



Universidad Autónoma de San Luis Potosí
Facultad de Ciencias Químicas
Laboratory of Microbiology General.



PARASITOLOGY

Hernández Ortega Carlos Fernando

Pacheco María Dolores

Reyna Muñiz Verónica Nayely

Rodríguez Tenorio Rosa Carolina

Juana Tovar Oviedo

Rosa Elvia Medina Noyola

Group 8:00-9:00.



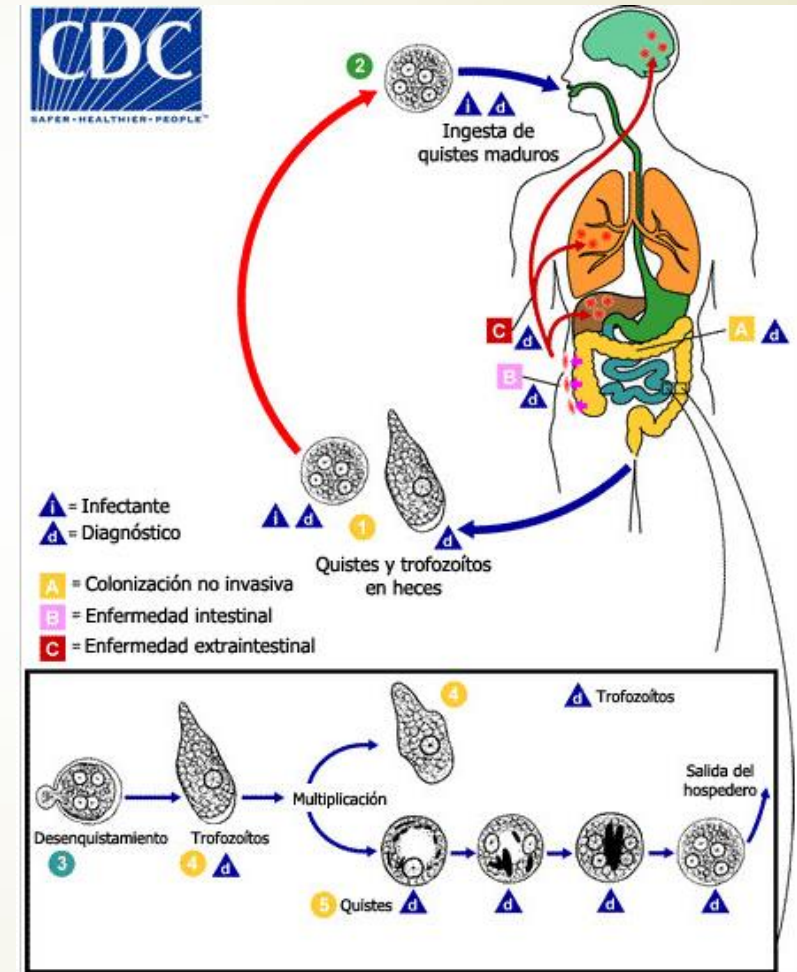
Description of a case of amebiasis
in the colon by *Entamoeba*
histolytica.

INTRODUCTION

Among the infectious agents common in humans are intestinal parasites.

According to the OMS, there are 3,500 million parasitized people in the world and about 450 million suffer from parasitic disease.

Endemicity levels depend on factors such as health conditions and sociocultural elements.



OBJECTIVES.

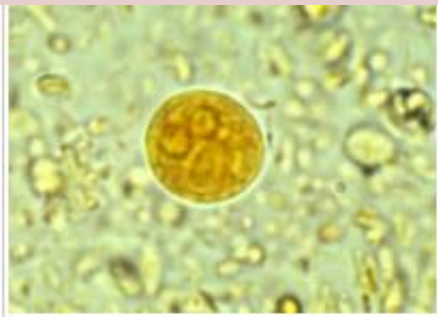
- ❖ To know and to identify the parasites present in samples of earth, taken from different zone.
- ❖ To associate the theoretical knowledge with the practice for the identification of parasitic forms and to know the application in the labor field through a clinical case and through the review of articles.



ENTAMOEBIA HISTOLYTICA

*Entamoeba histolytica is a protozoan parasite that invades the intestine and causes amebiasis.

