Can You Solve The Case?

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Disclosure

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No relevant financial relationships do disclose.

Concern About Possible Stroke, Loss of Left Arm Control, Numbness and Tingling in Both Legs, in Last 90 Minutes

- 64 y/o ♂ presents to the ED
- House painter, lives alone
- Sarcoidosis on hydroxychloroquine, low dose prednisone
- Quit smoking 2018 (after 37 years)
- Generally in fair health

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Patient Workup

- EKG
- Chest x-ray
- CT head
- Procalcitonin
- C-reactive protein
- CMP
- CBC
- Blood Cultures x2

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CMP

Sodium	140	136 - 145 mmol/L
Potassium	3.6	3.5 - 5.1 mmol/L
Chloride	107	98 - 107 mmol/L
CARBON DIOXIDE	23	23 - 31 mmol/L
Anion Gap	10	6 - 16 mmol/L
Glucose	104	70 - 139 mg/dL
Comment:	Reference Ran	
BUN	16	9 - 21 mg/dL
Creatinine	1.42 ^	0.72 - 1.25 mg/dL
AST	17	5 - 34 U/L
ALT	10	0 - 55 U/L
Alkaline Phosphatase	56	40 - 150 U/L
Bilirubin Total	0.5	0.2 - 1.2 mg/dL
Protein Total	7.2	6.4 - 8.3 g/dL
Albumin	4.1	3.2 - 4.6 g/dL
Calcium	8.7	8.4 - 10.5 mg/dL
GFR	52 v	>=60 mL/min/1.73m2

CDC w/Diff

WBC	5.4	3.5 - 11.0 X(10) 3/uL
RBC	4.61	4.30 - 6.20 x(10) 6/ul
Hemoglobin	14.1	13.5 - 18.0 g/dL
Hematocrit	41	39 - 54 %
MCV	89	80 - 100 fL
RDW	13.3	11.5 - 14.5 %
Platelet Count	182	150 - 450 x(10) 3/ul
Neutrophils Absolute	3.41	1.70 - 7.60 X(10) 3/uL
Lymphocytes Absolute	0.91	0.90 - 3.40 X(10) 3/uL
Monocytes Absolute	0.93 ^	0.30 - 0.90 X(10) 3/uL
Eosinophils Absolute	0.12	0.00 - 0.70 X(10) 3/uL
Basophils Absolute	0.04	0.00 - 0.10 X(10) 3/uL
Immature Granulocytes Absolute	0.02	X(10)3/uL
Neutrophils %	62.8	%
Lymphocytes %	16.8	%
Monocytes %	17.1	%
Eosinophils %	2.2	%
Basophils %	0.7	%
Immature Granulocytes %	0.4	0.0 - 1.0 %
nRBC	0	<=0 /100 WBC'S

Procalcitonin
0.05 ng/mL
(≤ 0.1 ng/mL)

C-Reactive Protein
8.2 mg/L
(< 5.0mg/L)

Blood Cultures X2
Incubating

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Diagnostic Procedures

Chest X-ray

- Questionable bilateral infiltrates c/w edema or infection

EKG

- No evidence of arrhythmia or ischemia

CT of head

- 3 cm, R temporal lobe brain mass with edema and mass effect

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Patient Management

- Admitted
- Decadron IV for cerebral edema

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Hospital Course

- ID started meropenem and vancomycin/concern for abscess in brain.
- Neurosurgery to perform craniotomy for evacuation of the mass.

