“I went to visit my family and I came back with...”

Fever in Migrants

Mike Brown

Hospital for Tropical Diseases, London
Principles of fever in returning migrants

Exposures
Pre-travel planning
Self-treatment & health-seeking behaviour
Partial immunity
Diagnostics – beware serology
Diseases with latency – distant travel history
Food
Expats, travellers
Use of chemoprophylaxis by departing passengers in the departure lounge

![Graph showing the use of chemoprophylaxis in various countries.](chart)

- ** Angola **: 367%, 0% (No Chemo: 1%, use Chemo: 0%)
- ** Djibouti **: 65%, 0% (No Chemo: 1%, use Chemo: 0%)
- ** Ethiopia **: 62%, 0% (No Chemo: 1%, use Chemo: 0%)
- ** Gambia **: 23, 0% (No Chemo: 0%, use Chemo: 0%)
- ** Ghana **: 0, 0% (No Chemo: 0%, use Chemo: 0%)
- ** India **: 75, 20% (No Chemo: 0%, use Chemo: 20%)
- ** Kenya **: 91, 81% (No Chemo: 0%, use Chemo: 81%)
- ** Nigeria **: 121, 48% (No Chemo: 0%, use Chemo: 48%)
- ** Sierra Leone **: 12, 83% (No Chemo: 0%, use Chemo: 83%)
- ** South Africa **: 13, 23% (No Chemo: 0%, use Chemo: 23%)
- ** Spain **: 70, 0% (No Chemo: 0%, use Chemo: 0%)
- ** Sudan **: 4, 0% (No Chemo: 0%, use Chemo: 0%)
- ** Tanzania **: 17, 82% (No Chemo: 0%, use Chemo: 82%)
- ** Thailand **: 62, 0% (No Chemo: 0%, use Chemo: 0%)
- ** Uganda **: 10, 90% (No Chemo: 0%, use Chemo: 90%)
- ** Vietnam **: 2, 0% (No Chemo: 0%, use Chemo: 0%)
- ** Zimbabwe **: 0, 0% (No Chemo: 0%, use Chemo: 0%)

% Use
HISTORY

• 28 year old Nigerian student
• 48 hour history  fever  aching muscles  mild headache  loose bowels
• returned to UK one week ago
• visiting family in Nigeria
• no significant past medical or family history
FURTHER HISTORY

• no malaria prophylaxis
• no bed nets or insect repellents used
• no vaccinations before travel
• stayed with family in Lagos
• brief trip north to visit relatives in their village
EXAMINATION

• Temperature 38ºC
• Pulse 100 regular
• BP 110 / 60
• GI spleen tip palpable
• CVS, RS unremarkable
• CNS unremarkable
• Diagnosis:
  Uncomplicated *P. falciparum* malaria in a “semi-immune” migrant

Treatment:
  Riamet
Admit?

- D’Acremont et al 2002
- Brian et al J Travel Med 2007
- Bottieau et al 2007
- Melzer 2006:
- Klein 2012

Risk stratification may be able to identify low risk patients suitable for ambulatory care
Severe malaria “immune vs non-immune”

- 2,000 imported cases per year in UK, mortality 1%
- Caucasians vs. non-Caucasians
- 99 consecutive patients at HTD

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mild</th>
<th>Severe</th>
<th>Statistical value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 74</td>
<td>n = 25</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>50 (68%)</td>
<td>18 (72%)</td>
<td>$\chi^2 = 0.17, P = 0.7$</td>
</tr>
<tr>
<td>Female</td>
<td>24 (32%)</td>
<td>7 (28%)</td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>39.8 (13.2)</td>
<td>37.9 (13.3)</td>
<td>$t = 0.6, P = 0.6$</td>
</tr>
<tr>
<td>Ethnic background</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>21 (28%)</td>
<td>7 (28%)</td>
<td>$\chi^2_{df=2} = 3.42, P = 0.18$</td>
</tr>
<tr>
<td>Black African</td>
<td>51 (69%)</td>
<td>15 (60%)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>2 (3%)</td>
<td>3 (12%)</td>
<td></td>
</tr>
<tr>
<td>Born in sub-Saharan Africa</td>
<td>50 (68%)</td>
<td>14 (56%)</td>
<td>$\chi^2 = 1.09, P = 0.3$</td>
</tr>
<tr>
<td>Lived in malaria-endemic area</td>
<td>56 (76%)</td>
<td>20 (80%)</td>
<td>$\chi^2 = 0.19, P = 0.7$</td>
</tr>
</tbody>
</table>

- Among HTD patients, severe malaria as common among those African by birth or ethnicity or residence
HTD POCT

• INSTI™ 60 second test
• ~ £6 per test

• Offered, by triage nurse, to all returning travellers attending the Emergency walk-in clinic

• Referral pathway to Health Advisors
HISTORY

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• 48 hour history fever
  aching muscles
  mild headache
  loose bowels
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FURTHER HISTORY

• stayed with family in Lagos
• brief trip north to visit relatives in their village - burial rites
• sick contacts
• contact with rats
Trexler isolator
43 ♂ Bangladesh → UK 1990s
2 month trip (VFR) to Dhakar.
3 days after return: fever
  malaise
  headache
  dry cough

Presented to A&E 10 days later

PMHx NAD         SHx NAD
No malaria prophylaxis, no vaccinations before travel
O/E

