Welcome Applicants!
Good Morning

Friday, January 30th 2014
A 1-month-old infant presents with freckle-like macules over his face and extremities. The hospital record reveals that he had multiple papules and pustules distributed over his entire body, including palms and soles, at birth. The infant appears to be very healthy and thriving.

Of the following, analysis of the pustular contents in the newborn period MOST likely would have revealed?

A. Eosinophils
B. Gram-positive cocci
C. Multinucleated giant cells
D. Polymorphonuclear leukocytes
E. Pseudohyphae and budding yeast
Let’s do a case...
Laboratory Findings

WBC: 12.5  H/H: 10.2/31.7  Platelets: 251

S^62^B^1^L^28^M^6^E^1^

141  |  103  |  11  Glucose: 99  Calcium 9.2
4.2  |  27   |  0.54  AST/ALT: 26/30  Amylase/Lipase: 34/35

Urinalysis: negative

Flu screen: negative  LDH: 203
Monospot: negative  UA: 4.8
Rapid strep: negative  ESR: 62/CRP: 4.6
Blood culture: negative  H. Pylori Ab: negative

CSF: 3 WBC (100% lymphs), 0 RBC, gram stain negative, glucose/protein normal, culture: negative
Radiology Findings

- CXR: within normal limits
- CT abdomen and pelvis: There are several, very small, poorly defined lesions scattered throughout the liver. Normal appearing spleen, pancreas, adrenals, and kidneys. Moderate stool, small amount of pelvic free fluid
What does our patient have?

Meow....
Bartonella henselae
Cat Scratch Disease
Bartonella henselae

- Cats are natural reservoir for *Bartonella henselae*
- Cat scratch or bite leads or flea bite to disease
- Infected cats do not typically show symptoms
  - ~90% of cats <1 year old had positive serologies
- Incidence 3.7/100,000
Bartonella henselae

Fastidious, slow-growing Gram negative

Warthin-Starry silver stain identifies the black-staining organisms associated with cat-scratch disease, seen on examination of an enlarged lymph node.
Recognize the clinical manifestations of cat-scratch disease

- Can be local inflammatory reaction or disseminated
  - Manifestations
    - Regional lymphadenopathy (85-90%)
    - Cutaneous lesions (vesicle → papule)
    - Visceral involvement
    - Ocular involvement
    - Neurologic
    - Musculoskeletal
    - Fever of unknown origin
Lyphadenopathy
Cutaneous findings

Typical papular lesion on the finger of a child with cat scratch disease
Visceral involvement
Parinaud's oculoglandular syndrome – Conjunctivitis – Conjunctival granuloma – Adjacent preauricular lymphadenopathy → usually benign, self-resolving course

Neuroretinitis – Acute vision loss with optic nerve edema +/− afferent pupillary defect – “Macular star”

Ocular involvement

Macular star from ocular involvement with cat scratch disease
Neurologic manifestations

- Wide range:
  - Encephalopathy
  - Transverse myelitis
  - Radiculitis
  - Cerebellar ataxia
Musculoskeletal manifestations

- "Severe and often disabling musculoskeletal manifestation may occur in patients with CSD".
  - Up to Date

- Myalgias
- Arthritis
- Arthralgias
- Tendonitis
- Osteomyelitis
- Neuralgia
Fever of unknown origin

• Definition:
  – Fever >101°F (38.3°C) of at least 8 days duration in patient in whom no diagnosis is apparent after initial evaluation (H&P and labs)
  – Bartonella henselae is the 3rd most common infectious disease diagnosis in children with fever of unknown origin
Know how to diagnose cat-scratch disease

- “It has been suggested that at least three of four of the following criteria be present to establish the diagnosis of CSD in patients with typical findings”:
  - Cat or flea contact regardless of the presence of an inoculation site lesion
  - Negative serology for other causes of adenopathy; sterile pus aspirated from a node; a positive *Bartonella* PCR assay; and/or liver or spleen lesions seen on CT scan
  - Positive serology for *B. henselae* (enzyme immunoassay or indirect fluorescence assay) with a titer ratio of ≥1:64
  - Biopsy showing granulomatous inflammation consistent with CSD or a positive Warthin-Starry silver stain
Formulate a differential diagnosis in a patient with suspected cat-scratch disease

- Non-tuberculous mycobacterial infection
- Tuberculosis
- Sarcoidosis
- Malignancy
  - Lymphoma
- Bacterial or viral adenitis
- Toxoplasmosis
- Histoplasmosis
- Intraabdominal abscess
- Connective tissue disease
Know...
...that cat scratch disease is spread from animals to people

- Brucellosis
- Campylobacter
- Lyme disease
- Plague
- Rabies
- Leptospirosis
- Giardia

- Tularemia
- Rickettsiosis
- Anthrax
- Arbovirus
- Parasties
- Toxocara
- Taenia

... *B. Henselae* is a major opportunistic infection!
Treatment

• Most patients have resolution of symptoms without treatment
  – Disseminated disease occurs in ~14% and these require treatment

• Local disease
  – Azithromycin 10 mg/kg po q day on day 1, then 5 mg/kg po q day x 4 days
  – Alternatives: Clarithromycin, Rifampin, Bactrim, Cipro

• Disseminated disease
  – Azithromycin
  – Rifampin + gentamicin

Corticosteroids???
Our patient

• Proposed diagnostic criteria:
  – **Cat** or flea contact regardless of the presence of an inoculation site lesion
  – Negative serology for other causes of adenopathy; sterile pus aspirated from a node; a positive Bartonella PCR assay; and/or liver or spleen lesions seen on CT scan
  – Positive serology for B. henselae (enzyme immunoassay [EIA] or indirect fluorescence assay [IFA]) with a titer ratio of ≥1:64
  – Biopsy showing granulomatous inflammation consistent with CSD or a positive Warthin-Starry silver stain

  **Azithromycin po x 5 days**

• Bartonella IgM- 1:64 (>1:16 is positive)
• Bartonella IgG- 1:1024 (>1:256 is positive)
Countdown to Mardi Gras... 18 days to go!!

Thank you! Have a Great Day!