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Surgical Outcome

- Temporal mass found to be an abscess
- 3 mL of fluid sent for cultures and stains
  - Bacterial culture and Gram stain
  - AFB culture and Auramine/Rhodamine stain
  - Fungal culture

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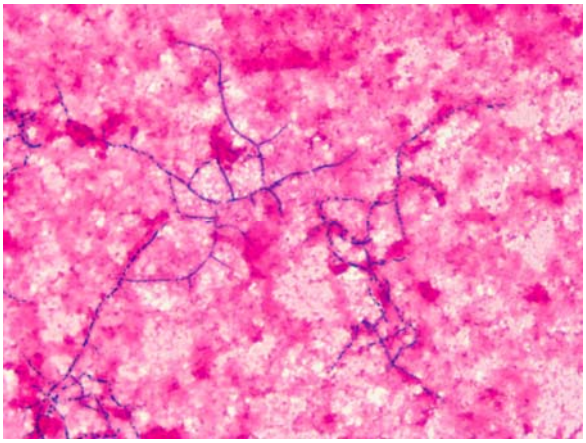
Gram Stain of Brain Abscess submitted for culture



Heavy PMNs
Few Gram positive bacilli filamentous and branching

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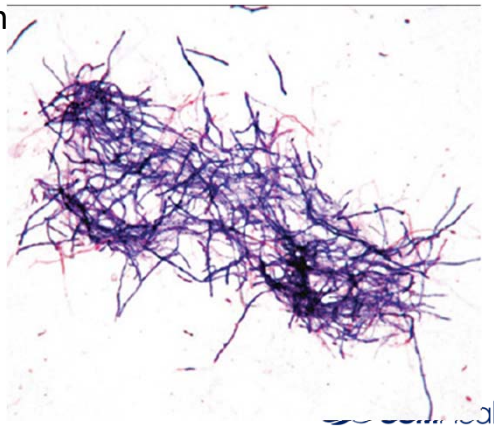
Brain Abscesses Culture

- Small dry looking colonies after 2 days on BAP
  - Gram stain of colonies – beaded Gram positive rods



Organism Identification

Routine Spotting for MALDI-TOF MS Identification Using the Vitek MS

Method Name	VITEK® MS / VITEKMSACQ01
Organism Name	Nocardia farcinica 99.9 %

Nocardia farcinica sub-culture

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Hospital Course Summary

- Hospitalized for 5 days
- Blood Cultures no growth after 5 days
- Surgery for right temporal craniotomy, 3 mL of abscess fluid removed
- Abscesses grew *N. farcinica* after 2 days
- Went home

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Treatment For Patient's Brain Abscess

After Gram Stain started on
- Imipenem and TMP/SMX

- Discharged on imipenem and TMP/SMX, treatment duration at least 12 months, first 6-12 weeks IV, guided by repeat brain MRI results.

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9 days after discharge susceptibility report received.

Final Report SEE NOTE

Comment: Nocardia farcinica
Organism identified by client
INTERPRETIVE INFORMATION: Gram Positive Rod Susceptibility

Units = micrograms/mL

Susceptibility testing is performed by CLSI-approved broth microdilution method using custom-made MIC panels.

AFBMIC	
Trimethoprim/Sulfamethoxazole	2/38 Suscept
Ciprofloxacin	0.5 Suscept
Moxifloxacin	<=0.25 Suscept
Amikacin	<=1 Suscept
Doxycycline	4 Intermed
Clarithromycin	>=32 Resist
Linezolid	4 Suscept
Imipenem	16 Resist
Amoxicillin/Clavulanate	8/4 Suscept
Ceftriaxone	64 Resist
Minocycline	2 Intermed
Tobramycin	16 Resist

Performed by ARUP Laboratories,
500 Chipeta Way, SLC,UT 84108 800-522-2787
www.aruplab.com, Tracy I. George, MD, Lab. Director

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Treatment For Patient's Brain Abscess

After Gram Stain started on
- Imipenem and TMP/SMX

- Discharged on imipenem and TMP/SMX, treatment duration at least 12 months

After susceptibility test results
- Linezolid and TMP/SMX

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Nocardia species

- Grouped in with the aerobic actinomycetes (many genera and species)
- Widely distributed in the environment, soil and aquatic habitats
- Nocardia aerobic actinomycetes most commonly causing infections in humans
- About 100 validly named species of Nocardia
- Direct Gram stain generally appear as very long, branching, thin, and beaded Gram positive rods
- Weakly positive in modified acid-fast stain
- Infections generally caused by trauma, or from inhalation (particularly in immunocompromised patients), hematogenous spread from lungs to other body sites
- Brain is one of the most common secondary sites of infection

