Foodborne Illness Case Presentation

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EMORY UNIVERSITY

Project ECHO®

The Case

32 year old man with no significant past medical history presents to the ED w/ fever, abdominal pain, and loose stools

History of Present Illness

- Pt was in usual state of health until 7 days before admission when he started experiencing sudden fatigue while at work
- The next day he developed low-grade fever to 100.5
- Over the next 4 days his fatigue and fevers (up to 103) worsened, requiring him to call out of work
- During this time, he also developed diffuse abdominal pain and 5 loose, non-bloody bowel movements daily
- The symptoms were not improving, so he decided to present to the emergency room for further evaluation

Travel History

- 1 week before symptom onset, pt traveled to India for 3 weeks where he was visiting friends and relatives
- He admits to eating undercooked meats and drinking local water
- He interacted regularly with cats, dogs, cows, chickens, and goats on his family's farm. He frequently drank milk directly from the cows.
- He did not have a pre-travel evaluation prior to his trip

Other Social History

- Lives alone in Marietta, GA in a house
- Has 6 month old puppy
- Works as a software engineer
- Not currently sexually active

Physical Exam

VS: Temp **103.1**, HR **118**, BP **102/61**, RR 18, SpO2 99%

PEX:

Gen: **fatigued appearing**, no apparent distress

HEENT: no scleral icterus, OP clear

Cardiac: **tachycardic**, regular rhythm, no murmurs

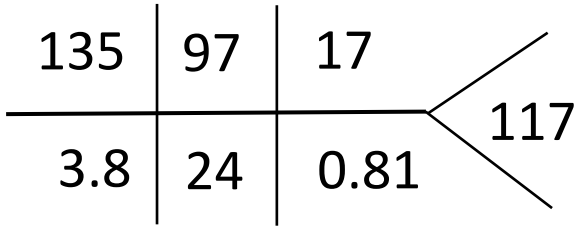
Pulm: No increased work of breathing, lungs clear

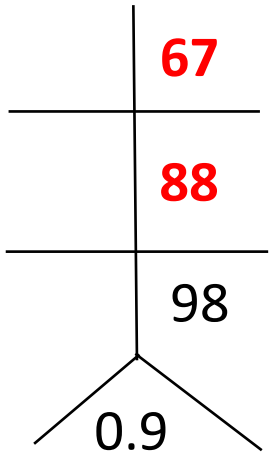
Abdomen: Soft, **mildly distended**, **diffusely tender** to mild palpation

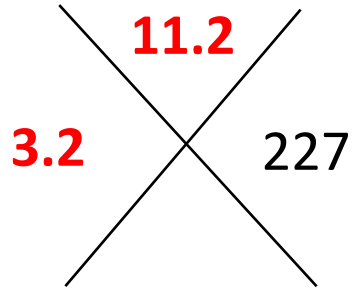
Skin: **faint, erythematous macular rash across trunk**

Neuro: Awake, alert, conversational, strength 5/5

Basic Labs







Case Summary

32 year old man with no significant past medical history p/w >1 week fever, abd pain, loose stools after recent trip to India. Found to be febrile and tachycardic w/ transaminitis, leukopenia, and anemia. Clinical picture is concerning for sepsis secondary to acute infectious diarrhea

What is the differential for infectious diarrhea in the returning traveler?

Viral:

- Norovirus
- Rotavirus
- Sapovirus

Bacterial:

- Salmonella (typhoid fever vs. non-typhoidal)
- Campylobacter
- E. coli (ETEC, EHEC, etc.)
- Shigella
- Cholera
- Yersinia
- C. difficile
- Vibrio

Parasitic:

- Giardia
- Entamoeba histolytica
- Cryptosporidium
- Cyclospora

When should we consider this targeted testing in acute infectious diarrhea?

