Entamoeba histolytica

Entamoeba histolytica is a protozoan that causes the disease amebiasis. The life cycle of the organism includes an active trophozoite stage and a cyst stage. The trophozoite stage exists only in hosts and in fresh loose stool. Cysts are capable of surviving outside the host in water, soil, and foods for several months. When cysts are ingested in contaminated food or water, they exist and release trophozoites into the digestive tract. Infection can cause bloody diarrhea or result in a liver abscess. Inside the digestive tract, trophozoites are capable of invading the intestinal wall causing flask-shaped ulcers and can reach the bloodstream. From there, the protozoa can reach different organs including the liver. A common outcome of this invasion is a liver abscess that has the appearance of anchovy paste and can cause severe right upper quadrant pain. This organism can be identified via visualization of ingested red blood cells in the cell cytoplasm or visualizing cysts in the stool with four nuclei, which are characteristic of Entamoeba histolytica. Treatment includes metronidazole and iodoquinol.



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Pathophysiology

Protozoa
Propeller-protozoa
Entamoeba histolytica is a protozoan, which is a unicellular eukaryotic organism.

Amebiasis
Amoeba
Entamoeba histolytica is a protozoan that causes the disease amebiasis. Symptoms include bloody diarrhea or a liver abscess.

Ingestion of Cysts in Food and Water
Sisters in water
Cysts are capable of surviving outside the host in water, soil and foods for several months. The disease is contracted when cysts are ingested in contaminated food or water.

Signs and Symptoms

Bloody Diarrhea
Red Toilet
Inside the digestive tract, Entamoeba trophozoites are capable of invading the intestinal wall and can cause severe bloody diarrhea.

Flask-Shaped Ulcer
Ulcer Flasks
When these protozoa invade the intestinal wall, they create characteristic flask-shaped ulcers that can help with diagnosis.

Liver Abscess
Liver and Abscess-guy
After invasions of the intestinal wall, Entamoeba can enter the bloodstream and reach different organs, including the liver. A common outcome of this invasion is a liver abscess.

Anchovy Paste
Anchovy-cans
Liver abscesses caused by Entamoeba histolytica have a characteristic appearance that resembles anchovy paste.

RUQ Pain
RUQ Pain-bolts
Entamoeba histolytica can cause severe right upper quadrant abdominal pain due to invasion of the intestinal wall and formation of a liver abscess.

Diagnosis

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RBCs in Cytoplasm of Trophozoite

RBCs in Trophy

The trophozoites of Entamoeba histolytica have a characteristic appearance due to ingestion of red blood cells in the cell cytoplasm. Visualization of trophozoites with red blood cells can help diagnose amebiasis.

Cyst With Four Nuclei

Sisters with (4) Fork nuclear-signs

The cyst form has a characteristic appearance with four nuclei, which can help with identification of the organism.

Treatment

Metronidazole

Metro-knight

Treatment for amebiasis includes metronidazole, which alters oxidative patterns within the protozoa, resulting in death.

Iodoquinol

Eye-dodo-queen

Iodoquinol is a quinoline derivative that can be used in the treatment of amebiasis. This drug is poorly absorbed from the gastrointestinal tract and remains in the intestinal lumen, where it acts by chelating ferrous ions essential for protozoan metabolism.

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