ILLNESS IN THE RETURNING TRAVELER

Fascinating Challenge
Potential Emergency

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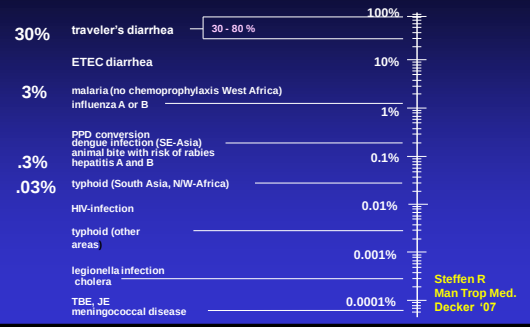
OBJECTIVES

- Evaluate the sick returning international traveler
- Diagnose and treat the traveler with diarrhea
- Diagnose and treat the febrile traveler

"JEFFERS0NIAN" APPROACH TO TRAVEL MEDICINE

- You must think of a diagnosis to make it
- When you hear foot beats, think zebras as well as horses
- Learn from the mistakes of others, you don't have time to make them all yourself
- When you need help, get it

INCIDENCE RATE/MONTH OF HEALTH PROBLEMS DURING TRAVEL IN DEVELOPING COUNTRIES



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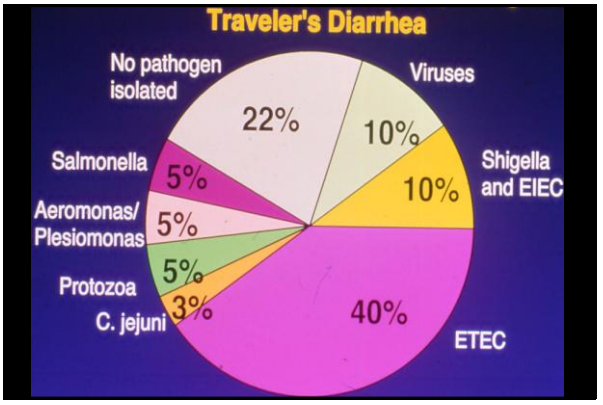
TRAVELER'S DIARRHEA "GOLDEN RULE"

COOK IT,
BOIL IT,
PEEL IT,
or FORGET IT!

PREVENTION OF ENTERIC INFECTIONS

- Wash hands or use alcohol-based agents
- Avoid salads and ice
- Peel fruits
- Carbonated and alcoholic beverages are safe



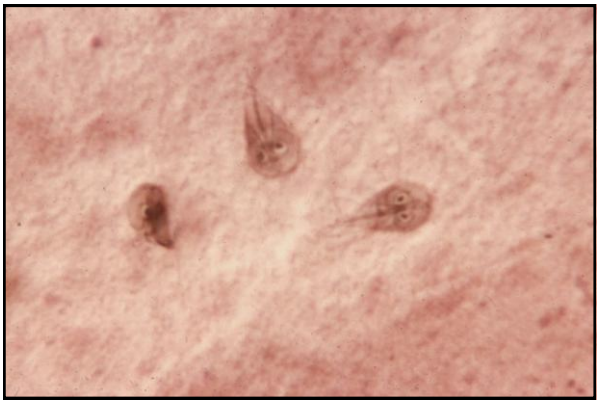
EMPIRIC TREATMENT OF ACUTE TRAVELER'S DIARRHEA

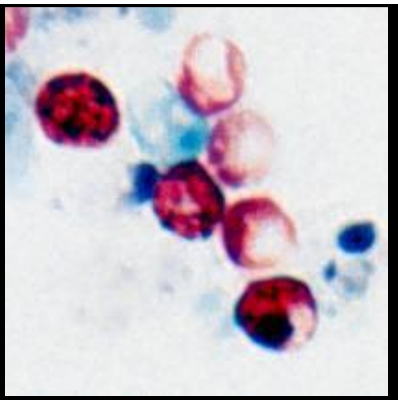
- Antibiotic treatment
  - Ciprofloxacin (single dose), levofloxacin, ofloxacin or norfloxacin
    - Contraindicated in children and in treatment of *E. coli* 0157H7
  - Azithromycin (Single dose) for travelers to Asia, children and select adults
- Antimotility agents – loperamide (contraindicated in inflammatory/bloody diarrhea, etc.)

REHYDRATION

- Oral rehydration solution (ORS) (Glucose, NaCl, KCl and water)
- Glass of juice/pinch of NaCl alternating with a glass of water – repeat until urinating normally

What about diarrhea that persists (>2 weeks)?



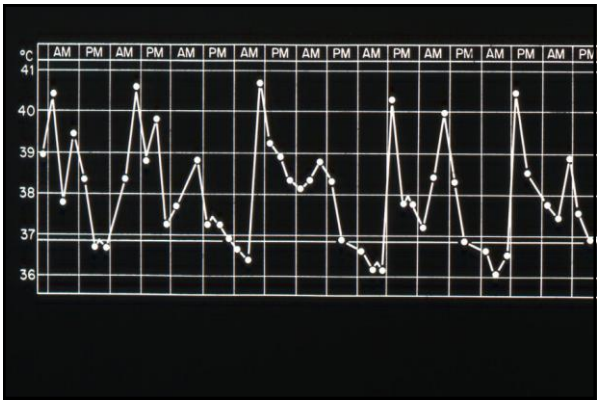


TREATMENT

- Nitazoxanide 500 mg po twice daily for 3d
  - Effective for giardiasis and cryptosporidiosis
  - Well tolerated in children and adults
- Other options for giardiasis:
  - Metronidazole and Tinidazole

HISTORY

23-year-old UVA student presented with headache, myalgias and fever in mid-January. Over the December holidays she had visited family in Monrovia, Liberia. She had no chronic medical problems.



