

## Challenging Cases #1

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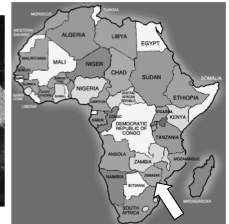
## Conflict of Interest Disclosure

DiscloSure  
NONE

## Case History Part 1

- 60 year old Caucasian female
  - In good health; No meds; Not diabetic; Not hypertensive
- Returns from missionary trip to rural Zimbabwe
- Non-descript, barely visible maculopapular eruption on trunk
- Large tender pustule on leg, which evolves into.....
- Headache and myalgia
- Fever (103°F); BP 178/98; HR 115 beats/min

## Rural Zimbabwe



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## At Time of Presentation



### Case History: Part 2

- Admitted due to skin lesion/rash/fever/↑BP
- Lab-o-gram all normal except WBC 2400
- Dermatology consulted; eschar differential

### Key Point

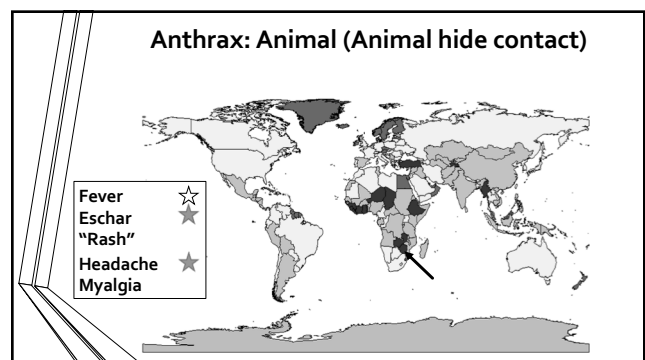
- The eschar is a cutaneous morphologic pattern which may signify serious local or systemic disease, including a host of infections

Disease	Age	# Lesions	Fever	Notes
Flap Necrosis	Adults	One area	No	Post-operative
Embolic	Adults	Few	No	CV history
Mucormycosis	Adults	One area	Yes	Diabetes
Candida, Saprophytes	Any	Few	Yes	↓ Immune system?
Bacterial sepsis (EG)	Any	Few	Yes	History! Neutropenia
Anthrax, Tularemia, Scrub typhus, Plague, Rickettsia	Any	One to Many	Typically	Travel History
Anticoagulant	Adults	One	No	Drug history
Calciphylaxis	>Adults	One to Few	No	Renal disease
Necrotizing Fasciitis Fournier's Gangrene	Older Adults	Large area	Yes	Recent trauma GI/GU Procedure
Snake or Spider bite	Any	One	Maybe	History of bite
Tumor, Primary or Mets	Adults	One	Maybe	Known cancer?

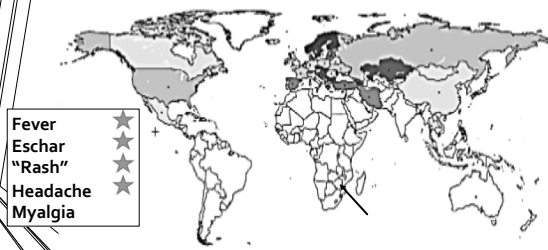
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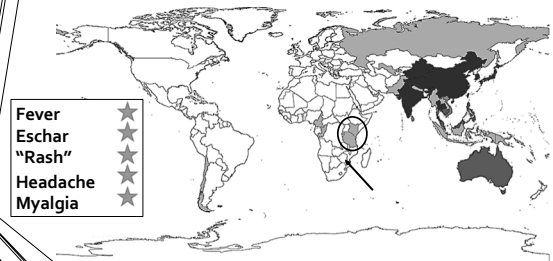
### Anthrax: Animal (Animal hide contact)



### Tularemia (Animal or Vector contact)



### Scrub Typhus: *Orientia tsutsugamushi* (Chiggers)



### Plague (Vector or Animal)



### Rickettsia? African Tick Bite Fever (Ticks)



### Typical Village in Rural Zimbabwe



### Diagnosis based on Differential Dx

DISEASE	SEROLOGY	CULTURE	RESULT
Anthrax	Antibodies vrs Protective Ag	<i>Bacillus anthracis</i>	
Tularemia	Antibodies	<i>Francisella tularensis</i>	
Scrub typhus	Indirect fluorescent antibody; PCR	Not easily done	
Plague	Rapid F1 Ag Antibody	<i>Yersinia pestis</i>	
African Tick Bite Fever	ELISA (late)	Not easily done Tissue PCR for rickettsia	

### Diagnosis based on Differential Dx

DISEASE	SEROLOGY	CULTURE	RESULT
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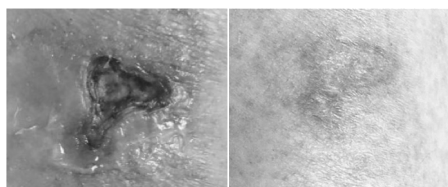
### Course/Outcome

