



Luis Angel Medina Andrade<sup>1\*</sup>, Lizette Blanco Aguilar<sup>2</sup>, Eduardo Vidrio Duarte<sup>3</sup>, Carlos Eduardo Rodríguez Rodríguez<sup>3</sup>, Adriana Paz Mendoza<sup>3</sup>, Ilse Liliana Martínez Elvira<sup>3</sup>, Daniel Flores Rodríguez<sup>4</sup>, José Daen Jonathan Cabañas Gomez<sup>5</sup>, Nestor Apaez Araujo<sup>5</sup>, Stephanie Serrano Collazos<sup>5</sup>, Oscar Rodrigo Rocha Erazo<sup>6</sup> and Rene Cano Rodríguez<sup>6</sup>

<sup>1</sup>General Surgery Department, General Zone Hospital #30, Mexican Social Security Institute, Mexico City, México.

<sup>2</sup>Autonomous University of Chiapas, Tuxtla Gutierrez, México.

<sup>3</sup>General Surgery Department, Hospital Angeles Metropolitano, México City, México

<sup>4</sup>General Surgery Department, Veracruz High Specialty Regional Hospital ISSSTE, Veracruz, México.

<sup>5</sup>General Surgery Department, Ecatepec General Hospital, México State, México.

<sup>6</sup>General Surgery Department, Central Military Hospital, México City, México

**Dates:** Received: 03 December, 2016; **Accepted:** 27 December, 2016; **Published:** 30 December, 2016

**\*Corresponding author:** Luis Angel Medina Andrade, General Surgery Department, General Zone Hospital #30, Mexican Social Security Institute, Mexico City, México, E-mail: buismedina\_5@hotmail.com

**Keywords:** Liver abscess; *Ascaris lumbricoides*; Ascaris abscess

<https://www.peertechz.com>

## Introduction

There are 1.5 billion people infected with *Ascaris lumbricoides* around the world, especially in tropical and sub-tropical areas like México, representing a source of high morbidity and mortality [1].

Liver abscess is classically related with *Entamoeba histolytica*, followed by pyogenic bacteria and sometimes caused by *Mycobacterium tuberculosis* [2]. The liver abscess caused by *Ascaris lumbricoides* is extremely rare, especially in adults, with no distinctive clinical features that guide us to differential diagnosis against other causes of liver abscess, constituting only 3.8% of all hepatobiliary complications associated with this parasite [3].

## Case Report

# Liver Abscess Secondary to *Ascaris Lumbricoides*: Case Report

## Abstract

**Background:** *Ascaris lumbricoides* is one of the most frequent human helminthiasis, but the complication with liver abscess is very rare and severe, being a challenge for the correct and timely diagnosis.

**Case:** A male of 62-years-old was brought to emergency room of a rural hospital referring one week of evolution with abdominal pain in right upper quadrant and epigastrium, with fever about 39°C the last three days, anorexia, asthenia, adinamia, diarrhea, and mental status deterioration the last 24 hours. At physical exam with Glasgow 11, dehydrated, with tachycardia or tachypnea, abdominal pain in right upper quadrant and epigastrium, without rebound, and with normal bowel sounds. Laboratories report leucocytes 29300 cell/mm<sup>3</sup>, neutrophils 80%, eosinophils 8%, Hemoglobin 9.5 mg/dL, Glucose 144mg/dL, Creatinine 2, total bilirubin 2.3, indirect bilirubin 1.9, ast 124 alt 112 ggt 193. A hepatic amebian abscess is suspected and empirical management with liquids, ceftriaxone and metronidazole was started. Patient continue with fever and disturbed mental status for the next two days. Ultrasound reports hepatomegaly related with liver abscess located in left lobe, with heterogeneous echogenicity secondary to hypoechoic images, rounded, well-defined, displacing hepatic vessels with tubular images inside. Albendazol was added to management and after two days, by the continued bad evolution CT scan was requested and report multiple liver abscesses in left lobe, segment II and III, the biggest of 68x60mm, with 16 Hounsfield units. An exploratory laparotomy was performed finding multiple encapsulated abscesses with the presence of *Ascaris lumbricoides* inside that were drain and after washing an open drain was placed. Patient presents significant improvement with continued medical management and was discharged 7 days after surgery.

