

**SAMPLE BARTONELLA ADVANCED INFORMATION
FROM HIS PENDING BARTONELLA TEXTBOOK OFFERING
HELP TO DOCTORS AND PATIENTS**

PLUS

**THE ONLY RESEARCH ARTICLE ON BARTONELLA AND
DEPRESSION, PANIC, AND ANXIETY.**

**READ THE FASCINATING DETAILS FROM INTERESTING &
*AND CURED PATIENTS***

AUTHOR:

**JAMES SCHALLER, MD, MAR
PERSONALCONSULT.COM**

***Contact him using the CHAT on his website.**

***HE HAS WRITTEN *14 BOOKS* ON BABESIA,
BARTONELLA, BIOFILMS, AND HERBS**

***AND PUBLISHED IN 12 TOP SCIENCE JOURNALS**

SAMPLE NEW BARTONELLA INFORMATION

A few comments from the 600 pages of my pending Bartonella textbook.

Is Bartonella rare?

A rough estimate is between 2-8% of the population, depending on occupation and exposure to biting insects and *outdoor* cats and dogs.

In various blood donor studies, people feeling well enough to give blood can have **20% with Bartonella DNA in their blood**. [MR Drummond. Et al. PLoS Negl Trop Dis. 2023 Jun;17 (6)].

What symptoms can Bartonella cause?

Absolutely **everything**. Why? Because it is inside your red blood cells, outside those cells, the wall of all blood vessels, and the lymphatic tubes. Everything.

What can kill Bartonella?

We use many medicines, herbs, and rare edible essential oils taken with food. Choose healers and physicians with at least twenty treatment options.

“Do Bartonella infections cause agitation, panic disorder, and treatment-resistant depression?” by James L. Schaller, MD, et al.

[From personalconsult.com medical blog].

"Do bartonella infections cause agitation, panic disorder, and treatment-resistant depression?" by James L. Schaller, et.al. explores the link between Bartonella infections and certain psychiatric symptoms.

The main points of this prophetic article you can see bartonella hurting your mood and thoughts. And learn it can cause aggression, punching walls, screaming and cursing--not seen in the past...

1. Bartonella infections can cause agitation, panic disorder, and treatment-resistant depression. Why do psychiatrists never test for it at Galaxy Diagnostics, TLabs, IGENEX, or DNA Connections? Large national labs miss most Bartonella.

2. Bartonella infections are in brain blood vessels. These bacteria cause inflammation and damage to blood vessels, decreased blood flow, and reduced oxygenation in the brain.

3 Diagnostic and treatment options are shared.

The lead author is a researcher who wrote the first Bartonella texts since nothing existed. A new Bartonella textbook will be published this year.

For example, a 30-year-old man developed severe anxiety, agitation, and depression after being bitten by a tick. The patient's symptoms did not improve with standard psychiatric treatments, but he eventually responded to a combination of antibiotics and psychiatric medications.

Bartonella infections affect the brain. They can invade and replicate within endothelial cells, leading to inflammation and damage to blood vessel walls. This can result in decreased blood flow and reduced oxygenation in the brain. This infection potentially leads to psychiatric symptoms.

The authors recommend that doctors and patients consider testing for Bartonella infection using expert superior laboratories such as the labs below. If you can afford it, get everything I mention below:

- a. **IgeneX Labs**--offers many Bartonella tests. Consider doing all the tests they offer. Also, consider doing a Bartonella growth culture. It will miss most Bartonella, but if it is positive, you can be 100% certain you have Bartonella. If you want to spend less, do not get the PCR or FISH.
- b. **Galaxy Labs**—do their IFA tests. If able, send three blood samples for their exceptional ddPCR test.
- c. **TLABS** can visualize Bartonella on a blood smear and show biofilms made by Bartonella, Lyme, or Tick-Borne Relapsing Fever.
- d. **DNA Connections** is beneficial for showing DNA from many tick and flea infections. This includes Bartonella. They require a urine sample.

THE # 1 ARTICLE ON BARTONELLA CAUSING DEPRESSION, IRRITABILITY, PANIC, AND ANXIETY IS MINE.

IT SHARES FASCINATING *USEFUL* PATIENT DETAILS.

Do *Bartonella* Infections Cause Agitation, Panic Disorder, and Treatment-Resistant Depression?

[James L. Schaller](#), MD, MAR, et. al

Director, Professional Medical Services of Naples,

MEDSCAPE GENERAL MEDICINE.