* It belongs to the edge Sarcomastigophora, class Lobosea and family Entamoebidae.



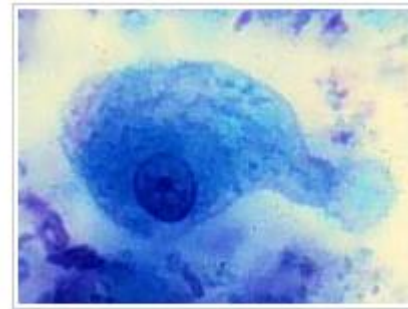
Quiste inmaduro con vacuola de glucógeno
Imagen: CDC/Dr. M. Melvin

*The invasive vegetative ameboid form is known as trophozoite and reaches a measurement of 12-40 μm , its karyosome is punctiform and its chromatin attached to the nuclear membrane.

* Cysts are resistance and infective form, are spherical or oval with a resistant wall of chitin, measuring 10-12 μm and have 4 nucleus.

*E. Hystolitica can contaminate soils, surviving for long periods on land and polluting vegetable crops.

* Its reservoir is the human intestine, moist soil, sewage, food and fomites.



Trofozoíto. Emisión de seudópodo (lobópodo).
Imagen: Chiang Mai University, Thailand

* The incubation period varies from 1 to 4 weeks with symptoms from intestinal inflammation, infection, fulminant colitis, peritonitis to extraintestinal amebiasis such as hepatic, cerebral, pericardial and genitourinary abscesses.

* The diagnosis is made by means of light microscopy and the ELISA test.

ARTICLE #1

A 42-year-old male patient visits the San Rafael Hospital in Alajuela, Costa Rica, for a mucosanguinolytic diarrhea with a three-week history of onset, showing that the stools were black, often 10 times Per day, also refers to diffuse abdominal pain that is relieved when defecating, progressive loss of weight of 4 kilos in 3 months, associated with asthenia, adynamia, loss of appetite and tenesmus.

METHODOLOGY

Serial coproparasitoscopic examination (8 days).

Observation with lugol solution (fresh) and 0.9% saline solution

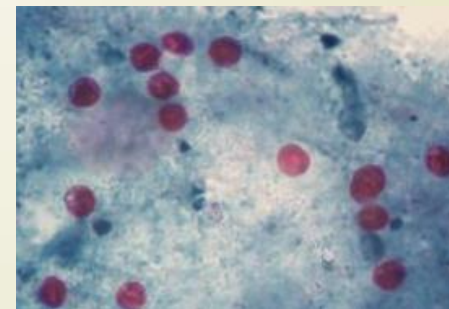
Additional tests

Stains for treponema, Campylobacter and Cryptosporidium.

HIV Testing

Gastroscopy and colonoscopy

Biopsy.

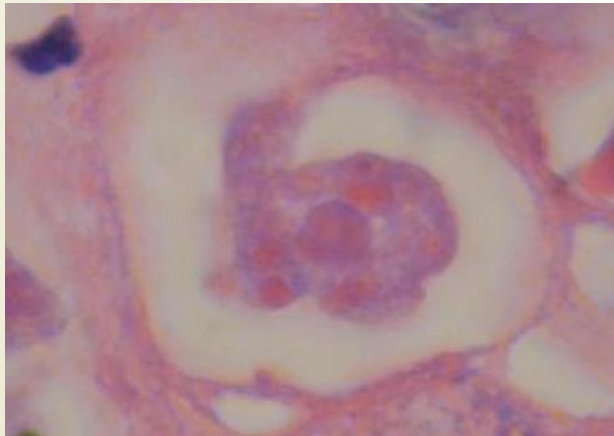


RESULTS

- In the microbiology laboratory, the presence of binucleate and tetranuclear cysts, with spherical and oval form, was observed before the microscope, however it was demonstrated the absence of *Entamoeba histolytica* in its trophozoite form.



Quiste de *E.histolytica* teñida con lugol.



Trofozoíto de *E.histolytica* con eritrocitos fagocitados.(Rev. Costarricense de ciencias médicas.

Fresh coproparasitoscopic examination: cysts 9-11 microns in diameter, uninucleate and binucleate were found, as well as trophozoites of 15-20 μm .