**Conclusion:** This is a very uncommon complication of *Ascaris lumbricoides* infection but must be suspected and treated promptly by the severe consequences associated, with poor outcomes although correct management.

## Case

A male of 62-years-old was brought to emergency room of a rural hospital referring one week of evolution with abdominal pain in right upper quadrant and epigastrium, with fever about 39°C the last three days, anorexia, asthenia, adinamia, diarrhea, and mental status deterioration the last 24 hours. At physical exam with Glasgow 11, dehydrated, with tachycardia or tachypnea, abdominal pain in right upper quadrant and epigastrium, without rebound, and with normal bowel sounds. Laboratories report leucocytes 29300 cell/mm<sup>3</sup>, neutrophils 80%, eosinophils 8%, Hemoglobin 9.5 mg/dL, Glucose 144mg/dL, Creatinine 2, total bilirubin 2.3, indirect bilirubin 1.9, AST 124 ALT 112 GGT 193. A hepatic amebian abscess is suspected and empirical management with liquids, ceftriaxone and metronidazole was started. After two days of medical treatment patient continue without improvements, with fever and disturbed mental status and image studies were

requested. Abdominal ultrasound reports hepatomegaly related with liver abscess located in the left lobe, with heterogeneous echogenicity secondary to hypoechoic images, rounded, well-defined, displacing hepatic vessels with tubular images inside. Albendazol was added to management and after two days, by the continued bad evolution, a CT scan was requested and report multiple liver abscesses in left lobe, segment II and III, the biggest of 68x60mm, with 16 Hounsfield units (Fig. 1). Feces exam reports *Ascaris lumbricoides* eggs. An exploratory laparotomy was performed finding multiple encapsulated abscesses with the presence of an adult *Ascaris lumbricoides* inside, and *Ascaris* eggs in the purulent liquid that were drained (Fig. 2), and after washing, an open drain was placed. Septic shock was resolved with medical management, for the next 7 days, with renal failure recovery and discharge after that uneventfully.

## Discussion

*Ascaris lumbricoides* is one of the most frequent parasites around the world, with a prevalence near 25-30%, especially in developing countries, constituting an important source of morbidity and mortality. It is a soil-transmitted helminth; its eggs hatch larvae in the duodenum and enter the circulation to the liver and lungs by sixth or eighth day. The alveolar membrane is damaged, and worms are expectorated and re-enter the intestinal tract by day eighth or tenth, where they mature into adults with subsequent oral, nasal, or anal passage. People with poor socioeconomic environment, education, sanitation, poor hygienic habits or lack of water supply are more proper to acquire and re-acquire this parasite although proper treatment [1,4].

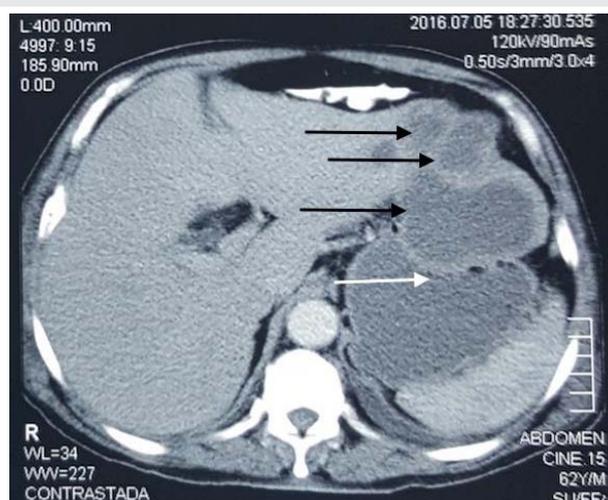
Complications associated with *Ascaris lumbricoides* includes intestinal obstruction, volvulus, pancreatitis, cholangitis, cholecystitis, and liver abscess, the last of this the less frequent (<1%) but one very severe in some cases [5,6]. The tendency of *Ascaris* to enter all orifices allow it to carry gut flora along with it in the biliary tree, and people with massive worm infestation in duodenum are more prone to get it. The association with bacterial flora, especially *E. Coli* leads to cholangitis, and it can invade the hepatic parenchyma leading to local inflammation, necrosis and abscess formation, in some cases favored by death worms in the parenchyma [2,7].

