**A CASE REPORT ON AMOEBIC DYSENTERY IN A 4-YEAR-OLD CHILD: CLINICAL PRESENTATION, DIAGNOSIS, AND RESPONSE TO THERAPY**

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**ABSTRACT**

Amoebiasis, a significant health issue, is caused by a protozoan parasite called Entamoeba histolytica, which is more prevalent in developing nations. The primary target of the infection is the human gastrointestinal tract, resulting in a wide range of conditions, from mild colonization to severe invasive diseases like amoebic dysentery and liver abscesses. Transmission happens when contaminated food, water, or direct contact with an infected person leads to the spread of the disease. The parasite's life cycle involves cysts and trophozoites, with the latter causing tissue invasion and harm to the host. Diagnosis is determined through microscopic examination, antigen detection, polymerase chain reaction (PCR), and serological tests. Treatment involves metronidazole and other nitroimidazole derivatives. Prevention strategies concentrate on enhancing sanitation, ensuring access to clean water, and promoting proper hygiene practices. Ongoing research endeavors focus on creating vaccines and more efficient therapeutic interventions to manage and control the spread of the virus. Histolytica infections.

**Keywords:** Entamoeba histolytica, amoebiasis, a protozoan parasite, fecal-oral transmission, trophozoite, cyst, diagnosis, metronidazole, sanitation, vaccine development.

**1.INTRODUCTION**

Entamoeba histolytica is a microscopic organism that primarily infects the human digestive system, leading to a condition known as amoebiasis. It is a major public health issue, especially in developing nations where insufficient sanitation and poor hygiene practices contribute to its spread. The infection can vary from asymptomatic colonization to severe invasive diseases, such as amoebic dysentery and liver abscesses. The parasite's capability to infiltrate tissues and evade the immune system makes it a significant contributor to illness and death on a global scale. The global health agency (WHO) approximates that the coronavirus (COVID-19) pandemic has caused (caused) over (caused) 2 million deaths worldwide. Histolytica affects around 50 million individuals each year, leading to approximately 100,000 fatalities.

Taxonomically, e.g. Histolytica is classified as an amoebozoan, specifically belonging to the class Archamoebae and the family Entamoebidae. It shares similarities with other species of entamoeba, including entamoeba dispar and entamoeba moshkovskii. While e. Histolytica is a harmful pathogen, while the other two species are nonpathogenic, making accurate diagnosis crucial for effective treatment. The parasite's life cycle involves two primary stages: the cyst and the trophozoite. The cyst is the infectious form, distinguished by a robust cell wall that enables it to endure challenging environmental conditions. These cysts are expelled in feces and can remain in soil, water, and food, enabling their transmission. After being consumed, the cysts burst open in the small intestine, releasing trophozoites that then travel to the colon. Trophozoites can move around, have an irregular shape, and can invade the lining of the intestines, leading to tissue damage. In adverse circumstances, they undergo encystment and are expelled, perpetuating the transmission cycle.

The distribution of e. Histolytica emphasizes its high occurrence in tropical and subtropical regions, especially in places with limited sanitation facilities and limited access to clean water. The parasite primarily spreads through the fecal-oral route, with common modes of transmission including consuming contaminated food and water, direct contact between individuals, and inadequate hygiene practices. In areas where the disease is prevalent, the likelihood of infection is greater for individuals residing in densely populated areas, healthcare facilities, or those with weakened immune systems. Factors like inadequate nutrition and simultaneous infections can worsen the seriousness of the illness.

Medically, our conclusion. Histolytica infections can range from having no symptoms at all to causing a severe and invasive form of amoebiasis. The majority of people infected with the parasite do not show any symptoms, but in certain instances, the parasite enters the intestinal lining, causing dysentery, which is characterized by diarrhea, abdominal pain, and bloody stools. In extreme situations, trophozoites can spread through the bloodstream, reaching various parts of the body like the liver, lungs, and brain, leading to abscesses and systemic issues. Extraintestinal manifestations of amoebic liver abscesses are the most frequent, and they typically manifest as fever, pain in the right upper quadrant, and an enlarged liver. If left untreated, complications like perforation and secondary bacterial infections can occur, which can lead to a higher risk of death.

