

# The Mummy's Curse

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SpR ID & Micro

# History

16 y.o. Peruvian female, presented with:

- 1 month history of decreased appetite, burning epigastric pain, nausea and vomiting (3 episodes per day, always after eating)
- Also tiredness, constipation and weight loss (5kg in 1 month)
- 10 days of treatment with natural remedies and then ranitidine produced some relief
- 2 days prior to admission developed haematemesis and subsequently black tarry stools
- No fevers and chills, No rashes or skin problems, No cough or breathlessness
- Normal periods (last one within 1 month)

# Background

- Born in Tingo María in the central highlands of Peru
- Moved to Lima to live with an aunt and to go to school
- Last visit home in 2006
- No ill relatives
- Has a pet cat and rabbits
- PMHx: hepatitis A (1997), dog bite (2004)
- No TB exposure, drug or alcohol misuse

**Tingo María**

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

# Examination and Initial Investigations

## On examination:

- Pale, poorly nourished and in mild acute distress
- BP 90/60, HR 104, RR 22  
T37°C
- No rashes, skin/mucosal lesions
- Chest: clear
- Abdomen: normal bowel sounds; mild tenderness in the epigastric region
- No jaundice or HSM
- CNS: alert and orientated

## Investigations:

- Hb 5.8 [12-15.2], Hct 17.4 [37-46], MCV 87,
- WBC 7.4 (E $\emptyset$  <1%), Plts 341
- Glucose N.
- Bili N., AST 52 [5-35], ALT 73 [7-56]
- Total protein 2.8 [6.3-8.2], Albumin 1.5 [3.5-4.8], INR 1.26
- Arterial blood gases - N.
- CXR - N.
- Abdominal Uss - N.

# Question 1

- Following fluid resuscitation (including 2 units of blood) which of the following investigations would you do next in order to identify a cause of her bowel symptoms?
  - A. Stool culture
  - B. Sputum culture
  - C. Upper and lower GI endoscopy
  - D. Serology
  - E. All of the above

# Question 1 - Answer

E. All of the above

- You send stool and sputum for MC&S, take a blood sample for serology and perform an upper and lower GI endoscopy

This is what you find...

15/02/2007  
12:50:10

AVE  
LIGHT+1  
FILM 00

HDA  
RPZ

16  
FEMALE  
S BAZAN

15/02/2007  
12:49:39

AVE  
LIGHT+1  
FILM 00

HDA  
RPZ

16  
FEMALE  
S BAZAN

15/02/2007  
13:05:14

AVE  
LIGHT+1  
FILM 00

HDA  
RPZ

16  
FEMALE  
S BAZAN

## Endoscopy findings:

- Nodular gastritis in the antrum
- Erythema and oedema throughout D1/D2
- Multiple erosions and ulceration in D2
- Colonoscopy - N.