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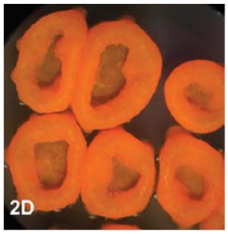
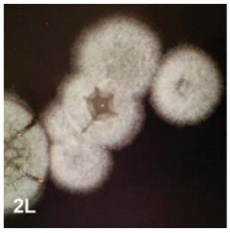
Nocardia spp., Colony Morphology on Sab. Dex. Agar

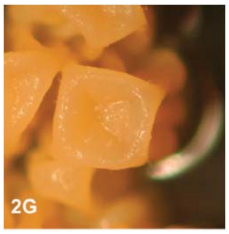


N. brasiliensis – 10 days

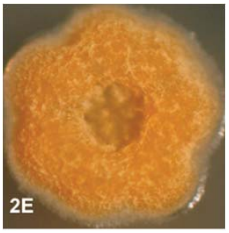


N.cyriacigeorgica – 10 days

N. farcinica – 5 days (BAP)



N. otitidiscaviarum – 7 days



N.carnea – 25 days

Nocardia, Rhodococcus, Gordonia, Actinomadura, Streptomyces, and Other Aerobic Actinomycetes
PATRICIA S. CONVILLE, BARBARA A. BROWN-ELLIOTT, AND FRANK G. WITEBSKY

Chapter 30, Manual of Clinical Microbiology, 2019

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Nocardia farcinica

- Old *N. asteroides* drug pattern V
- Well known to cause disseminated infections
- Lungs are the most common site of involvement, but also found in blood, brain abscesses, keratitis, and muscle abscesses
- Most individuals with this infection are immunocompromised

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Brain Abscess

- Most common in 30-50 year old males
- Direct spread from a contiguous site (otitis media, sinuses, mastoiditis, dental infection) accounts for 20 – 60 percent of cases, single abscess
- Hematogenous spread from lungs, skin, pelvic infections, and other sites, multiple abscesses
- Most frequent causes of brain abscesses are *Staphylococcus spp.* and *Streptococcus spp.*, *S. aureus* and viridans Streptococcus being the most common
- Other organisms associated with brain abscesses include *Bacteroides spp.*, *Prevotella spp.*, Gram negative enteric bacteria, rarely *Nocardia spp.*

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Shortness of breath (SOB), Leg Rash, Diarrhea, Cardiac Evaluation

- 52 y/o ♂ transfer from OSH
- Nonsmoker
- History of hypertension, anxiety, and heart murmurs (family history of heart murmurs)
- Grew up on a farm
- Works two jobs, single, reports having unprotected sex with men

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Physical Examination

- Temp 99.8
- Pulse 104
- Heart, holosystolic murmur
- Rash on left upper leg, resolving

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Patient Workup

- TEE
- Chest x-ray
- CT chest
- Enteric Panel PCR, *C. difficile toxin*, Giardia/Crypto Ag
- CMP
- CBC
- Procalcitonin
- Blood Cultures x 2 (with 2 follow up sets ordered next day)

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CMP

Sodium	135 - 145 mmol/L	128 ↓
Potassium	3.4 - 4.8 mmol/L	5.0 ↑
Chloride	97 - 108 mmol/L	97
CO2	23 - 32 mmol/L	18 ↓
Glucose	70 - 99 mg/dL	96
BUN	8 - 23 mg/dL	33 ↑
Creatinine	0.50 - 1.20 mg/dL	1.65 ↑
Calcium	8.5 - 10.4 mg/dL	7.8 ↓
Total Protein	5.8 - 8.3 g/dL	7.8
Albumin	3.6 - 5.4 g/dL	2.5 ↓
Bilirubin Total	0.3 - 1.3 mg/dL	0.6
Alkaline Phosphatase	40 - 129 U/L	175 ↑
AST	0 - 40 U/L	350 ↑
ALT	0 - 41 U/L	219 ↑
Anion Gap	7 - 14 mmol/L	13
BUN/Creatinine Ratio	8.0 - 26.0	20.0