- Given Doxycycline 100mg BID empirically
- Wound care: Wet-to-dry dressings; Antibiotic ointment
- Gradually healed, Afebrile in two days

### "Before and After"



### "Before and After"



### African Tick Bite Fever: Fast Facts

- Bacterial disease due to *Rickettsia africae*
  - First described 1911; Recognized in Southern Africa 1934
- Tick transmission (primary vector *Amblyomma hebraeum*)
- Ticks live in high grass, feed on livestock
- Flu-like illness (1-15 days); rare myocarditis, neuropathy
- Skin: One (or more) eschars AND mild MP eruption (~50%)
  - Multiple eschars 20-50%
- Travelers to endemic regions easily acquire infection

S Afr Med J 1934; 31:551.  
Clin Infect Dis 1998; 27:316  
Clin Microbiol Rev 2013; 26:657

**Amblyomma hebreum****African Tick Bite Fever: Fast Facts**

- *R. africae* vector (tick) typical hosts are cattle
  - Sheep, horses, donkeys, pigs, giraffes, buffalos, antelopes
- Residents Southern Africa: 70% sero-positive, but acute cases only 50-70/10,000 population
- ATBF recognized more often in visitors
  - Visitors to game reserves (hunters, photo safari)
  - Natives: Soldiers, farmers,
- TOC: doxycycline; Alternate chloramphenicol and fluoroquinolones (eg ciprofloxacin)
- RELATIVELY MILD "spotted fever"

South Afr Fam Pract 2008;50:33-35  
Int J Infect Dis 2010; 34(suppl3):e574-76

**Messages**

- Travel history important
- Exposure to animals important
- Exposure to vectors important
- Consider diseases common in destination

**CHALLENGING CASES #2**

TED ROSEN, MD  
BAYLOR COLLEGE OF MEDICINE  
HOUSTON, TEXAS

**CONFLICT OF INTEREST**

None

**HISTORY**

41 year-old female

Long-term alcohol abuse, but otherwise OK

Dog owner x 6 years

Dog, "without provocation" bit her on the face

Only mild pain, minimal bleeding initially

**HISTORY, PART 2**

Three days later, felt ill; Presented to ER

Fever (102.2°F)

Tachycardia (140/min) & Tachypnea (30/min)

Thrombocytopenia (25,200)

Hypoglycemia (50mg/dl)

**HISTORY, PART 3A**

Facial bite site:  
Eschar with purpura  
*Derm consult*

**HISTORY, PART 3B**

Hypotension w/ instability

Widespread purpura

*Derm Consult*

Labs indicative of DIC

Required transfusions/FFP

Renal/Hepatic failure

**HISTORY, PART 3C**

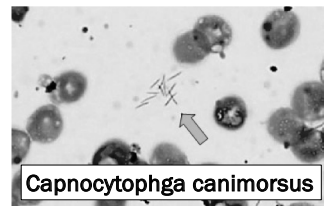
Multiple blood smears +

Gram negative rods

Culture + (14 days later)

16S-RNA gene

sequencing definitive



**Capnocytophga canimorsus**

*Emerg Inf Dis 2006;12:340-42*

**DISCUSSION**

*Capnocytophga canimorsus*

Endotoxin-producing gram negative rod

73% normal dog oral flora (rarely cat oral flora)

Associated with dramatic infections

Local necrosis; Purpura fulminans, DIC, death

*Emerg Infect Dis 2006;12:340-42*  
*Lancet Inf Dis 2009;9:439-47*

**DISCUSSION**

*Capnocytophga canimorsus*

Mortality: 25-30% due to septic shock and multi-organ failure

Most often in abnormal hosts, particularly:

Asplenic and *Alcohol abuse*

*Vet Microbiol 2010;144:172-76*  
*Lancet Inf Dis 2009;9:439-47*

**DISCUSSION****Capnocytophga canimorsus****Incubation period 1-7 days****Initially fever and cellulitis, which may progress to septicemia (or...endocarditis, meningitis, peritonitis)**

Clin Infect Dis 1996;23:71-75

**DISCUSSION: RX****Capnocytophga canimorsus****Irrigate wound, do not close (heal 2° intention)****Amoxicillin-clavulanate first line therapy (PO)****Doxycycline, Clindamycin, Meropenem (IV)****All antibiotic Rx: 14 days; *START EARLY***

Clin Infect Dis 1996;23:71-75

**HISTORY, PART 4****Initial antibiotic Rx: IV amoxicillin-clavulanate plus IV ciprofloxacin****Clinical deterioration: IV clindamycin + IV meropenem****Clinical deterioration; develops cerebral septic emboli****Massive hypotension -> fatal myocardial arrest****LESSONS****Dog bites: usual worry is tissue damage; ?rabies****Dogs carry *Capnocytophaga canimorsus* in mouth****This organism can be associated with both local necrotic lesions and severe sepsis****Early Dx (PCR) and Rx are required for good outcome**