- Stool testing if:
  - Concern for salmonella, shigella, campylobacter, yersinia, C. diff, STEC w/ fever
  - severe abdominal pain, or bloody/mucoid diarrhea
  - Specific epidemiologic risks (travel, swimming pools, setting of known outbreaks, etc.)
- Add Blood cultures if:
  - Fever or other systemic signs of infection
  - <3mo old
  - High risk conditions – immunocompromised, hemolytic anemia
  - Concern for typhoid fever or close contact

Clinical Infectious Diseases
IDSA GUIDELINE

2017 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Management of Infectious Diarrhea

Andi L. Shane, MD[1] Rajal K. Mody, MD[2] John A. Crump, MD[3] Phillip I. Tarr,[4] Theodore S. Steiner, MD[5] Karen Kotloff, MD[6] Joanne M. Langley, MD[7] Christine Wanke, MD[8] Cirle Alcantara Warren, MD[9] Allen C. Cheng, PhD[10] Joseph Cantey, MD[11] and Larry K. Pickering, MD[12]

What testing exists for acute infectious diarrhea?

- Stool based tests
  - Culture-independent diagnostic tests: PCRs, EIAs
  - Cultures (less common)
- Blood cultures
- Lactoferrin and fecal leukocytes not recommended

Clinical Infectious Diseases

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IDSA Infectious Diseases Society of America hivma hiv medicine association OXFORD

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Work-up ordered for our patient

- Blood cultures
- Stool culture
- GI Bacterial PCR Pathogen Panel
- C. diff assay
- Stool O&P
- Lactoferrin

When is it appropriate to consider empiric treatment for acute infectious diarrhea?

- Watery diarrhea, IF:
  - Immunocompromised
  - Young, ill-appearing infants
- Bloody diarrhea, IF:
  - Infants <3mo w/ c/f bacterial
  - c/f shigella
  - International traveler w/ fever >38.5
- Typhoid fever or sepsis/septicemia is suspected

Adults: Fluoroquinolone or Azithromycin
Children: 3rd gen cephalosporin or Azithromycin

Broad-spectrum (3rd gen cephalosporin or higher)

Hospital Course

8/8
-fevers to 103.1
-testing sent
-empirically started on ceftriaxone

8/9
-hypotensive + febrile
-requires pressors and ICU admission
-testing pending
-broadened to meropenem

Results of testing

- Lactoferrin: +
- C. diff: -
- Stool O&P: -

Stool culture

Status: **Edited Result - FINAL** Next appt: **None**

Test Result Released: **Yes (not seen)**

Specimen Information: Per Rectum; Stool

Stool Culture	Normal enteric microbiota
	Salmonella species not isolated.
	Shigella species not isolated.
	E.coli O157:H7 not isolated.

Results of testing (cont)

Blood culture, peripheral #1

Status: **Final result** Next appt: **None**

Test Result Released: **Yes (not seen)**

Specimen Information: Blood, venous

Blood Culture **Salmonella !**

Salmonella ser Typhi

Identification/Confirmation performed by:
Georgia Public Health Laboratory 1749
Clairmont Rd. Decatur, GA 30033.

Gastrointestinal Pathogen Panel (ID Only)

Status: **Final result** Next appt: **None**

Test Result Released: **Yes (not seen)**

Specimen Information: Per Rectum; Stool

Component Ref Range & Units (hover)	
Campylobacter	Not Detected
Plesiomonas shigelloides	Not Detected
Salmonella	**Detected !**
Yersinia enterocolitica	Not Detected
Vibrio	Not Detected
Vibrio cholerae	Not Detected
Enteroaggregative E. coli	**Detected !**
Enteropathogenic E. coli	**Detected !**
Enterotoxigenic E. coli	Not Detected
Shiga-like toxin-producing E. coli	Not Detected
Shigella/Enteroinvasive E. coli	Not Detected
Cryptosporidium	Not Detected
Cyclospora cayetanensis	Not Detected
Entamoeba histolytica	Not Detected
Giardia lamblia	Not Detected
Adenovirus F 40/41	Not Detected
Astrovirus	Not Detected
Norovirus GI/GII	Not Detected
Rotavirus A	Not Detected
Sapovirus	Not Detected