Osmolality Calculated	275 - 295 mosm/kg	273 ↓
Globulin	2.0 - 4.0 g/dL	5.3 ↑
A/G Ratio	1.3 - 2.8	0.5 ↓
Creatinine Based eGFR	>60 mL/min/[1.73_m2]	47 ↓

Component	Ref Range & Units	
Troponin I	<0.05 ng/mL	0.03
Resulting Agency		ST MARY'S HOSPIT/

Component	Ref Range & Units	
Procalcitonin	<0.10 ng/mL	0.40 ↑

CBC

WBC	3.50 - 10.70 10*3/uL	9.87
RBC	4.42 - 5.95 10*6/uL	3.49 ↓
HGB	13.7 - 17.7 g/dL	9.4 ↓
HCT	40.6 - 52.6 %	29.8 ↓
MCV	85.0 - 98.4 fL	85.4
MCH	28.5 - 33.5 pg	26.9 ↓
MCHC	32.0 - 36.5 g/dL	31.5 ↓
Platelets	150 - 425 10*3/uL	158
RDW-CV	11.5 - 15.0 %	17.6 ↑
NRBC Absolute	10*3/uL	0.04
MPV	8.4 - 12.4 fL	12.7 ↑

Enteric Panel

Specimen Information: Feces; Stool

0 Result Notes

Component	Ref Range & Units	
Salmonella PCR	NEGATIVE	NEGATIVE
	Comment: No Salmonella spp. DNA Detected	
Shigella PCR	NEGATIVE	NEGATIVE
	Comment: No Shigella spp. / EIEC DNA Detected	
Shiga Toxin PCR	NEGATIVE	NEGATIVE
	Comment: No Shiga toxin-producing gene(s) Detected	
Campylobacter PCR	NEGATIVE	NEGATIVE
	Comment: No Campylobacter spp. (jejuni and coli) DNA Detected	

Resulting Agency

C. difficile toxin

Specimen Information: Feces; Stool

0 Result Notes

Component	Ref Range & Units	
C difficile GDH antigen & toxin A/B	NEGATIVE	NEGATIVE

Narrative

Negative for toxigenic C. difficile

Crypto/Giardia

Specimen Information: Feces; Stool

0 Result Notes

Component	Ref Range & Units	
Giardia Antigen	NEGATIVE	NEGATIVE
Cryptosporidium Antigen	NEGATIVE	NEGATIVE

Narrative

Negative for Giardia lamblia by EIA
Negative for Cryptosporidium spp. by EIA

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Hospital Procedures

Started on ceftriaxone and vancomycin for cellulitis of lower leg.

Chest x-ray showed enlarged cardiac silhouette and mild to moderate airspace opacity in the right lung base with a small right pleural effusion.

CT chest PE protocol: showed bilateral pulmonary emboli with small sub-segmental pulmonary emboli in the left upper lobe and superior segment of the right lower lobe, small to moderate right pleural effusion, bilateral airspace opacities somewhat ground glass and morphology, and hilar/mediastinal lymphadenopathy.

Transesophageal echocardiogram (TEE): showed severe mitral valve regurgitation from prolapse anterior leaflet with apparent torn chordae tendon, severe pulmonary hypertension, significantly dilated IVC, severe bilateral enlargement, thickened aortic valve with mild-to-moderate regurgitation, small mitral and aortic vegetation, and normal ejection fraction at 60%.