Ferric hematoxylin staining: presence of binucleate and tetranuclear cysts of 10 μm diameter, with fine granular appearance.



HIV test: negative
Tinctures for *Treponema*, *Campylobacter* and *Cryptosporidium* negatives.



Biopsy: identification of rounded structures with vacuoles and nucleus, covering the whole mucosa of the colon.

Article # 2 Intestinal parasites in Argentina: main causative agents found in the population and in the environment

The objective of this work was to carry out a bibliographic review of the parasitic agents causing enteric diseases found in the Argentine Republic, both in the fecal matter of people and in the environment, since the parasitic contamination of the latter constitutes a direct indicator of the risk of Infection by intestinal parasites.



Tabla 1 Protozoos intestinales encontrados en muestras ambientales de la República Argentina

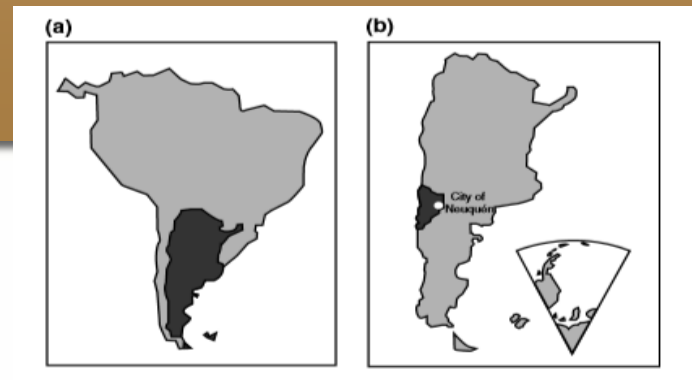
Protozoos	Encontrado en	Provincia
Amebas	Agua de consumo	Buenos Aires ²⁴
	Agua de río	Salta ²⁹
	Suelo	Buenos Aires ¹³
Amebas comensales ⁴	Agua de consumo y suelo	Buenos Aires ⁷
<i>Balantidium coli</i>	Agua de río	Salta ²⁹
<i>Chilomastix mesnili</i>	Suelo	Buenos Aires ¹³
Coccidios	Agua de consumo	Buenos Aires ⁷
	Aguas recreacionales suelo	Buenos Aires ¹⁴ Buenos Aires ^{7,13}
<i>Cryptosporidium</i> spp.	Agua de consumo	Buenos Aires ⁶ , Santa Fe ⁴⁰
	Agua de consumo subterránea	Santa Fe ¹
	Agua de río, de arroyo y canal	Salta ²⁹ , Buenos Aires ¹⁴
	Aguas recreacionales	Buenos Aires ¹⁴
	Agua superficial	Santa Fe ¹
<i>Cyclospora</i> sp.	Materia fecal de terneros	Córdoba ⁴⁸ , Santa Fe ^{19,52}
	Agua de río	Salta ²⁹
	Efluentes agroindustriales	Mendoza ²²
<i>Dientamoeba fragilis</i>	Agua de río	Salta ²⁹
<i>Endolimax nana</i>	Agua de río	Salta ²⁹
	Suelo	Neuquén ⁴²
<i>Endolimax</i> sp.	Agua de arroyo y canal	Buenos Aires ¹⁴
<i>Entamoeba coli</i>	Agua de consumo	Buenos Aires ^{7,24} , Santa Fe ⁴⁰
	Agua de río	Salta ²⁹
	Suelo	Neuquén ⁴²
<i>Entamoeba histolytica/E. dispar</i>	Agua de río	Salta ²⁹
	Agua de consumo	Santa Fe ⁴⁰
<i>Entamoeba</i> spp.	Agua de arroyo y canal	Buenos Aires ¹⁴
	Heces de perro	Neuquén ⁴⁴
<i>Enteromonas hominis</i>	Suelo	Neuquén ⁴²
<i>Giardia lamblia</i>	Agua de consumo	Buenos Aires ⁷ , Santa Fe ⁴⁰
	Agua de río	Salta ²⁹
	Agua superficial	Santa Fe ¹
	Materia fecal de terneros	Córdoba ⁴⁸
	Materia fecal de perros y vacas	Buenos Aires ⁵⁰
<i>Giardia</i> sp.	Suelo	Buenos Aires ⁷
	Aguas recreacionales	Buenos Aires ¹⁴
	Aguas de arroyo y canal	Buenos Aires ¹⁴
	Heces de perro	Neuquén ⁴⁴
	Efluentes domiciliarios	Río Negro ⁷⁵
	Suelo	Buenos Aires ¹³ , Neuquén ^{75,42}
<i>Isospora belli</i>	Efluentes agroindustriales	Mendoza ²²
<i>Isospora</i> spp.	Efluentes agroindustriales	Mendoza ²²
	Heces de perro	Neuquén ⁴⁴
<i>Microsporidium</i> spp.	Agua de río	Salta ²⁹
<i>Sarcocystis</i> spp.	Heces de perro	Neuquén ⁴⁴
	Suelo	Neuquén ⁴²
<i>Trichomonas</i> spp.	Agua de río	Salta ²⁹