PHYSICAL EXAMINATION

Acutely ill appearing African-American
T = 38.9° C BP 115/72 mmHg, P 110/min
Skin: No rash or adenopathy
HEENT: normal
Chest: Clear to A and P
Heart: S1 and S2 normal. No murmurs or ES
Abdomen: Soft, non-tender, no organomegaly
Extremities: Normal

LABORATORY

- HgB 12.0 Hct 34% WBC 6,200 diff nl
- Bilirubin 3.0 mg/dl, AST 190 U, ALT 130U Alk Phos U 110 LDH 1,650 U
- UA negative
- CXR normal

DIFFERENTIAL DIAGNOSIS?

KEY CONCEPTS

- Who (PMH, immunizations, medications)
- Where (Itinerary)
- What (Medical exposures, sex)
- When (Vectors, seasonal variations)

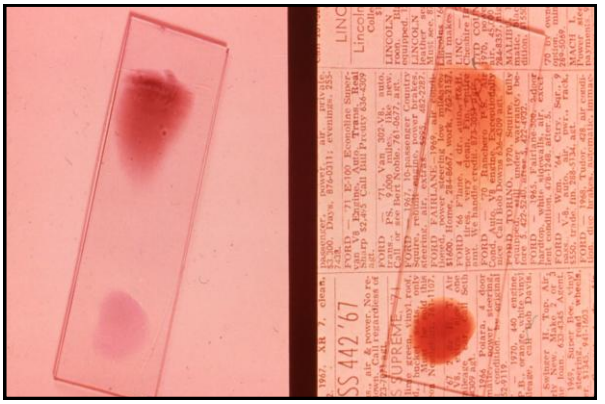
KEY CONCEPTS

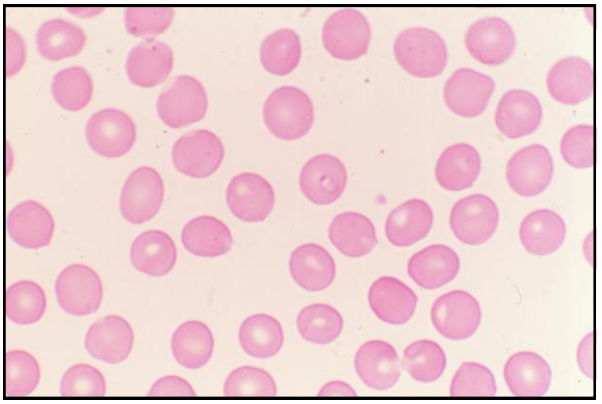
- Fever in the traveler – MALARIA until proven otherwise
- Consider "unusual diseases"
- Common things are common UTI, pharyngitis, pulmonary embolus
- When in doubt, re-examine the patient
- Remember public health implications
- Special resources

TOP 10 CAUSES OF FEVER IN TRAVELERS

MacLean et al. *Travel Medicine Advisor*, 1994
Bryceson et al. *Q J Med* 1995;88:277

- Malaria
- Respiratory infections (influenza & pneumonia)
- Infectious diarrhea
- Hepatitis
- Urinary tract infections
- Dengue fever
- Enteric fever
- Rickettsia
- Infectious mononucleosis
- Pharyngitis





Binax Now® Malaria Test

- *Plasmodium falciparum*
  Histidine-rich protein II (HRPII) antigen specific to *Pl. falciparum* (P.f.)
  Sens/Spec – (99.7% (95) / 94.2%)
- *Plasmodium species*
  Pan-sensitive malarial antigen, common to all four malaria species that infect
  Sensitivity/Specificity – 93.5% / 99.8%

MALARIA IN THE UNITED STATES

- US cases approximately 1,500/year
- VFR (Visitors to Friends and Relatives) account for 47% of cases
- *Plasmodium falciparum* (Nigeria, Ghana, Liberia, Afghanistan, Uganda
- *Plasmodium vivax* (India, Ethiopia, Guatemala)

TREATMENT OF MALARIA

Chloroquine-sensitive Plasmodium spp.

- Chloroquine phosphate 1,000 mg (salt) followed by 500 mg in 6 hours and then 500 mg daily for 2 days

  or

- One of the drugs used for chloroquine-resistant malaria

Medical Letter- Drugs for Parasitic Infections

TREATMENT OF MALARIA

Chloroquine-resistant:

- Malarone® (atovaquone/proguanil)
  4 adult tablets po daily for 3 days
- Coartem® (artemether/lumefantrine)
  6 doses (adults 4 tablets/dose) over 3 days
- Quinine sulfate po 650 three a day for 7 days and doxycycline po 100 twice daily for 7 days

Medical Letter – Drugs for Parasitic Diseases

TREATMENT OF MALARIA

Persons unable to take oral medications:
Quinidine gluconate I.V.
or
Artesunate I.M. (CDC IND)
(Quinidine not available or contraindicated)

Medical Letter – Drugs for Parasitic Infections

PREVENTION OF RELAPSE *P. vivax* and *P. ovale*

- Primaquine phosphate 30 mg daily for 14 days
- Must check G-6-PD level
- Contraindicted in Pregnancy

Medical Letter - Drugs for Parasitic Infections

What do you do if the malaria smear, physical examination, initial studies are non-diagnostic?

APPROACH TO EMPIRIC THERAPY

- Malarone or Coartem for malaria
- Antibiotic therapy to cover *Salmonella typhi* and other potential bacterial pathogens or viruses if suspected
- Doxycycline for rickettsia
- Avoid aspirin and other NSAIDs if dengue is a possibility

REFERENCES

- Drugs for parasitic infections. *Medical Letter*. http://www.medicalletter.org
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