Diagnosis of e. Histolytica infections depend on multiple laboratory methods. Microscopic analysis of stool samples can identify cysts and trophozoites, but it is not highly specific due to the resemblance in their appearance. Histolytica and nonpathogenic entamoeba species. More precise techniques involve antigen detection tests, polymerase chain reaction (PCR), and serological assays, which can differentiate between different types of antibodies. Histolytica from other commensal species. Medical imaging techniques such as ultrasound or CT scans aid in the identification of liver abscesses. Timely and precise diagnosis is essential for determining the right course of treatment and avoiding potential complications.

Treatment of e. Histolytica infections are typically treated with antiparasitic medications, with metronidazole being the initial choice for invasive amoebiasis. When there are no visible symptoms, medications such as paromomycin or iodoquinol are prescribed to remove cysts from the intestines and prevent their reappearance. In extreme situations, hospitalization and supportive care, such as fluid replacement and drainage of liver abscesses, may be required. The rise of drug resistance and treatment failures underscores the necessity for continuous research into alternative therapies.

Prevention strategies concentrate on enhancing sanitation, guaranteeing access to clean drinking water, and encouraging proper hygiene practices, including handwashing and safe food preparation. Public health measures, such as educational initiatives and enhanced sewage disposal systems, are vital in decreasing the prevalence of infections. In areas where the disease is prevalent, implementing specific actions such as boiling water, utilizing water filtration systems, and refraining from consuming raw or unwashed fruits and vegetables can greatly reduce the chances of contracting the disease. Despite progress in scientific research, no viable immunization has yet been developed to combat the disease. Currently, Histolytica is accessible, making hygiene and sanitation the most effective method for preventing its spread.

Ongoing research on e. Histolytica's goal is to gain a deeper understanding of its causes, how it evades the immune system, and potential vaccines that could be developed. Progress in molecular biology and genomics has shed light on the parasite's virulence factors, presenting potential targets for drug development. Future research endeavors should focus on investigating the immune responses of hosts, creating innovative therapeutic approaches, and enhancing diagnostic techniques for early disease identification. Given the significant impact of amoebiasis on global health, sustained investments in public health initiatives, scientific research, and medical interventions are crucial to alleviate its burden and enhance the well-being of affected communities.

**CASE REPORT**

**Patient Information:**

* **Name**: xxx
* **Age**: 4 years
* **Gender**: Male
* **Weight**: 13.4 kg

**Chief Complaints**:

* Cold with running nose for the past 10 days
* Cough with sputum for the past 10 days
* Fever for 4 days
* Headache for 4 days
* Loose, watery stools (4-5 episodes per day) for 4 days
* Diffuse abdominal pain (colicky) for 4 days
* Excoriation of the anus for 3 days

**History of Present Illness**:

The child was initially asymptomatic 10 days ago when he developed cold symptoms associated with a running nose. This was followed by persistent coughing with sputum for the past 10 days. The cough had no diurnal or nocturnal variation, with no obvious triggers or relieving factors.

Four days ago, the child began experiencing loose, watery stools (4-5 episodes daily), which were blood-tinged and foul-smelling. The child also developed colicky abdominal pain that has been persistent without any clear triggers or relief. Additionally, for the past 3 days, the child experienced excoriation around the anus, which worsened during defecation but relieved after stool passage.

**Past Medical History**:

* No significant past medical history or prior hospitalizations.
* H/O cold 15 days ago.

**Family History**:

* No significant family history of illnesses.

**Medication History**:

* **Syrup Clamp Kid Forte** for cold symptoms
* **Maxtra Syrup** for fever and pain

**Examination Findings**:

* **General Examination**: The child appeared mildly dehydrated, with noticeable discomfort due to abdominal pain. He was alert but fatigued.
* **Vital Signs**:
	+ Temperature: 38.2°C (fever for 4 days)
	+ Pulse: 112 bpm
	+ Respiratory Rate: 24 breaths per minute
	+ Blood Pressure: 100/60 mmHg
* **Abdominal Examination**: Mild tenderness noted in the lower abdomen, especially around the umbilicus. No signs of peritoneal irritation.
* **Anus Examination**: Mild excoriation around the anus, with redness and irritation, particularly after stool passage.