Tabla 2 Helmintos entéricos encontrados en muestras ambientales en Argentina

Helmintos	Encontrado en	Provincia
Ancilostomídeos	Heces de perro	Buenos Aires y Misiones ²⁴
	Suelo	Buenos Aires ^{13,24} , Misiones ²⁴
<i>Ancylostoma duodenale</i>	Efluentes domiciliarios	Neuquén y Río Negro ⁷⁵
<i>Ancylostoma</i> sp.	Heces de perro	Neuquén ⁴⁶
<i>Ascaris lumbricoides</i>	Agua de río	Salta ²⁹
	Efluentes domiciliarios	Neuquén y Río Negro ⁷⁵
	Heces de perro	Buenos Aires ²⁴
	Suelo	Buenos Aires ^{13,24,26} , Misiones ²⁴
<i>Ascaris</i> spp.	Aguas de arroyo y canal	Buenos Aires ¹⁴
	Aguas recreacionales	Buenos Aires ¹⁴
	Heces de perro	Buenos Aires y Misiones ²⁴
<i>Capillaria</i> spp.	Heces de perro	Neuquén ⁴⁴
	Suelo	Buenos Aires ¹³
<i>Diphyllobothrium</i> spp.	Heces de perro	Neuquén ⁴⁴ , Chubut ⁴⁸
<i>Dipylidium caninum</i>	Agua de río	Salta ²⁹
	Heces de perro	Neuquén ⁴⁴
	Suelo	Buenos Aires ¹³
<i>Dipylidium</i> sp.	Heces de perro	Chubut ⁴⁸
<i>Enterobius vermicularis</i>	Agua de río	Salta ²⁹
	Aguas recreacionales	Buenos Aires ¹⁴
	Efluentes domiciliarios	Neuquén y Río Negro ⁷⁵
	Suelo	Buenos Aires ¹³
<i>Echinococcus granulosus</i>	Aguas recreacionales	Buenos Aires ¹⁴
<i>Fasciola hepatica</i>	Heces de cabra	Mendoza ¹⁶
	Agua de río	Salta ²⁹
	Cabras, ovejas, bovinos, caracoles	Neuquén ⁴⁷
<i>Hymenolepis diminuta</i>	Aguas de arroyo y canal	Buenos Aires ¹⁴
	Efluentes domiciliarios	Neuquén y Río Negro ⁷⁵
<i>Hymenolepis nana</i>	Agua de río	Salta ²⁹
	Suelo	Buenos Aires ^{13,24} , Misiones ²⁴
Larvas de la familia <i>Oxyuridae</i>	Aguas de arroyo y canal	Buenos Aires ¹⁴
Larvas de nematodes	Aguas de arroyo y canal	Buenos Aires ¹⁴
	Suelo y agua de consumo	Buenos Aires ²⁴
	Heces de perro	Buenos Aires y Misiones ²⁴
	Suelo	Buenos Aires ¹³ , Misiones ²⁴
<i>Necator americanus</i>	Agua de río	Salta ²⁹
<i>Strongyloides</i> sp.	Heces de perro	Chubut ⁴⁸
<i>Strongyloides stercoralis</i>	Agua de río	Salta ²⁹
<i>Taenia</i> spp.	Suelo	Buenos Aires ^{13,24}
<i>Taenia</i> spp. / <i>Echinococcus</i> spp.	Suelo	Buenos Aires ²⁴
	Heces de perro	Neuquén ⁴⁴
<i>Trichostrongylus</i> spp.	Aguas de arroyo y canal	Buenos Aires ¹⁴
	Agua de río	Salta ²⁹
<i>Trichuris</i> sp.	Aguas recreacionales	Buenos Aires ¹⁴
	Suelo	Buenos Aires ¹³
	Heces de perro	Chubut ⁴⁸
<i>Trichuris trichiura</i>	Agua de río	Salta ²⁹
	Efluentes domiciliarios	Neuquén y Río Negro ⁷⁵
<i>Trichuris vulpis</i>	Heces de perro	Buenos Aires ^{24,26} , Misiones ²⁴ , Neuquén ⁴⁴

