CISTM16 Wi-Fi Access

1. Choose HILTON MEETINGS as your wireless connection.
2. Open any web browser.
3. When prompted, select “I have a promotion code”
4. Use ISTM19 code to complete connection.

Using the Live Audience Response System

BY INTERNET USING WIFI (preferred)

a. Be sure your mobile device or laptop is connected to Wi-Fi
b. Go to the website shown at the top of the slide: www.pollev.com/INTLeast
c. Type or tap your response – that’s it!

BY TEXT

a. Join by texting “INTLcenter” to 22333
b. You will receive a confirmation text
c. Type your answer in text and hit “send” to answer the question.

Tummy Troubles in the Returning Traveler

BOTTIEAU EMMANUEL
INSTITUTE OF TROPICAL MEDICINE, ANTWERP (ITMA), BELGIUM

CISTM16 WASHINGTON; JUNE 7, 2019

AC, 44 years, consultation ITMA 18/05/2017

- Born in Belgium; no medical history
- Trip to Guadeloupe island, from 01-14/04/2017
- Two weeks later (01/05) after a scout meal, fever, diarrhea, abdominal cramps
- Spontaneous improvement, but no full recovery; persistent anorexia, abdominal discomfort and asthenia

AC, 44 years, consultation ITMA 18/05/2017

- On 3rd of May, some urticarial skin lesions, vanishing
- On 15th of May, consultation GP: blood analyses: « high eosinophilia »
- At ITMA
  - Physical examination: unremarkable
  - Laboratory
    - WBC count: 30,400, with 74% eosinophils (= 22,000)
    - CRP: 24 mg/L (nl < 10)
    - LDH: 1006 IU/L (nl < 618)
Which infection(s) could cause abdominal pain and eosinophilia?

Larva migrans viscerale.
- Strongyloidiasis.
- Fasciolasis.
- All of above.

Which investigation(s) would you request in priority?
- Feces examination for parasites
- Ultrasound of the abdomen
- Serological testing for Toxocara spp, S. stercoralis, Fasciola spp.
- Multiplex PCR in feces targeting “all helminthes”

Feces examination
- Direct wet smear: Charcot-Leyden crystals ++
- Ether sedimentation technique: 50 rhabditoid larvae S. stercoralis/gr.
- Baerman concentration: rhabditoid larvae S. stercoralis

(PCR S. stercoralis in feces: positive)

Serology S. stercoralis, Toxocara spp., Fasciola spp.: negative!

AC, 44 years, consultation ITMA 18/05/2017

Strongyloidiasis, epidemiology

Strongyloidiasis in Guadeloupe?


17,660 stool examinations.

Strongyloidiasis in travelers/migrants with eosinophilia

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Schistosoma spp.</td>
<td>6%</td>
<td>33%</td>
<td>24%</td>
</tr>
<tr>
<td>Strongyloides stercoralis</td>
<td>1%</td>
<td>25%</td>
<td>35%</td>
</tr>
<tr>
<td>Filaria spp.</td>
<td>1%</td>
<td>9%</td>
<td>13%</td>
</tr>
<tr>
<td>Cutanea larva migrans</td>
<td>1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other helminthes</td>
<td>3%</td>
<td>13%</td>
<td>33%</td>
</tr>
<tr>
<td>Allergy</td>
<td>6%</td>
<td>10%</td>
<td>5%</td>
</tr>
<tr>
<td>Unknown</td>
<td>64%</td>
<td>36%</td>
<td>20%</td>
</tr>
</tbody>
</table>
Strongyloidiasis, clinical aspects

- (Papular dermatitis)
- (Loeffler-like syndrome)
- Most of the time asymptomatic, +/- eosinophilia
- Abdominal pain +/- chronic diarrhea
- Larva currens

Strongyloidiasis, diagnosis

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Travelers (n=64)</th>
<th>Migrants (n=128)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>22%</td>
<td>29%</td>
</tr>
<tr>
<td>Abdominal</td>
<td>49%</td>
<td>41%</td>
</tr>
<tr>
<td>Skin</td>
<td>37%</td>
<td>21%</td>
</tr>
</tbody>
</table>

| Eosinophilia  | 78%              | 77%              |
| Serology      | 73%              | 98%              |
| Parasitic exam| 67%              | 48%              |

Strongyloides stercoralis

Adult worms in intestines → (eggs)/larvae in stool

Strongyloidiasis, parasite-based diagnosis

- Parasite-based
  - Direct smear
  - Spontaneous sedimentation
  - Baermann technique
  - Koga agar plate culture
  - PCR
- Antibody-based (serology)

AC, 44 years, consultation ITMA 18/05/2017

How would you treat?