2007; 9(3): 54.PMCID: PMC2100128. PMID: [18092060](#)

Introduction

Bartonella is an emerging infection found in cities, suburbs, and rural locations. Routine national labs offer testing for only 2 species, but at least 9 have been discovered as human infections within the last 15 years. Some authors

discuss *Bartonella* cases having *atypical* presentations, with serious morbidity considered uncharacteristic of more routine *Bartonella* infections. Some atypical findings include distortion of vision, abdominal pain, severe liver and spleen tissue abnormalities, thrombocytopenic purpura, bone infection, arthritis, abscesses, heart tissue and heart valve problems. While some articles discuss *Bartonella* as a cause of neurologic illnesses, psychiatric illnesses have received limited attention. Case reports usually do not focus on psychiatric symptoms and typically only as incidental comorbid findings. In this article, we discuss patients exhibiting new-onset agitation, panic attacks, and treatment-resistant depression, all of which may be attributed to *Bartonella*.

Methods

Three patients receiving care in an outpatient clinical setting developed acute onset personality changes and agitation, depression, and panic attacks. They were retrospectively examined for evidence of *Bartonella* infections. The medical

and psychiatric treatment progress of each patient was tracked until both were significantly resolved and the *Bartonella* was cured.

Results

The patients generally seemed to require higher dosing of antidepressants, benzodiazepines, or antipsychotics in order to function normally. Doses were reduced following antibiotic treatment and as the presumed signs of *Bartonella* infection remitted. All patients improved significantly following treatment and returned to their previously healthy or near-normal baseline mental health status.

Discussion

New *Bartonella* species are emerging as human infections. Most do not have antibody or polymerase chain reaction (PCR) diagnostic testing at this time. Manual differential examinations are of unknown utility, due to many factors such as low numbers of infected red blood cells, the small size of the infecting bacteria, uncertainty of current techniques in viewing such

small bacteria, and limited experience. As an emerging infection, it is unknown whether *Bartonella* occurrence in humans worldwide is rare or common, without further information from epidemiology, microbiology, pathology, and treatment outcomes research.

Conclusion

Three patients presented with acute psychiatric disorders associated with *Bartonella*-like signs and symptoms. Each had clear exposure to ticks or fleas and presented with physical symptoms consistent with *Bartonella*, eg, an enlarged lymph node near an Ixodes tick bite and bacillary angiomatosis found only in *Bartonella* infections. Laboratory findings and the overall general course of the illnesses seemed consistent with *Bartonella* infection. The authors are not reporting that these patients offer certain proof of *Bartonella* infection, but we hope to raise the possibility that patients infected with *Bartonella* can have a variety of mental health symptoms. Since *Bartonella* can clearly cause neurologic disorders, we feel the presence

of psychiatric disorders is a reasonable expectation.

[Go to:](#)

[Introduction](#)

Bartonella is an infection that may cause a rash, enlarged lymph node(s), and malaise and fatigue that resolve over several weeks.[\[1,2\]](#) Many animals and insects carry this infection. *Bartonella* has multiple vectors and infection sources including fleas, flea feces, cat licks or scratches, ticks, lice, and biting flies.[\[3–6\]](#) Young stray kittens are often able to infect humans due to flea feces on their paws, or through cat scratches, bites, or licks.[\[7–10\]](#)

Bartonella is found in cities, suburbs, and rural locations,[\[11–14\]](#) and is an emerging infection. In recent decades, *Bartonella* research publications are increasing, but psychiatric disorders were underreported in the soldiers of World War I and World War II. For example, approximately 1 million soldiers in WWI were affected with *Bartonella quintana*,[\[15\]](#) but medical

journals did not report much about its psychiatric manifestations.

In the last 15 years, 9 *Bartonella* bacteria have been identified that are known to infect humans: *B henselae*, *B elizabethae*, *B grahamii*, *B vinsonii* subsp. *arupensis*, *B vinsonii* subsp. *berkhoffii*, *B grahamii*, *B washoensis*, and, more recently, *B koehlerae* and *B rochalimae*.[\[16–20\]](#) Currently, the largest national laboratories offer tests for only 2 species[\[21–23\]](#) (*B quintana* and *B henselae*).