Patient diagnosed with acute heart failure secondary to mitral regurgitation and endocarditis

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Blood Cultures not growing: Culture negative endocarditis workup

- Q Fever Antibody
- Legionella Antibody Panel
- *Tropheryma whipplei* DNA
- Aspergillus Galatomannan Antigen – Blood
- Beta-D-Glucan (1,3) (Fungitell
- Chlamydia Antibody IgG/IgM Panel
- Bartonella Antibody Panel
- HIV-1 HIV-2 Antibody + HIV p24 Ag
- Fungal Antibody Panel Immunoduffusion
- Brucella Ab IgG/IgM Panel
- RPR
- Hepatitis Ab Panel - ABC

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Blood Cultures not growing: Culture negative endocarditis workup

- Q Fever Antibody – No Ab detected, < 1:16
- Legionella Antibody Panel - Positive
- *Tropheryma Whipplei* DNA – Not detected
- Aspergillus Galatomannan Antigen – Blood – Neg.
- Beta-D-Glucan (1,3) (Fungitell) – 95 pg/mL positive (> 80 pg/mL)
- Chlamydia Antibody IgG/IgM Panel – *C. pneumoniae, C. trachomatis, C. psittaci* IgM <1:20
  C. pneumoniae, C. trachomatis, C. psittaci IgG 1:256
- Bartonella Antibody Panel – *B. henselae* IgG 1:1,024
- HIV-1 HIV-2 Antibody + HIV p24 Ag – Reactive HIV-1 Ab (HIV-1 viral load 14,000 copies/mL)
- Fungal Antibody Panel Immunoduffusion – None Detected
- Brucella Ab IgG/IgM Panel – Neg. IgM, Reactive IgG, Neg. confirmatory test
- RPR – non-reactive
- Hepatitis Ab Panel ABC – Neg., Neg., Neg.

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Hospital Procedure

After *B. henselae* serology patient treated with IV ceftriaxone, doxycycline, and IV gentamicin.

Patient treated with Biktarvy for HIV.

Aortic and Mitral value replacement
Removed valves sent for Gram stain/culture, fungal culture, AFB culture, and broad-spectrum 16S PCR.

Culture and Gram stain - Heavy PMNs, no bacteria seen, ng after 6 days
Fungal culture - no fungus isolated
AFB culture + smear - No AFB seen, no growth after 8 weeks
16S PCR – *B. henselae* DNA detected, both valves

Confirmed *B. henselae* endocarditis

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About 35 species of *Bartonella*

TABLE 1 *Bartonella* species or subspecies presently described, their main reservoirs, confirmed or possible vectors, and reported accidental hosts

