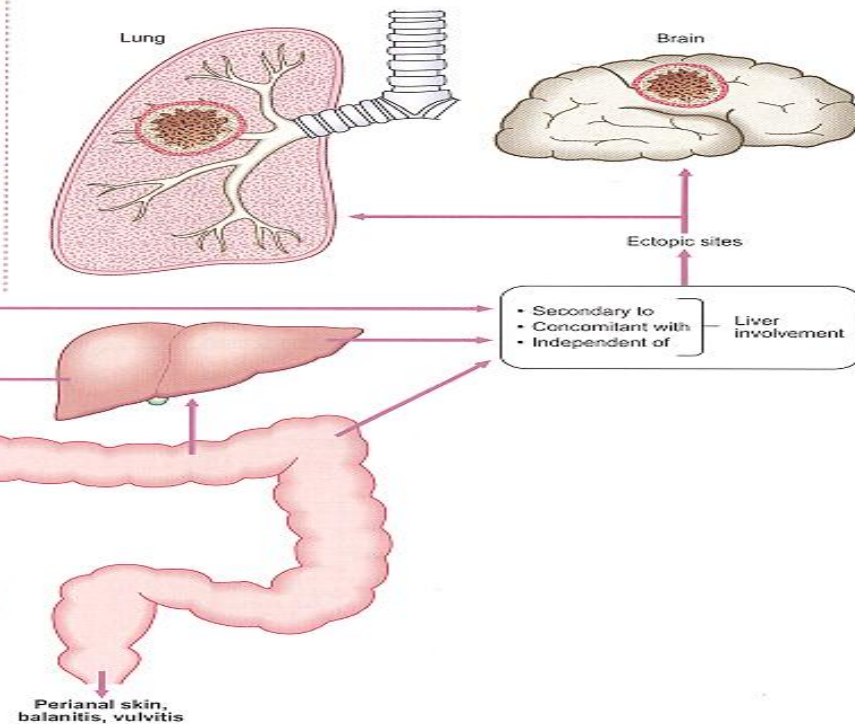
Extraintestinal lesions-page 52

PATHOLOGY: Extra-intestinal amoebiasis :

Direct extension



Haematogenous spread



Example of the complications liver, brain , lung abscess

	Giardiasis	Amoebiasis	Cryptosporidium
Organism	Giardia lamblia	Entamoeba histolytica	Cryptosporidium parvum
Infective stage	Cysts	Cysts	Oocyst
Diagnostic stage	Cysts or trophozoites	Cysts	Oocyst
Transmission	Contamination of food and water	-Water, food -sexually transmitted person -to - person contacts -Vector: Flies - Not a zoonosis	Contamination of food and water
Ip	1-2 weeks	days to weeks	
Clinical picture	<ul style="list-style-type: none"> • Asymptomatic (majority) • Symptomatic: Typical: diarrhoea for about 6 wks, Atypical: severe diarrhoea , <u>malabsorption especially in children</u>	<ul style="list-style-type: none"> • Asymptomatic: carrier • Symptomatic: -Intestinal: amoebic dysentery -Extra intestinal: Liver, brain , lung abscess	
Laboratory diagnosis	<u>Stools examination :</u> - Microscopy for cysts or trophozoits -Detection of Giardia antigens in stools <u>Examination of duodenal contents :</u> trophozoites	<ul style="list-style-type: none"> • Intestinal : Stools examination : Wet mount (cysts and trophozoites) Concentration methods (only cysts) Serology(invasive infection): IHA, ELISA <ul style="list-style-type: none"> • Extra-intestinal: Serology: IHA , ELISA Microscopy of tissues or fluids	Microscopy: Finding Cryptosporidium ethier by using <ul style="list-style-type: none"> • acid-fast stain • safranin • Fluorescent: Crypto-Gardia FAT
Treatment	Metronidazole Note: Trophozoites are also passed in stool but the don't survive in the environment so the don't infect	<ul style="list-style-type: none"> • Intestinal : - Asympromatic (cysts only): diloxanide furoate (Furamide) - Symptomatic(cysts and trophozoites): metronidazole <ul style="list-style-type: none"> • Extra-intestinal:Metronidazole 	Self-limited in immunocompetent patients In AIDS patients : paromomycin



Summary

- The infective and the diagnostic stage of giardia lamblia and **entamoeba histolytica** is cysts.
- The infective and the diagnostic stage of cryptosporidium parvum is **ooocyst**
- All of them are transmitted through the contamination of food and water but the entamoeba histolytica can also sexually transmitted person -to -person contacts, and flies can act as vector.
- Symptoms o of giardiasis typically diarrhoea in atypical cases can be companied with malabsorption especially in children
- **Entamoeba histolytica** symptom is amoebic dysentery
- Diagnosis of giardiasis by **stools examination “microscopy for cysts”**
- Diagnosis of intestinal amoebiasis by **stools examination and extra intestinal amoebiasis by serology “ELISA”**
- Diagnosis of cryptosporidium by using acid-fast stain, safranin, or crypto-giardia FAT
- Cryptosporidium is **self-limited in immunocompetent patients in AIDS patients we treat it by paromomycin**
- The infective dose of entamoeba histolytica can be as little as 1 cyst and the incubation period can be from few days to few weeks depending on the infective dose
- *Entamoeba histolytica* and *E. Dispar* can't be distinguish by microscopic observation we need serology tests to differentiate between them
- Intestinal amoebiasis complications: perforation hemorrhage, invasion of blood vessels, intestinal abscess and extra intestinal lesions.
- Extra-intsetinal amoebia complications liver, brain , lung abscess



QUESTIONS

1. Causative agent of amoebiasis is:

- A. Amoeba proteus
- B. Entamoeba coli
- C. Entamoeba histolytica
- D. Entamoeba gingivalis

2. Infective stage of Giardia lamblia is:

- A. Trophozoite
- B. Pre-cyst
- C. Uninucleate
- D. Cyst

3. Treatment of Cryptosporidium in AIDS patients is:

- A. Paromomycin
- B. Furamide
- C. Metronidazole
- D. Self limited

4. Diagnosis of Giardiasis by :

- A. Acid-fast stain
- B. Safranin
- C. Stools examination microscopy for cysts
- D. Biopsy from the intestine

QS	1	2	3	4
Answer	C	D	A	C

FOR ANY SUGGESTIONS AND PROBLEMS PLEASE CONTACT:

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