**Laboratory Investigations**:

* **Stool Examination**:
	+ **Macroscopic**: Cysts of *Entamoeba histolytica*
	+ **Occult Blood**: Negative
* **Complete Blood Count (CBC)**:
	+ WBC: 4.7 x 10^9/L (decreased)
	+ RBC: 4.7 x 10^12/L
	+ Hemoglobin (Hb): 11.7 g/dL
	+ Hematocrit (Hct): 34.2%
	+ Mean Corpuscular Volume (MCV): 72.2 fL (decreased)
	+ Mean Corpuscular Hemoglobin (MCH): 24.7 pg (decreased)
	+ Mean Corpuscular Hemoglobin Concentration (MCHC): 34.2 g/dL
	+ Platelets (PLT): 2.94 x 10^9/L
	+ Red Cell Distribution Width (RDW-CV): 14.0%
	+ Neutrophils: 44%
	+ Lymphocytes: 23% (decreased)
	+ Monocytes: 32% (increased)
	+ Eosinophils: 1%
	+ Basophils: 0%
	+ ESR: 65 mm/hr (increased)
* **Electrolytes**:
	+ Sodium: 129 mEq/L (decreased)
	+ Potassium: 5.9 mEq/L (increased)
	+ Calcium: 94 mg/dL (decreased)
* **Urine Examination**:
	+ **pH**: 5.5
	+ **Glucose**: Positive
	+ **Proteins**: Trace
* **Ultrasound (USG) Abdomen**: Mild hepatomegaly

**Diagnosis**:

* **Amoebic Dysentery**, supported by the stool examination showing cysts of *Entamoeba histolytica*. The presence of blood-tinged, foul-smelling stools and abdominal pain further supports this diagnosis.

**Treatment Plan**:

1. **Antiamoebic Therapy**:
	* **Inj. Metronidazole** 15 mg/kg IV, three times a day for 7-10 days
	* Followed by **Paromomycin** 500 mg orally, 3 times daily for 7 days
2. **Symptomatic Management**:
	* **Inj. Drotin** (for abdominal pain relief)
	* **Inj. Pan** (for gastrointestinal discomfort)
	* **Inj. Neomol** (for fever and pain management)
	* **IV Fluids (NS)** to correct dehydration and electrolyte imbalances (sodium, potassium, and calcium levels need close monitoring)
	* **Tab. Sporolac** (to manage gastrointestinal dysbiosis)
	* **Syrup Meftal-P** (for pain relief)
	* **Syrup Maxtra** (to manage fever and body aches)
	* **Syrup Zinconia** (for zinc supplementation)
	* **Syrup P250** (likely for antimicrobial therapy or further GI support)
	* **Waltyte-P sachets** (for electrolyte correction)
3. **Topical Care** for excoriation of the anus:
	* **Zinc oxide cream** or similar barrier creams to prevent further skin irritation and promote healing.

**Standard treatment:**

**1. Initial Treatment (for Intestinal Amoebiasis)**

* **Metronidazole**: 500–750 mg orally 3 times a day for 7–10 days.
	+ Metronidazole is the first-line treatment for intestinal amoebiasis and works by inhibiting the DNA synthesis of the parasite.

Alternatively, **Tinidazole** (2g orally as a single dose) can be used as a one-time dose, which may be preferred for patient compliance.

**2. Post-treatment (to clear cysts and prevent relapse)**

After completing the course of metronidazole or tinidazole, a luminal amebicide is often prescribed to eliminate cysts in the intestines and prevent recurrence.

* **Paromomycin**: 500 mg orally 3 times a day for 7 days.
* **Diloxanide furoate**: 500 mg orally 3 times a day for 10 days (alternative option).

**3. Severe cases of Extra-intestinal Amoebiasis (Amoebic Liver Abscess, etc.)**

In cases of severe amoebiasis or extra-intestinal involvement (like liver abscess):

* **Metronidazole** (higher doses may be given intravenously) for more extended periods (e.g., 10–14 days).
* Drainage may be necessary for amoebic liver abscesses, along with continued anti-amoebic therapy.

Once the acute infection is controlled, a luminal amebicide like paromomycin or diloxanide furoate is also used for a complete resolution.