Bartonella species	Nomenclatural status	Main reservoir	Vector or potential vector	Accidental host(s)
B. *acomydis*	Approved	Rodentia	Fleas?	?
B. *alsatica*	Approved	Rabbits (*Oryctolagus cuniculus*)	Fleas? Ticks?	Humans
B. *bacilliformis*	Approved	Humans	Sand flies	?
B. *birtlesii*	Approved	Wood mice (*Apodemus* species)	Fleas?	?
B. *bovis*	Approved	Domestic cattle (*Bos taurus*)	Biting flies? Ticks?	Cats, dogs
B. *callosciuri*	Approved	Rodentia	Fleas?	?
B. *capreoli*	Approved	Roe deer (*Capreolus capreolus*)	Ticks?	?
B. [illegible]*melii*	Approved	Cattle (*Bos taurus*), dogs	Biting flies? Ticks? Lice?	?
B. [illegible]*dgeiae*	Approved	Cats (*Felis catus*)	Fleas? Ticks?	Humans? dogs
B. *coo*[illegible]*nsis*	Approved	Asian and Australian rodents	Fleas?	?
B. [illegible]	Approved	Voles, rats	Fleas? Ticks?	?
B. *eliza*[illegible]	[illegible]pproved	Rats (*Rattus norvegicus*), gerbils (*Meriones crassus*)?	Fleas	Humans, dogs
B. *grahamii*	Approv[illegible]	Voles (*Clethrionomys* species), mice (*Apodemus* species), rats (*Rattus norvegicus*), deer (*Hydropotes inermis argyropus*)	Fleas? Ticks? Leeches?	Humans
B. *henselae*	Approved	C[illegible] (*Felis catus*)	Fleas, ticks?	Humans, dogs
B. *jaculi*	Approved	[illegible]	?	?
B. *japonica*	Approved	Field [illegible] (*A*[illegible]*mus argenteus*)	?	?
B. *koehlerae*	Approved	Cat[illegible] (*Felis c*[illegible]) [illegible]	Fleas? Ticks?	Humans, dogs
B. *melophagi*	Without standing[a]	Sheep (*Ovis* [illegible])	Sheep keds (*Melophagus ovinus*)	
B. *pachyuromydis*	Approved	Rodentia	?	?
B. *peromysci*	Approved	Field mice (*Peromyscus* species)	Fleas?	?
B. *queenslandensis*	Approved	Rats (*Rattus* species); *Bandicota*	[illegible]	?
B. *quintana*	Approved	Humans	[illegible]uman b[illegible] lice	Cats, dogs
B. *rattaustraliani*	Approved	Australian rats	[illegible]icks?	?
"B. *rattimassiliensis*"	Without standing	Rats (*Rattus* species)	Fleas[illegible] [illegible]ice[illegible] [illegible]iculid mites (chi[illegible])	?
B. *rochalimae*	Approved	Foxes, coyotes, dogs, rats, skunks	Fleas (*Pulex, E*[illegible] *gallinacea*)? Ticks?	[illegible]mans
B. *schoenbuchensis*	Approved	Cattle (*Bos Taurus*), Roe deer (*Capreolus capreolus*), Moose (*Alces alces*)	Deer keds? Biting flies? Ticks?	[illegible]
B. *silvatica*	Approved	Japanese field mice (*Apodemus speciosus*)	?	?
B. *talpae*	Approved	Moles (*Talpa europaea*)	Fleas?	
"B. *tamiae*"	Without standing	Rats (*Rattus* species)	Fleas? Ticks? Flies?	Humans
B. *taylorii*	Approved	Mice (*Apodemus* species), voles (*Clethrionomys* and *Myodes* species), pika (*Ochotona curzoniae*)	Fleas? Ticks?	?
B. *tribocorum*	Approved	Rats (*Rattus* species), mice (*Apodemus* species)	Fleas? Mites?	?Humans
B. *vinsonii* subsp. *arupensis*	Approved	White-footed mice (*Peromyscus leucopus*)	Fleas? ticks?	Humans
B. *vinsonii* subsp. *berkhoffii*	Approved	Coyotes (*Canis latrans*), dogs (*Canis familiaris*), foxes (*Urocyon* species)	Ticks?	Humans
B. *vinsonii* subsp. *vinsonii*	Approved	Meadow voles (*Microtus pennsylvanicus*)	Ear mites? (*Trombicula microti*)	?
"B. *volans*"	Without standing	Southern flying squirrels (*Glaucomys volans*), sea otters (*Enhydra lutris kenyoni* and *E. l. nereis*)	Fleas?	?Humans ?Horses
"*Candidatus* B. washoensis subsp. cynomysii"	Not validly published	California ground squirrels (*Spermophilus beecheyi*), rabbits (*Oryctolagus cuniculus*), prairie dogs (*Cynomys ludovicianus*)	Fleas? Ticks?	Humans, dogs

[a]Approved as *Wolbachia melophagi*.

Bartonella species are short, Gram-negative coccobacilli, fastidious, slow-growing bacteria, and cultures should be held for a minimum of 21 days.

Transmission

Bartonella species are typically transmitted by insect vectors, such as fleas, sand flies, body lice, and potentially ticks, biting flies, and keds (wingless flies).

Transmission also occurs by animal scratches or possibly bites.

Nineteen *Bartonella spp.* and subspecies are infectious to humans and can elicit a wide spectrum of diseases, including fever of unknown origin, cat scratch disease (CSD), cutaneous vasculitis, endocarditis, myocarditis, osteomyelitis, bacillary angiomatosis, bacillary peliosis hepatitis, and granulomatous inflammatory Disease.