Some *Bartonella* cases have “atypical” presentations with signs or symptoms lasting more than weeks, causing diverse medical problems. For example, *Bartonella* can cause vision abnormalities, prolonged fever, joint pain, lung inflammation, respiratory disease, and granulomas throughout the body. It can occasionally cause abdominal pain, liver and spleen tissue abnormalities, thrombocytopenic purpura, bone infection, papules or pustules, maculopapular rashes, arthritis, abscesses,[\[20, 24–30\]](#) heart tissue and heart

valve problems,[\[31–37\]](#) and neurologic illnesses.[\[38–42\]](#)

Traditionally, cognitive neurology has been related to some psychiatric illnesses. A search of PubMed with “*Bartonella*” and the search words “depression,” “mania,” “bipolar,” “major depression,” “depression,” “anxiety,” “panic,” “panic attack,” “psychosis,” and “schizophrenia” yielded the limited journal results below:

- Depression
- Dementia
- Encephalopathy
- Violent behavior
- Confusion
- Combative behavior
- Substance abuse disorders[\[43–48\]](#)

Some articles link *Bartonella* to substance abuse. *Bartonella* is repeatedly linked with alcoholism in the presence of substandard living conditions. Intravenous drug users also have an elevated prevalence of antibodies to *Bartonella* organisms and may be at significant

risk of becoming infected.[\[49–53\]](#) The 3 cases described below are consistent with past reports of *Bartonella* causing psychiatric symptoms, and add further clinical data to these past reports.

[Go to:](#)

Case 1

A 41-year-old male minister was reported by his wife, best friends, and children to have undergone a personality change after a camping trip in North Carolina. After the trip, the patient described a small right-sided “aching” axillary lymph node and reported a “fever.” He removed 3 Ixodes deer ticks from his leg and shoulder. Five weeks later, he had an “enlarged and very annoying” right-sided axillary lymph node, “excessive warmth,” irritability, severe insomnia, and new-onset eccentric rage. He had new excess sensitivity to slightly annoying smells and sounds. His afternoon temperatures were 98.7–99.9°F, which he recorded every 3 days.

The patient tested negative for Lyme disease using the Centers for Disease Control and

Prevention (CDC) 2-tier surveillance testing procedure performed at Quest Diagnostics, and yet *Bartonella* was suspected from his unilateral lymph node symptom and Ixodes attachment. The duration of the lymph node ache was at least 5 weeks, so “atypical” *Bartonella* was considered in the differential.

The patient was ordered an IgG and IgM *B henselae* along with other lab testing. The only positive result was an IgM of 1:256. A PCR test for 2 *Bartonella* species was negative, but positive for *B henselae* when repeated.

During the next 2 weeks, the patient developed serious agitation, panic attacks, and major depression. His major depression was quantified by the Inventory to Diagnose Depression (IDD) scale.[\[54–56\]](#) His IDD was 39. This is in the moderate to severe range, so he was diagnosed with major depression (MD). He also was found to have excess anxiety with a 29 on the Beck Anxiety Inventory (BAI) scale, using 0–7 as a functional normal range. (Judith Beck, personal communication, 1994).[\[57–59\]](#)

He was so agitated that during arguments with his spouse, he threw objects such as kitchen glasses, a baseball, and a chair into his home's drywall. Previously he was unknown to use insults or to curse at people, and now he did both almost daily. He slept 8–9 hours per day, ate normally, and had normal speech speed and enunciation patterns.

A psychiatrist diagnosed him as having bipolar disorder, despite the fact that he had no genetic history or any previous history of depression or mania. The patient gained 15 pounds in 3 weeks on 1250 mg per day of valproic acid, so he was tried on lithium carbonate, 300 mg at breakfast, lunch and dinner, with 600 mg once in the evening (blood level 1.1 mEq/L). These medications had no clear clinical effect on the patient's agitation, mood extremes, or anhedonia with hopelessness. They were stopped after a minimum of 3-week trials.

A trial of quetiapine at 12.5 mg in the morning, afternoon, and 50 mg at bedtime helped significantly for 3 weeks, but then the drug

stopped controlling his agitation and other dysfunctional behaviors. A higher dose of 25 mg of quetiapine in the morning, 25 mg in the afternoon, and 100 mg at bed was successful. The patient surprisingly reported that he felt “good” and “content” on this medication at these doses.

At this point, the patient still had a large tender unilateral lymph node, fatigue, and new papules under his right arm. Various causes of persistent large unilateral lymph nodes with papules were felt to fit a diagnosis of *Bartonella*.

Based on a consult with an infectious disease physician, the patient was treated with azithromycin 250 mg twice daily and rifampicin 300 mg twice daily with food for 2 weeks. The patient's anxiety increased, and he experienced 5 panic attacks. He became psychiatrically worse: highly reactive, emotionally volatile, and markedly irritable. His quetiapine was increased to 50 mg at breakfast and lunch, and 200 mg once in the evening, with immediate control of his increased morbidity.