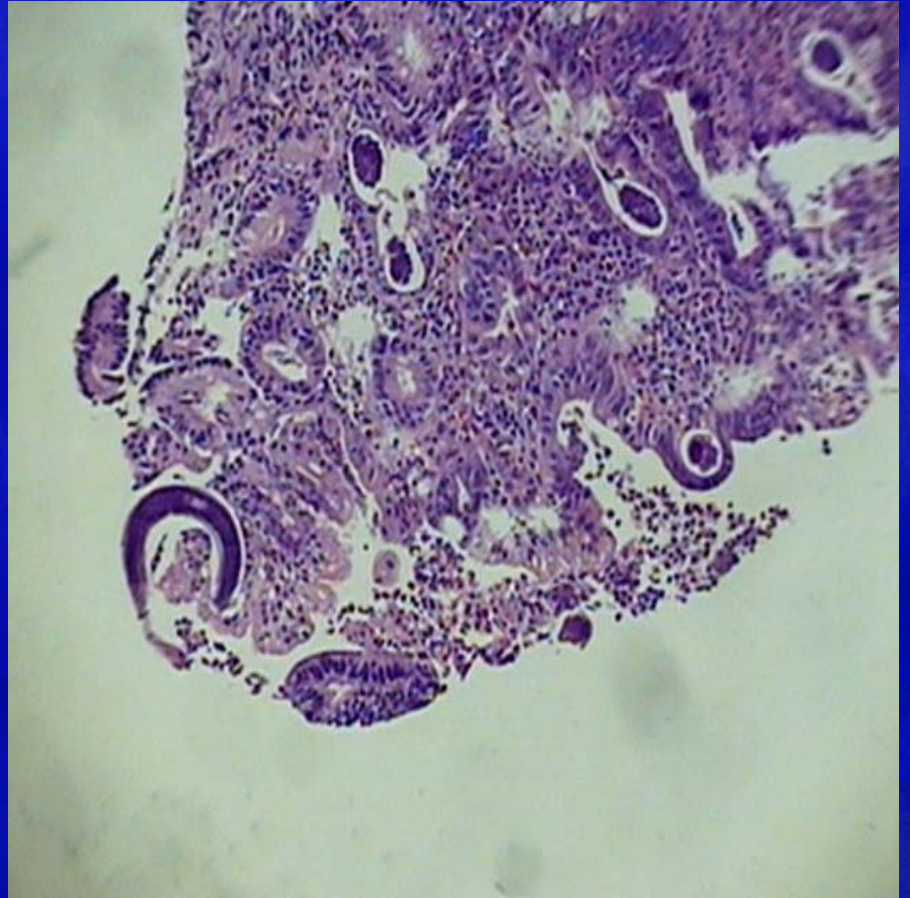
## Question 2

- You take a duodenal biopsy and aspirate some fluid for microscopy & culture
  - Which of the following is the most likely cause of her bowel symptoms?
- A. Acute *H.pylori* infection
  - B. *Gardia lamblia* infection
  - C. Helminth infection
  - D. Typhoid
  - E. Other (the natural remedies she has taken?)

# Question 2 - Answer

c. Helminth infection

- The duodenal biopsy shows...



# A 'hot' stool shows...

QuickTime™ and a  
decompressor  
are needed to see this picture.

# Question 3

- What is the diagnosis?
  - A. *Taenia solium* infection
  - B. *Strongyloides stercoralis* hyperinfection
  - C. *Ancylostoma duodenale* infection
  - D. Chronic strongyloides autoinfection
  - E. *Strongyloides fülleborni* infection

# Question 3 - Answer

## B. *Strongyloides stercoralis* hyperinfection

- Distinction between autoinfection and hyperinfection is quantitative - no strict definition
- Development or exacerbation of GI and pulmonary symptoms, and detection of increased numbers of larvae in stool or sputum
- Disseminated infection - migration of larvae to organs not involved in normal pulmonary-autoinfective cycle

QuickTime™ and a  
TIFF (Uncompressed) decompressor  
are needed to see this picture.

*not Taenia solium infection*

QuickTime™ and a  
decompressor  
are needed to see this picture.

# Management

- You treat her with 2 days of oral ivermectin (no veterinary formulations available in Peru!)
- There are no further episodes of bleeding; the nausea, vomiting and pain resolve
- By day 6, she has regained a normal oral intake
- The patient is eager to go home to catch up on her school work - every day in hospital is costing her aunt money that she can ill afford

# Question 4

- What would you do next?
  - A. Send her home
  - B. Send her home and repeat her stool cultures in 6 weeks
  - C. Keep her in hospital so that you can retreat with ivermectin in 2 weeks
  - D. Look for an underlying cause
  - E. Start her on monthly pentamidine nebulizers

# Question 4 - Answer

D. Look for an underlying cause

- Strongyloides hyperinfection is almost always associated with immune system alterations
- May include immunosuppressive drug therapy, haematological malignancies, infection and malnutrition

# Question 5

- Which of the following is the *most likely* underlying diagnosis?
  - A. HIV infection
  - B. HTLV-1 infection
  - C. Diabetes mellitus
  - D. Hepatitis B infection
  - E. Adult T-cell lymphoma

# Question 5 - Answer

B. HTLV-1 infection

- ELISA and Western Blot for HTLV-1 were positive

In HIV infection

- Rarely seen in HIV+ve patients; generally as part of the immune reconstitution syndrome
- Not included in definition of AIDS
- Dominant Th2 cytokine response favours coccidian rather than helminth infections
- Prevalence of strongyloides in Brazilian HIV patients 4.5% vs. 1.4% in general population

# Strongyloides infection

- Simple infection often asymptomatic - may have mild to moderate abdominal symptoms due to inflammation in small intestine caused by adult females
- Eosinophilia may be present only in early stages of infection
- Malabsorption and osteopaenia are common by time of diagnosis
- Predisposing immunocompromising conditions may cause opportunistic behaviour by larvae resulting in severe disseminated disease

# Strongyloides and HTLV-1

- In Peru, 86% of patients with strongyloides hyperinfection are HTLV-1 positive - mostly acquired by vertical transmission (breast feeding)
- HTLV-1 common in South America - 2-3% seropositivity in Andean areas among Quechua populations
- Upper GI bleed unusual presentation (8% in one study) - difficulty in proving cause and effect
- Patients with hyperinfection are at a higher risk of relapse therefore may require more treatment - combinations, repeats or alternative formulations

# Acknowledgments

- The Patient
- Universidad Cayetano Heredia and The Gorgas Course in Clinical Tropical Medicine (Directors Profs D.Freedman and E. Gotuzzo)
- Department of Infection at STH

# References

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