Most Well Known Diseases Caused by *Bartonella spp.*

CSD - *Bartonella henselae*
Trench Fever - *Bartonella Quintana*
Carrión's disease - *Bartonella bacilliformis*
Subacute endocarditis – many *Bartonella spp.*

Bartonella spp. are the second most common cause of culture-negative endocarditis behind *Coxiella burnetii*

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B. henselae CSD - typically a self-limiting infection in immunocompetent individuals, particularly children, but which can occasionally be complicated by neuroretinitis, granulomatous hepatitis, osteomyelitis, fever of unknown origin, and blood culture-negative endocarditis.

Endocarditis has also been reported to be caused by *B. quintana*, *B. elizabethae*, *B. alsatica*, *B. koehlerae*, "*Candidatus* Bartonella mayotimonensis".

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B. henselae is the predominant cause of CSD in humans, with *B. grahamii* being suspected in a few cases.

It is estimated that 12,500 human cases of CSD occur yearly in the United States, for an average annual incidence of 4.7 diagnoses/100,000 population.

Children ≤ 14 years of age account for 33% of cases.

There is a seasonal pattern that varies by U.S. geographic region, with most cases occurring in fall and winter.

B. henselae and *B. quintana* are associated with 12-28% of culture-negative endocarditis cases worldwide.

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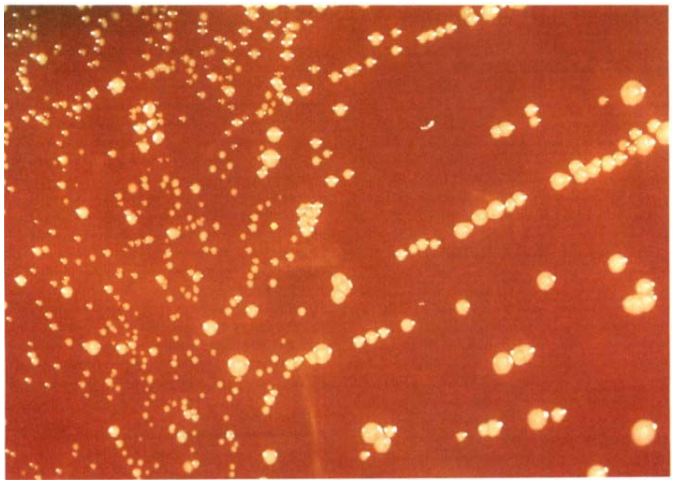
Bartonella henselae – BAP, 35 C, 5% CO2, 5 days



Clinical Microbiology and Infection 1997 3677-689DOI: (10.1111/j.1469-0691.1997.tb00478.x)

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Diagnosis

- CSD may be diagnosed presumptively in patients with typical signs and symptoms and a compatible exposure history. Serology can confirm the diagnosis, although cross-reactivity may limit interpretation in some circumstances.
- Bartonella endocarditis can be diagnoses using serological testing for *B. henselae* and *B. quintana* with titers ≥ 1:128 considered significant. Serum for plasma PCR testing for Bartonella can be useful as well as PCR testing of heart valve tissue.
  - *B. henselae* has been cultured from lymph node aspirates, and blood.
  - Since *B. henselae* is a fastidious, slow-growing bacterium, cultures should be held for a minimum of 21 days.

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Treatment

The use of antibiotics to shorten the course of CSD is subject to debate. Most cases of CSD resolve without treatment. Azithromycin has been shown to decrease lymph node size more rapidly compared to no treatment.

Complicated Bartonella cases require antibiotic treatment. Effective antibiotics include penicillins, tetracyclines, cephalosporins, and aminoglycosides. Aminoglycosides are typically used as first-line treatment for complicated Bartonella infections because they are bactericidal. Complicated infections are commonly treated using combination therapy.

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Corneal Surface Swelling – R eye
S/P Revision of Operative Wound – R eye
Corneal Transplant – R eye

- 94 y/o ♂ presents for eye follow-up visit
- Lives with daughter
- Generally in good health

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Patient Examination by Ophthalmologist

- Pain right eye
- General vision not great
- Well appearing
- Alert, oriented, answers questions appropriately
- New R eye central corneal epithelial cell defect
- Using corticosteroid eye drops in R eye 2x day
- Possible *Infectious Crystalline Keratopathy*

Infectious crystalline keratopathy (ICK) is rare.