A total of 107 soil samples were collected over the four seasons of the year during 2000-2001. There were 37 samples in winter, 30 in spring, 20 in summer and 20 in autumn.

The relative frequencies of the different parasitic species found per station were calculated.



Analysis of the 107 soil samples determined 28.9% of samples positive for at least one parasite form (31/107). During the year of study six species of protozoa could be recovered from the soil. The presence of cysts of *Entamoeba* sp., *Enteromonas* sp., *Endolimax* sp., *Giardia* sp., *Iodamoeba* sp. And coccidiosis oocysts.

32.4% of winter samples indicated intestinal protozoa as well as 35% of autumn, 33.3% of spring and only 10% of summer.



In Argentina the available data of recent years on intestinal parasites found in the environment are abundant.

- ▶ The findings of these parasites are limited by several factors, such as the presence of research groups, the lack of sensitivity when performing techniques for finding parasites and the low concentration in samples collected.
- ▶ It is important to keep in mind that the parasites are found anywhere in the world and if you do not have the necessary measures we can present some parasitosis.

METHODOLOGY (Laboratory microbiology)

Collection of 4 soil samples (gardens of homes and FCQ).

50 g of each sample were weighed and suspended in 50 ml of sol. Saline (0.9%).

Rest / 24 hours

Coproparasitoscopic method of concentration by sedimentation of Brij-35 to 30%

Preparation of sample on slides with a drop of lugol

Observation under the microscope.





RESULTS.

- ▶ By means of the collection of soil samples by the UASLP FCQ parasitology laboratory, the presence of *Hymenolepis nana* eggs could be found in the sample referring to land taken from the community of Villa de Pozos. In the sample taken from the sleep of the area of Abastos in Gálvez could be found the presence of *Áscaris lumbricoides*. In the remaining samples no apparent presence of Parasites was found, however, for better detection it is important to do the sampling in triplicate, so that the results are of higher quality.

CONCLUSIONS

- ▶ By means of the practice we can verify the existence of intestinal parasites around us, which indicates the exposure to which we submit to not having the adequate conditions of hygiene and sanitation of food, water and soil.
- ▶ Also, we can demonstrate that the study of microbiology is of great clinical importance for the diagnosis of parasitic diseases and collaboration with the physician for its subsequent treatment.

BIBLIOGRAPHY

- 1. Instituto nacional de seguridad e higiene en el trabajo. Entamoeba histolytica. Actualizado el 20/mayo/2015 (acceso 01/abril/2017). Disponible en: <http://www.insht.es>
- Cedeño Cascante T, Morera Montero A. Descripción de un caso de amebiasis en colon por E.histolytica en el hospital San Rafael de alajuela. Rev Costarricense de Ciencias Médicas vol.27 (#3). Julio de 2006 (Acceso 01 Abril de 2017). Disponible en: <http://www.scielo.sa.cr>
- *Koneman W, Procop W, Schreckenberger P, Woods L, Janda W, Allen S, etal. Diagnóstico microbiológico. Ed. Médica Panamericana 6° edición. Buenos aires: 2008.
- Artículo especial. Revista Argentina de Microbiología. **María M. Juárez, b y Verónica B. Rajal.** Rev Argent Microbiol. 2013;**45(3)**:191-204. www.elsevier.es/ram