Pet Pigs and Pyrexia

7th Annual SHM Iowa Chapter Conference
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No disclosures

HPI:

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• 45 yo male with OSH ED with 1-2 days duration of fever and severe retroorbital constant headache. +photophobia.

• No URI symptoms, cough, dyspnea, chest pain, dysuria, rash, nausea, vomiting, abd pain, diarrhea, joint pain. No seizures, confusion, numbness, tingling or weakness

• No tick exposure. No recent insect bites.

• No sick contacts. No consumption of raw or undercooked food.
History continued

- PMHx: chronic pain, depression/anxiety and GERD
- PSHx: lap chole & tonsillectomy
- FH: noncontributory
- Meds: Amitriptyline and tramadol
- Allergies: NKDA

SH:
- Tobacco: 1ppd x 25yrs.
- ETOH: 2 drinks per week.
- Polysubstance abuse: Meth, cocaine, and marijuana. Last used meth 2 weeks ago. No cannabis use for several years. No IVDU.
- Sexually active with women.
- Employed full time as a painter.
- Lives in Iowa without recent travel.

Physical Exam

- Vitals: Vital: 39.1, 111, 138/68, 18, 96% on RA
- General: well developed, middle aged male. No distress. Nontoxic appearing
- HEENT: Sclera anicteric. Conjunctivae clear. EOMI. PERRL. MMM. Poor dentition.
- CV: RRR. No m/r/g.
- Resp: CTAB. No wheezes, crackles or rhonchi
- Abd: Soft. ND. NT. +BS. No HSM.
- GU: No lesions
- MSK/EX: No edema. No synovitis.
- Skin: Cyanotic mottled skin over the arms, lower back and trunk. No jaundice.
- Psych: Good mood and congruent affect
Labs

<table>
<thead>
<tr>
<th>CBC</th>
<th>BMP</th>
<th>LFTs</th>
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<tbody>
<tr>
<td>4.5</td>
<td>137</td>
<td>0.3</td>
</tr>
<tr>
<td>38.4</td>
<td>105</td>
<td>368</td>
</tr>
<tr>
<td>152</td>
<td>11</td>
<td>388</td>
</tr>
<tr>
<td>94</td>
<td>94</td>
<td>294</td>
</tr>
</tbody>
</table>

4.7

71% segs; 2% bands

13.1

11

4.7

29

1.01

1.01

0.3

UA negative

CRP: 5.71

UDS + amphetamines

OSH ED work up

- Bcx x2 sent
- Head CT: normal
- CXR: normal
- Abdominal US: mild hepatomegaly, s/p cholecystectomy with prominence of CBD ~ 7mm. Normal spleen & kidneys
OSH ED work up

- LP was performed. Opening pressure normal.
- Started on empiric meningitis treatment with IV Vancomycin, Ceftriaxone, & Acyclovir
- Transferred to St. Luke’s
  - CSF tubes from OSH were sent with patient but lab was unable to run studies d/t improper transportation and samples were rejected

Hospital Course

- Persistent fevers and corresponding headache
- Blood cultures remain no growth
- Hep A/B/C panel negative
Hospital Course

- HOD#3
  - ID consultation.
  - HIV, CMV, EBV, Lyme serology sent
  - Acyclovir stopped.
  - Continued on IV Ceftriaxone and Vanco.
- HOD#4
  - Feeling better and feels normal during the day. Anxious to leave the hospital but still spiking nocturnal fevers.
  - Vancomycin discontinued.
  - Continued on Ceftriaxone
Labs Continued….

- HIV negative
- CMV IgG and IgM negative
- EBV IgG positive
- EBV IgM negative
- Lyme Ab negative

- Blood cultures remain normal
- CBC remains normal
- LFTs with persistent elevated AST/ALT/Alk phos. Normal T. bili.
Nocturnal Fevers and Hepatitis……

Get more patient history

History revealed…….
Hospital Course

- Rickettsial, leptospira, bartonella, and Q fever serologies obtained
- Started on Doxycycline 100mg BID the evening of HOD#5

Temperature Curve

- Doxy started

Day 1  Day 2  Day 3  Day 4  Day 5  Day 6  Day 7

Temperature
Hospital Course

- HOD#7: No fever x 24H. feeling fine. Patient requested discharge home. Sent home on 2 weeks of doxy.

Q Fever Serologies

- Phase I ab IgM 1:16
- Phase II ab IgM 1:256
- Phase I ab IgG <1:16
- Phase II ab IgG <1:16
- Patient lost to follow up
- Convalescent serologies unable to be obtained
- Lab reported to Department of Public Health
• Active Q fever infections are characterized by 4 fold increase in serum IgG between acute and convalescent samples and or the presence of IgM antibodies directed against phase II organisms. In chronic Q fever the IgG and or IgM response is most often directed against phase I organisms, resulting in phase I titers that are greater than phase II titers.

• Serocoversion occurs 7-15 days after symptoms appear.

• Phase II IgM develop in 2nd week of acute illness with an increase in phase II IgG thereafter.
Zoonotic Disease

- Livestock
- Domestic Animals
- Rodents
- Birds

Coxiella burnetii

- Shed through birth products, feces, urine, and milk
- Inhalation of airborne organisms from contaminated soil or waste
- Highly infectious in Phase I expression
- Worldwide distribution
- 1999- Nationally reportable disease d/t potential bioterrorism agent
- 2000-2010: only 405 cases reported to CDC
- Peak season: Spring & early Summer
Clinical Features

- **Asymptomatic in majority of cases**
- Flu-like illness
  - Abrupt fevers (38.5-40°C), fatigue, headache, and myalgias
- Hepatitis
  - 85% cases with abnormal LFTs
- Pneumonia
  - Mild, nonproductive cough
- Purpuric rash
- Myocarditis
- Aseptic meningitis/encephalitis
- Endocarditis-culture negative
  - Majority in chronic Q Fever

Diagnosis

- Difficult to culture
- **Serologic testing**
  - Phase I: virulent
    - Higher in chronic illness
  - Phase II: Less pathogenic
    - Higher in acute illness
  - Best to get acute and convalescent samples 3-6 weeks apart
- PCR is also available and can be tested in acute or chronic disease
Treatment

- Doxycycline for minimum 2 weeks
- Longer durations for those with:
  - Endocarditis
  - Valvulopathy
    - ~40% develop IE
  - Vascular graft
  - Cardiomyopathy
  - Pregnancy-use Bactrim
- Mortality <2% in Acute cases
- ~20% develop post Q fever fatigue syndrome

Key Points

- When you are stuck go back and ask more questions
  …Pet history may be useful 😊
- Consider Q fever in those with prolonged high fever, normal WBC and increased LFTs
- Confirm diagnosis with serologic or PCR testing
- Doxycycline is your go to antibiotic
Thank You

References

• CDC: Diagnosis and Management of Q Fever-United States, 2013. Recommendations from CDC and the Q Fever Working Group
• Pictures from Google