- Ivermectine 200 µg/kg single dose
- Ivermectine 200 µg/kg/day for 2 consecutive days
- Ivermectine 200 µg/kg/day for 2 consecutive days, to repeat after 2 weeks
- Albendazole 400 mg BID for 10 days
Strongyloidiasis, treatment

Ivermectin
200 µg/kg single dose
80-90% efficacy

Outline

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<th>Diarrhea / Abdominal Pain</th>
<th>Eosinophilia</th>
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<tr>
<td>Yes</td>
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</table>

Acute
- Trichinosis
- Strongyloidiasis
- Cyclosporiasis
- Ciguatera

Chronic
- Ascariasis
- Post-infectious irritable bowel

EW, Belgian, 52 years, consultation ITMA 21/09/2009

Medical history
- Malaria and schistosomiasis 20 years ago
- Diabetes mellitus non insulin-dependent

Stay 1 year (Uganda, Kenya, South Soudan)
- Truck company
- Travel in primitive conditions
- End of August 2009 back to Belgium

EW, Belgian, 52 years, consultation ITMA 21/09/2009

Medical history
- Malaria and schistosomiasis 20 years ago
- Diabetes mellitus non insulin-dependent

Stay 1 year (Uganda, Kenya, South Soudan)

Current complaints
- End of June: fever suspicion of “malaria” (spontaneous cure)
- July-August: repeated fever episodes
- Episodes of slight epigastric pain
- Fatigue +++; anorexia; weight loss 10 kg

EW, Belgian, 52 years, consultation ITMA 21/09/2009

Physical examination: banal
Laboratory
- CRP: 47 mg/L, sedimentation rate: 48 mm/h
- WBC: 9,800 with 27% eosinophils (2,646/µL)
- Chest X-rays: normal
- CT Scan brain: normal
- CT Scan abdomen:
EW, Belgian, 52 years, CT Scan abdomen, Sep 2009

• Protracted fever
• Hypereosinophilia
• Hepatic abscesses

What is the most likely diagnosis?

EW, Belgian, 52 years, consultation ITMA 21/09/2009:

- Amebic liver abscess?
- Malignancy?
- Liver flukes?
- Alveolar echinococcosis?
- Ruptured cystic echinococcosis?

EW, Belgian, 52 years, consultation ITMA 21/09/2009:

- stool examination: Giardia lamblia cyst
- Tuberculin skin test: negative
- Serology
  - Entamoeba histolytica: IFAT positive: 1/400
  - HIV: neg; RPR/TPHA: neg
  - HBV and HCV: neg; alpha foeto-protein: normal
  - Schistosoma: ELISA: pos; IHA: 1/1280 (nl < 1/160)
  - Taenia: neg
  - Brucella: neg
  - Echinococcus granulosus: ELISA: pos; IHA: neg
  - Fasciola: 1/10240 (nl < 1/320)

EW, Belgian, 52 years, consultation ITMA 21/09/2009:

- Trial with triclabendazole 10 mg/kg/d PO for 2 days
- Excellent clinical evolution
- Laboratory
  - 07/10: WBC: 10400 (18% or 1860 eosinophils)
  - 25/11: WBC: 8020 (6% or 470 eosinophils)
- Ultrasonography liver: no change

Fascioliasis: world distribution

Ashraf K et al. Travel Med Infect Dis-2014
EW, Belgian, 52 years, conclusion  
Acute fasciolasis

Fasciolasis

Acute fasciolasis  
Chronic fasciolasis

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<td>Fasciolasis</td>
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<td>Post-infectious irritable bowel</td>
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ND, 26 years; consultation ITMA 24/12/2018

- Belgian, established in Gabon since 4 months (forest worker)
- Sometimes primitive conditions
- Since 2-3 months
  - Intermittent epigastric pain, without nausea and vomiting
  - No diarrhea
  - No fever

Blood analyses
- WBC count: 14,300 with 21.8% eosinophils (≈ 3,120)
- CRP 14 mg/L (nl < 10)
- IgE: 820 IU/L (nl < 150)
ND, 26 years; consultation ITMA 24/12/2018