After 5 weeks on this dual-antibiotic treatment, the patient began to exhibit sleepiness. His quetiapine dose was reduced to 25 mg at breakfast and 75 mg at bedtime, with no return of agitation or mood lability.

He was still complaining, however, of right-sided axillary lymph node symptoms, so he was treated for another 3 weeks on these antibiotics. A medical literature review of PubMed looking for the ideal dose of antibiotics and duration of treatment for this suspected *Bartonella* infection offered no uniform results. However, the patient's lymph node complaints ended abruptly following 8 weeks of antibiotics, and so his medications were stopped.

The patient's psychiatric symptoms have significantly improved, and he now remains on escitalopram 5 mg and quetiapine 6.5 mg in the morning and 25 mg qhs. His personality is felt to be 90% of baseline, according to his spouse and closest friend. We suggest this man's psychiatric problems support a *Bartonella* presentation. Specifically, his symptoms immediately followed

a clear Ixodes attachment, a new unilateral and uncomfortable axillary lymph node appeared just after this attachment, new papules formed, and he experienced a new constant “slight fever” feeling, a low-positive *Bartonella* serology result, conflicting PCR results, and a positive response to 2 antibiotics from medication classes that are believed to be effective in vivo against *Bartonella*. Further, his emotional improvement occurred nearly simultaneous to his enlarged lymph node normalization.

[Go to:](#)

Case 2

Following the adoption of 2 young cats from a shelter, a medical student reported an “unusual rash” on her thighs, consisting of 4 linear lines measuring 4–9 cm, each 0.5–1.0 cm in width, running from the top of her thigh distally. These rashes were eventually determined to be bacillary angiomatosis by a dermatologist, following the elimination of a number of other possible causes, such as Cushing's syndrome, Kaposi's sarcoma, and an HIV infection.

The patient had significant risk factors for *Bartonella* including adoption of kittens from a shelter. She reported a number of flea bites, having “flea-bombed” her apartment 2 times within the past year, and she also allowed her cats to sleep in her bed. She explained that her cats routinely licked her hands, occasionally licked her mouth, and scratched and routinely gently bit her when playing.

The patient complained of new panic attacks, profound restlessness, and depression that began around the time of her new thigh rashes. She failed to receive benefit from routine doses of benzodiazepines or standard doses of selective serotonin reuptake inhibitors. She refused a trial of tricyclic antidepressants due to cardiac concerns, and she refused a trial of mirtazapine due to weight concerns. She rejected transdermal selegiline and bupropion due to the likelihood of an absence of anxiety benefit.

The only treatments showing modest benefit (30%–40%) for this patient were escitalopram at a dose gradually increased to 30 mg per day,

which is above US Food and Drug Administration-approved dosing and higher than the dosing recommended on the basis of most research on the medication, but this dose decreased her hopelessness compared with a 3-week 20-mg trial. Her IDD dropped from 34 to 23 on escitalopram on 30 mg per day. She also self-administered SAM-e (S-adenosylmethionine) at 600 mg every morning. This latter dose is below the routine dose for the treatment of major depression, which is 1200–1600 mg per day when dosed orally. The patient felt this was “helpful” for decreasing her depression.[\[60–65\]](#)

The patient was warned of seizure and serotonin syndrome risks with the use of 2 antidepressants, including 1 at very high dosing, but lower doses of escitalopram felt like “nothing was happening,” and she wanted doses that had benefits.[\[66,67\]](#)

Over 8 weeks, an increase of escitalopram decreased her residual moderate depression. She was increased to escitalopram 60 mg and SAM-e 1200 mg over 10 weeks, which resulted in a 90% remission of her depression. She had no

serotonin symptoms such as myoclonus, rigidity, hyperreflexia, shivering, confusion, agitation, restlessness, blood pressure instability, fever, nausea, diarrhea, diaphoresis, flushing, or rhabdomyolysis. She did have some residual anxiety, and this was treated with clonazepam 2 mg, 1 tablet once in the morning and afternoon, and 2 qhs, with no sedation side effects.

She still had clear information-processing limitations, markedly poor memory, and the unusual need for high psychiatric dosing to gain any benefit. Her psychiatrist noted, “She may have a diffuse brain disorder, ie, undiagnosed inflammation or infectious source. Her unusual color thigh rash images seem important.” The patient's nurse practitioner had seen a case of cat scratch fever in the past, and hypothesized that the patient had bacillary angiomatosis from *Bartonella* – the infectious cause of cat scratch fever.