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Past Medical History of R eye

10 months prior to this visit

Descemet's Stripping Automated Endothelial Keratoplasty (DSAEK)

Partial thickness cornea transplant procedure

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Diagnostic Procedures

Corneal Scrapping

- For Gram stain and bacterial/fungal cultures

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Patient Treatment

- Moxifloxacin (0.5%) drops 6x day for R eye
- Fluorometholone drops 2x day (corticosteroid, anti-inflam.)
- Muro 128 drops 3x day (draws fluid out of cornea)
- Ketorolac drops as needed (nonsteroidal anti-inflam.)

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Microbiology Test Results

Routine Bacterial Culture and Gram stain

Gram stain – Rare PMNs, No Bacteria Seen

Culture – No Growth after 2 days

Routine Fungal Culture

Heavy Growth on IMA noted after 3 weeks

Wet mount – rod shaped bacteria

Gram Stain – Beaded Gram Positive Rods

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Organism Identification

Routine Spotting for MALDI-TOF MS Identification Using the Vitek MS

Method Name / Host(s)	VITEK® MS VITEKMSACQ01
Organism Name	Mycobacteroides chelonae 99.9%

Infectious Crystalline Keratopathy

- Citrobacter,
- Acinetobacter,
- Alternaria,
- Acanthamoeba,
- Enterobacter,
- Enterococcus species,
- Candida species,
- Serratia marcescens,
- Gemella haemolysans
- Actinomyces species
- alpha hemolytic viridans Streptococcus
- Streptococcus Pneumoniae,
- coagulase-negative Staphylococcus,
- Peptostreptococcus,
- Haemophilus species,
- Mycobacterium species,
- Pseudomonas,
- Stenotrophomonas,

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Final Report

Mycobacteroides (Mycobacterium) chelonae
Organism identified by client

Susceptibility Results

Organism: Mycobacteroides (Mycobacterium) chelonae

Cefoxitin	Interpretation: RESISTANT MIC (ug/mL): 128
Ciprofloxacin	Interpretation: RESISTANT MIC (ug/mL): 4
Clarithromycin	Interpretation: SUSCEPTIBLE MIC (ug/mL): 0.12
Doxycycline	Interpretation: RESISTANT MIC (ug/mL): >=32
Imipenem	Interpretation: RESISTANT MIC (ug/mL): 64
Linezolid	Interpretation: SUSCEPTIBLE MIC (ug/mL): 4
Minocycline	Interpretation: RESISTANT MIC (ug/mL): 8
Moxifloxacin	Interpretation: RESISTANT MIC (ug/mL): 4
Tigecycline	MIC (ug/mL): 0.25
Tobramycin	Interpretation: SUSCEPTIBLE MIC (ug/mL): 2

S=Susceptible, I=Intermediate, R=Resistant, NonS=Nonsusceptible, IND=Indeterminate, SDD=Susceptibility is dose dependent, None=Interpretive guidelines are not available

H=High, L=Low, *=Abnormal, C=Critical

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Myobacterium chelonae

- Nonchromogenic rapidly Growing Mycobacteria
- Found in the environment, tap water, surface water
- Member of *M. chelonae/M. abscessus* group with about 6 other species
- Causes primarily skin and soft tissue infections by direct inoculation, piercing wounds, contaminated tattoo inks, and can cause disseminated cutaneous disease
- 2012 study* found that for ocular infections due to *Mycobacterieum spp., M. chelonae* (45%) and *M. abscessus* (42%) were the most common causes

* **Brown-Elliott BA, Mann LB, Hail D, Whitney C, Wallace RJ Jr.** 2012. Antimicrobial susceptibility of nontuberculous mycobacteria from eye infections. *Cornea* **31:**900–906.

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Treatment *M. chelonae* Eye Infection

Topical therapy used initially in the absence of perforation, moxifloxacin (0.5%), clarithromycin (1%), tobramycin (1.4%).

Combination topical therapy is frequently used.

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Questions?

Thank you!

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