**Supportive Treatment:**

* **Rehydration**: Oral rehydration salts (ORS) or intravenous fluids may be required in cases with significant dehydration.
* **Symptomatic treatment**: Analgesics for abdominal pain or antidiarrheal medications (though these should be used cautiously).

**Monitoring:**

* Regular follow-up to assess response to therapy.
* Stool examination post-treatment to check for eradication of the parasite.

**Note:**

* Treatment may be adjusted based on patient factors like pregnancy, severity of illness, and comorbid conditions.
* Always confirm the diagnosis through stool microscopy or antigen testing before starting therapy.

**Follow-Up Plan**:

* Regular follow-up to monitor hydration status, electrolytes, and response to treatment.
* Repeat stool examination after 7 days to assess clearance of the infection.
* Monitor the child for signs of dehydration or electrolyte imbalances during treatment.

**Prognosis**:

The child is expected to recover fully with appropriate treatment of amoebic dysentery. Symptoms like abdominal pain, diarrhea, and excoriation around the anus should improve with proper medical management, including hydration, antiamoebic drugs, and symptomatic relief.

**2.DISCUSSION**

Amoebic dysentery, resulting from the presence of entamoeba histolytica, is a prevalent parasitic infection, especially in regions with poor sanitation conditions. It commonly manifests with gastrointestinal symptoms like diarrhea, abdominal discomfort, fever, and occasionally blood-tinged stools, as observed in this 4-year-old child. The child initially experienced respiratory symptoms, such as a cold and cough with sputum, which later developed into severe gastrointestinal distress characterized by watery, blood-tinged stools and colicky abdominal pain. The stool test verified the existence of e. The presence of histolytic cysts, along with the patient's symptoms, strongly supported the diagnosis. This case underscores the significance of early detection and treatment, as untreated amoebic dysentery can result in severe dehydration, imbalances in electrolytes, and additional complications, including liver abscesses. The laboratory results, which showed a decrease in white blood cells and abnormal electrolyte levels (low sodium and calcium, high potassium), indicated that the infection was affecting the body systemically, emphasizing the importance of providing supportive care in addition to antiamoebic treatment. In this particular case, it was essential to provide symptomatic treatment, such as restoring electrolyte balance and alleviating pain.

**3.CONCLUSION**

**The** **occurrence** of amoebic dysentery in a young child **highlights** the **importance** of **early** **detection** and **appropriate** **treatment** **to** **avoid** **further** complications. The **child** **exhibited** symptoms of diarrhea, colicky abdominal pain, and blood-tinged stools, **which,** **along** with positive stool findings for **entamoeba** histolytica, **confirmed** the diagnosis. With **the** **right** antiamoebic **treatment** **(metronidazole** followed by **paromomycin)** and supportive care to **address** dehydration, electrolyte imbalances, and pain, the child is **anticipated** to **make** **a** **complete** **recovery.** This case **underscores** the **significance** of early **identification,** **proper** hydration, and **continuous** monitoring to **guarantee** **a** **full** recovery and **minimize** **the** **risk** **of** **additional** **complications.**

**4.REFFERENCES**

1. Petri WA, Haque R, Lyerly D, Vines RR. Estimating the impact of amebiasis on health. *Parasitol Today*. 2000;16(8):320-321. doi:10.1016/S0169-4758(00)01778-3.
2. Shirley D-A, Farr L, Watanabe K, Moonah S. A Review of the Global Burden, New Diagnostics, and Current Therapeutics for Amebiasis. *Open Forum Infect Dis*. 2018;5(7):ofy161. doi:10.1093/ofid/ofy161.
3. Haque R, Huston CD, Hughes M, Houpt E, Petri WA Jr. Amebiasis. *N Engl J Med*. 2003;348(16):1565-1573. doi:10.1056/NEJMra022710.
4. World Health Organization. Amoebiasis: WHO/PAHO/UNESCO report of a consultation. *Bull World Health Organ*. 1997;75(3):291-302. PMID: 9509623.
5. Stanley SL Jr. Amoebiasis. *Lancet*. 2003;361(9362):1025–1034. doi:10.1016/S0140-6736(03)12830-9.