Typhoid Fever

- Caused by Salmonella enterica spp typhi
- Endemic to many parts of the world outside of the US (see CDC Yellow Book)
- Fecal-oral transmission via contaminated food/water
- Incubation period: 6-30 days
- Slow onset over several days to a week
  - Ubiquitous: fever, fatigue, anorexia, HA
  - Common: abd pain, constipation vs. diarrhea in adults (diarrhea more common in children)
  - Later in presentation: maculopapular rash, hepatosplenomegaly

Complications of Typhoid Fever

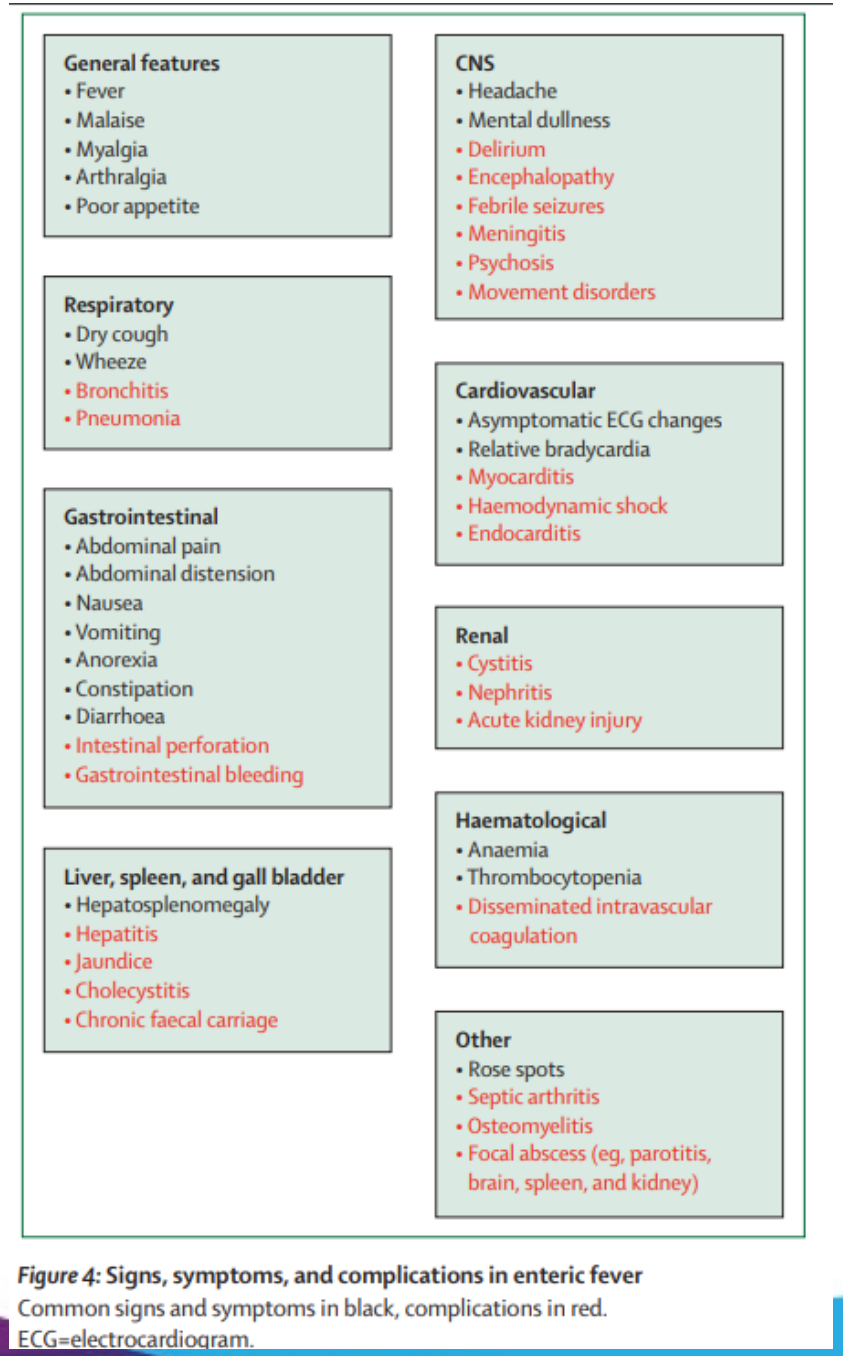


Figure 4: **Signs, symptoms, and complications in enteric fever**
Common signs and symptoms in black, complications in red.
ECG=electrocardiogram.