Symptoms use to be very unspecific, including right upper quadrant pain, tenderness and fever, this last the more common presented. Clinical history or symptoms are indistinguishable from pyogenic abscess and for this reason the etiological diagnosis is very difficult, sometimes only achieved after initial medical treatment failure, imaging studies that observe an adult worm directly in the abscess or at surgery. Ultrasound is the preferred method for this purpose and could see adult worms when intentionally searched up to 84% of cases [5]. CT scan is another option for diagnosis with sensitivity of 95% for unique abscess or 100% when multiple abscesses, and sometimes used to perform a surgical plan. Initially medical treatment is recommended with Albendazol 400mg per day for three days, and in some cases guided puncture and drain of abscess is performed with limited success. In the present case it is contraindicated for being multiple abscesses and location

in the left lobe. Surgery remains the standard of treatment for liver abscess secondary to *Ascaris lumbricoides*, especially when they are multiple or biliary tree is obstructed because medical treatment would fail in this cases, secondary to adult parasite die inside the liver, giving rise to necrotic focus [7].

During surgery adult worms or eggs could be found in the abscess or necrotic tissue, associated with an intense inflammatory reaction and Charcot-Leyden crystals [6]. Charcot-Leyden crystals are structures eosinophil and basophil derivatives. Their presence indicates an inflammatory process, usually allergic or by hypersensitivity, with degranulation of eosinophils, basophils or both of them, being characteristic of parasitic diseases. After surgical abscess drainage medical treatment must be continued until drain removal, with image studies like CT scan confirming abscess absence.

Hepatic abscess secondary to *Ascaris lumbricoides* is an extremely rare complication of this parasite infection, with severe consequences in cases of diagnosis and treatment delay that is very common secondary to the unspecific signs and symptoms, with progression to multi-organ failure and dead



**Figure 1:** Abdominal CT scan showing multiple abscesses (16 HU) in the left hepatic lobe (Black arrow) compressing the gastric wall (White arrow).



**Figure 2:** Adult *Ascaris Lumbricoides* worm obtained from inside the abscess.



if medical management is not effective initially and surgical approach is retarded. For this reasons this pathology must be considered in *Ascaris lumbricoides* endemic zones and patients presenting with hepatic abscess.

## References

1. Andrade AM, Perez Y, Lopez C, Collazos SS, Andrade AM, et al. (2015) Intestinal Obstruction in a 3-Year-Old Girl by *Ascaris lumbricoides* Infestation Case Report and Review of the literature. *Medicine* 94: e655. [Link: https://goo.gl/0drcwx](https://goo.gl/0drcwx)
2. Pinilla AE, López MC, Ricaurte O, Castillo B, Murcia MI, et al. (2001) Liver abscess caused by *Ascaris lumbricoides*: case report. *Rev Inst Med trop S Paulo* 43: 343-346. [Link: https://goo.gl/JjGwf4](https://goo.gl/JjGwf4)
3. Ogata H1, Tsuji H, Hizawa K, Suzuki N, Fujishima M (2000) Multilocular Pyogenic Hepatic Abscess Complicating *Ascaris Lumbricoides* Infestation. *Intern Medi* 39: 228-230. [Link: https://goo.gl/hZkqQJ](https://goo.gl/hZkqQJ)
4. Bari S1, Sheikh KA, Ashraf M, Hussain Z, Hamid A, et al. (2007) *Ascaris* liver abscess in children. *J Gastroenterol* 42: 236–240. [Link: https://goo.gl/KKC8k9](https://goo.gl/KKC8k9)
5. Castillo EM, González AL (2011) Ascariasis Hepatobiliar: Informe De Caso. *Rev Med Hondur* 79: 75-78. [Link: http://65.182.2.244/RMH/pdf/2011/pdf/Vol79-2-2011-7.pdf](http://65.182.2.244/RMH/pdf/2011/pdf/Vol79-2-2011-7.pdf)
6. Pitalua MT, Muñoz EM, Villa JG, Corena RM (2014) Ascariasis hepática: reporte de un caso y revisión de la literatura. *Salud Uninorte. Barranquilla (Col.)* 30: 252-257. [Link: https://goo.gl/9VQbPW](https://goo.gl/9VQbPW)
7. Javid G, Wani NA, Gulzar GM, Khan BA (1999) *Ascaris*-induced Liver Abscess. *World J Surg* 23: 1191–1194. [Link: https://goo.gl/3w2UL8](https://goo.gl/3w2UL8)