Flushed, in discomfort.  T=38.9°C
HR 90 BP 150/84  RR 12

CVS/RS NAD

Abdo:

spleen

moderately tender
Malaria film negative
Hb 15.2 WC 6.4 (nφ 5.1 lφ 1.2) plt 189
ALT 98 alb 37 ALP 154 bili 10
U&E N

CXR N

Stool & Blood cultures taken

Empirical treatment: iv ceftriaxone 2g od
D1: gram-negative rods 4/4 blood cultures

D2: *Salmonella paratyphi*

D2: Patient much improved, switched to oral antibiotics

D3: still T 39

D4: still T 39

D5: Apyrexial – discharged home.
Enteric Fever In Returning Travellers

Trupti Patel
Hospital for Tropical Diseases
2000-2009: 92 cases at HTD
Symptom onset

WEEK 1
WEEK 2
WEEK 3
WEEK 4
WEEK 7
WEEK 25

N=85
Clinical Features

Presenting complaint

- Fever: 100%
- GI upset: 60%
- Cough: 30%

N=87,83,83
Changing Pattern of Acute Hepatitis

68 cases of hepatitis
Alanine transaminase >1000
Serology positive for hepatitis virus
Hepatitis E is the commonest cause for admission with hepatitis to HTD
Asian ethnic origin

Hepatitis A

Hepatitis E
Brucellosis

*B. melitensis*  goats, sheep, camels
*B. abortus*  cattle
*B. suis*  pigs

Recurrent, prolonged fever
Focal musculoskeletal symptoms
Anorexia, lethargy, depression
Clinical features:

Incubation period - usually 2-4 weeks
May be several months - insidious

Symptoms +++

- Gastrointestinal ~ 70%
- Arthritis (large joints) ~ 40%
- Cutaneous ~ 10%
- Orchitis ~ 4%
- Endocarditis ~ 2%

Signs +/-
Diagnosis:

Lymphopenia, thrombocytopenia

Blood cultures

Serology
GR aged 60 retired health visitor

Rheumatoid arthritis
DHx methotrexate

May 2009 Referred for anti-TNF:
Hep B/hep C screening;
CXR normal → infliximab, humira

May 2010: 2/12 cough
2 courses antibiotics from GP → AAU
Xray: patchy R perihilar opacification
Further history:

Cape Coloured - born and worked in Cape Town as a nurse in TB hospital until moving to UK 1999.

Sputum: AFB++ M.tuberculosis

NICE: universal IGRA testing pre-αTNF 2011
Country of Birth
... need better recording of country of birth: 
the data is collected:

<table>
<thead>
<tr>
<th>Patient's details</th>
<th>Please complete in BLOCK CAPITALS and tick ✓ as appropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Mr □ Mrs □ Miss □ Ms</td>
<td>Surname</td>
</tr>
<tr>
<td>Date of birth</td>
<td>First names</td>
</tr>
<tr>
<td>NHS No.</td>
<td>Previous surname(s)</td>
</tr>
<tr>
<td>□ Male □ Female</td>
<td>Town and country of birth</td>
</tr>
</tbody>
</table>

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**Please help us trace your previous medical records by providing the following information**

<table>
<thead>
<tr>
<th>Your previous address in UK</th>
<th>Name of previous doctor while at that address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Address of previous doctor</td>
</tr>
</tbody>
</table>

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**If you are from abroad**

<table>
<thead>
<tr>
<th>Your first UK address where registered with a GP</th>
</tr>
</thead>
</table>

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<table>
<thead>
<tr>
<th>If previously resident in UK, date of leaving</th>
<th>Date you first came to live in UK</th>
</tr>
</thead>
</table>

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**If you are returning from the Armed Forces**

<table>
<thead>
<tr>
<th>Address before enlisting</th>
</tr>
</thead>
</table>

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<table>
<thead>
<tr>
<th>Service or Personnel number</th>
<th>Enlistment date</th>
</tr>
</thead>
</table>

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**If you are registering a child under 5**

□ I wish the child above to be registered with the doctor named overleaf for Child Health Surveillance
Please choose one Ethnicity ONLY

- British or mixed British
- Other White
- Caribbean
- African
- Other Mixed
- Indian or British Indian
- Pakistani or British Pakistani
- Bangladeshi or British Bangladeshi
- Other Asian
- Other Black
- Chinese
- Other Ethnic
- Ethnicity not stated
- Country of Birth

Click on the link below to access the Health Protection Agency's Migrant Health Guide. This gives very useful information, country by country, for the health problems we should be aware of, in patients coming from that country.

Migrant Health Guide from Health Protection Agency
- Language
- Interpreter Needed
- Interpreter Present
- Text: Name of Interpreter

- Language not given - patient refused
Stage II West African Trypanosomiasis – 30-40yrs since exposure!
Potential outcome of untreated Strongyloides

US: heath economics analyses favour empirical treatment of all migrants
Potential outcome of severe Strongyloidiasis

Disseminated strongyloidiasis in immunosuppressed patients
– severe diarrhoea, necrotising pneumonia, gram-negative sepsis +/- meningitis

US: health economics analyses favour empirical treatment of all migrants
Strongyloides in E London

? Prevalence in migrants (>70% in SE Asians in Canada)
Sources of information

• British Infection Society/HTD guideline in press
  – “fever + respiratory symptoms”
  – “fever + hepatitis” etc

• HPA website – country-specific info for GPs – in press

• Hospitals for Tropical Diseases (London, Liverpool) for telephone advice

• HTD SpR/consultant mobile 07908250924
HTD emergency walk-in service

2500 visits per annum
18% local; 20% outside London
Thank you for listening

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