- Blood analyses
- Serology
- Stool examination
  - Direct wet smear: neg
  - Ether sedimentation technique: neg
  - Charcot-Leyden crystals: neg
  - 50 eggs/g

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</tr>
<tr>
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<td>Hookworm infection</td>
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DRF, 60 years; consultation ITMA 04/02/2015

- Belgian, trip to China, Laos and Vietnam (3 months in bicycle)
  - No contact with surface water; visits of caves
  - Upon return (4 days ago), fever 38.6°C, bodyache, cough
  - Ph. exam: unremarkable
  - Blood analyses
    - WBC 2,100 with 47% lymphocytes
    - CRP: 25 mg/L (< 10)
  - Blood smear: negative; dengue NS1 antigen assay: negative
  - Doubtful serology for Coxiella burnetti (phase 1 & 2 IgG: 1/256)
  - Throat sampling: Influenza and other viruses negative
  - Chest X-rays: negative

DRF, 60 years; consultation ITMA 04/02/2015

- Trial with doxycycline
  - No improvement; persistent fatigue, night sweats and episodic abdominal pain
- Control 3 weeks later
  - Blood analyses: WBC 8,130 with 12% eosinophils (1,040/µL); CRP normalized
  - Anti-parasitic serology (S. stercoralis, Schistosoma, Filaria, Toxocara, Anisakis, Fasciola): neg
  - All other serologies (dengue, chikungunya, histoplasma, Coxiella burnetti,...): neg
  - Feces examination (2x): negative

DRF, 60 years; consultation ITMA 04/02/2015

- What do you do?

  - Wait and see?
  - Therapeutic trial with ivermectine?
  - Therapeutic trial with praziquantel?
  - Therapeutic trial with albendazole?
  - Therapeutic trial with itraconazole?
DRF, 60 years; consultation ITMA 04/02/2015

- Trial with doxycycline
- no improvement, persistent fatigue, night sweats and episodic abdominal pain
- Control 3 weeks later
- Blood analyses: WBC: 8,130 with 12% eosinophils (1,040/µL); CRP normalized
- Anti-parasitic serology (S. stercoralis, Schistosoma, Filario, Toxocara, Anisakia, Fasciola): neg
- All other serologies (dengue, chikungunya, histoplasma, Cowella burnetti,...): neg
- Feces examination (2x): negative
- Decision to start albendazole (suspicion of “Loeffler-like” syndrome) on 10/03
- Control on 21/04
  - Much better clinically (although not fully recovered)
  - Blood analyses: WBC 6,360 with 8% eosinophils (509/µL)

What if the work up is negative?

- 955 returning travelers evaluated; 82 (8.6%) had eosinophilia
- Half (44%) were diagnosed with schistosomiasis; half (38%) as “non-schistosomal eosinophilia” (NSE)
- Among NSE, parasitological diagnosed was achieved in 24%
- Empirical albendazole (400 mg BID for 3–5 days) led to a clinical improvement in 90% of NSE cases
- Helminthic disease probably accounts for the majority of cases of post-travel eosinophilia (in particular if abdominal symptoms are present) and empiric albendazole therapy should be offered to undiagnosed NSE patients.

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KA, 32 years, consultation ITMA 20/01/2019

- Native from Sierra Leone; established in Europe since 20 years; in Belgium since 2011
- Episodes of transient abdominal pain often with diarrhea, during a few days, since about 10 years
- Sometimes red blood in stool
- No fever; no weight loss

KA, 32 years, consultation ITMA 20/01/2019

Referred by gastro-enterologist after colonoscopy

KA, 32 years, consultation ITMA 20/01/2019

What is your diagnosis?

- Strongyloidiasis?
- (Ectopic) fascioliasis?
- Colic adenocarcinoma?
- Intestinal schistosomiasis?

KA, 32 years, consultation ITMA 20/01/2019

- Hematology
  - Eosinophil count 590/µL (12% of WBC count)
- Serology
  - Schistosoma EISA: 5.8 (nl < 1)
  - Schistosoma IHA 1/320 (nl < 1/160)
- Stool exam
  - 220 S. mansoni eggs/gr. (living)

KA, 32 years, consultation ITMA 20/01/2019

Thank you for your attention

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