Hospital Course

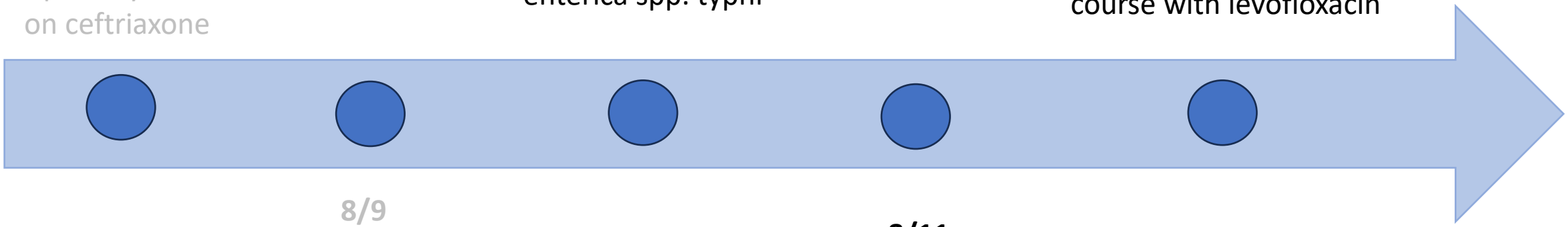
8/8
-Fevers to 103.1
-testing sent
-Empirically started on ceftriaxone

8/9
-hypotensive + febrile
-requires pressors and ICU admission
-testing pending
-broadened to meropenem

8/10
-GI PCR + salmonella
-blood cx + salmonella enterica spp. typhi

8/11
-fevers resolve and off pressors
-sensitivities come (pan-sensitive)
-narrowed back to ceftriaxone

8/14
-discharged on hospital day 7
-planned to complete 14 day course with levofloxacin



Opportunities for prevention

- One of the few causes of traveler's diarrhea that has a vaccine!
- Vaccine options:
  - Live-attenuated oral (lasts 5 years)
  - Inactivated injectable (lasts 2 years)
- Food and water precautions
  - No local water – only bottled or boiled
  - No raw meats, eggs, etc.
  - Only fruits/veggies you can peel or wash yourself
  - Handwashing or alcohol-based rubs

Key Takeaways

- Foodborne illnesses can present with abdominal pain, diarrhea, and fevers if severe. This includes typhoid fever which has a more insidious onset
- Foodborne illnesses can be detected by both culture and culture independent (ie. PCR, EIA) stool testing and by blood cultures in the select patients/setting
- Empiric therapy should be reserved for diarrhea in select populations (young infants, travelers with fever, etc.), if typhoid fever is suspected, or if septicemia is suspected
- Typhoid fever can be prevented by getting vaccinated and practicing food and water precautions while traveling to endemic areas

Citations

- Shane AL, Mody RK, Crump JA, Tarr PI, Steiner TS, Kotloff K, Langley JM, Wanke C, Warren CA, Cheng AC, Cantey J, Pickering LK. 2017 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Management of Infectious Diarrhea. Clin Infect Dis. 2017 Nov 29;65(12):e45-e80. doi: 10.1093/cid/cix669. PMID: 29053792; PMCID: PMC5850553.
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- Centers for Disease Control and Prevention. (2025). CDC Yellow Book 2026: Health Information for International Travel. Oxford University Press.
- Kuehn R, Rahden P, Hussain HS, Karkey A, Qamar FN, Rupali P, Parry CM. Enteric (typhoid and paratyphoid) fever. Lancet. 2025 Sep 20;406(10509):1283-1294. doi: 10.1016/S0140-6736(25)01335-2. Epub 2025 Sep 3. PMID: 40914181.