The patient was placed on cefuroxime 250 mg twice a day and azithromycin 250 mg 3 times a day. During Week 1, the patient became

increasingly sad, irritable, and hopeless, with increased panic attacks that an increase in clonazepam did not relieve. However, by Week 2 she seemed to have less depression and agitation. Surprisingly, during Week 3, on approximately Day 16, her reddish thigh rashes were gone, with residual normal skin color with irregular patterning.

Over 8 weeks, the patient's depression and anxiety improved. She tolerated a sharp reduction in both of her medications, ie, escitalopram was lowered to 25 mg per day with a decrease of clonazepam to 1 mg once every morning, afternoon, and evening. She stopped her SAM-e entirely. She was regarded as medically cured and only scheduled for routine gynecologic exams.

After 6 months, the bacillary angiomatosis returned approximately 50%, and the patient reported a moderate return of inappropriate anger, excess interpersonal sensitivity, severe premenstrual dysphoric disorder, irritability, and sadness.

She was regarded by her physician as having a *Bartonella* relapse and placed on rifampicin 300 mg 3 times per day, and cefdinir 300 mg 3 times per day for 12 weeks. He then replaced the cefdinir with azithromycin 500 mg at 1½ tablets a day for 6 weeks. After this treatment, the patient was back at her baseline and now only takes escitalopram 10 mg per day, with clonazepam 0.5 mg in the morning and 0.75 mg once in the evening – a fraction of the earlier doses. The family physician feels that the antibiotics were helpful, but is still uncertain of the “best” antibiotic protocol for *Bartonella*, based on his review of infection handbooks and Medline articles.

[Go to:](#)

Case 3

A businessman from the Midwest reported failing treatment for new adult-onset social anxiety, generalized anxiety disorder, panic attacks, and MD. His IDD depression scores were 34 and 40 taken twice over the same intake week. His BAI was 29. He also had a new, moderately severe

daily headache. He had been fine psychiatrically until he went on a camping and hunting trip in Florida a couple of months earlier. Following that, he experienced “flu” and “feverish” feelings for about 9 days. He also developed 3 new skin-colored papules under his left arm. He had no rashes, tick attachments, clear flea exposures, or dog or cat contact. However, he reported extensive contact with wild bush branches and leaves while hunting and walking in the woods. He also reported that he virtually never checked himself for ticks.

His camping partner was bitten by a lone star tick and treated immediately with antibiotics for Lyme or Masterson's disease, based upon history, location, type of tick, and a new oval, pink, homogeneous ankle rash.

Our patient failed both Lab Corp ELISA and Western blot testing for Lyme according to CDC surveillance criteria, but showed a 23 band on the IgM Western blot. His manual differential blood smear reported coccobacilli attached to some red blood cells (RBCs), a rare ability for bacteria, but

found in some American *Bartonella* species infections. The patient was negative for a *Bartonella* PCR, but positive for an IgG titer at 1:128. A review of some Medline articles showed the internist that *Bartonella* PCR testing is not always reliable. Other articles showed a high degree of reliability. He decided to treat for *Bartonella* based on the patient's high tick exposure, his friend's tick infection, the patient's 3 new papules, the manual blood smear, and his abnormal antibody titer.

The internist treated the patient with doxycycline 100 mg twice a day for 3 weeks with no benefit other than a slight reduction in headaches. He then treated him with rifampicin 300 mg twice daily combined with trimethoprim-sulfamethoxazole at a dose of 160 mg/800 mg twice a day for 1 month.

The patient had a marked benefit from this last treatment and returned approximately 85% to his psychiatric baseline. He no longer exhibited any social anxiety, generalized anxiety disorder, or panic attacks. His MD was only mild with an

IDD of 12 (borderline normal), and he was treated daily with 100 mg of sertraline.

After approximately 14 months, the patient was in a severe motor vehicle accident and required hospitalization and multiple surgeries to regain his stability. Approximately 7–12 weeks after his accident, he began to have a resurgence of all of his psychiatric symptoms. His physician diagnosed a *Bartonella* relapse causing a psychiatric relapse. The patient was placed on rifabutin 300 mg daily with azithromycin 250 mg twice a day.

Over 4–5 weeks, his psychiatric symptoms improved approximately 50%, so he was treated for an additional 5 weeks with remission of all psychiatric symptoms except depression, which was being treated with 100 mg of sertraline. His sertraline blood level was checked, and his steady-state sertraline level had decreased over time, so his dose was increased from 100 mg to 150 mg per day, which restored him to a normal mood.

[Go to:](#)

Results

The previously discussed patients with presumed *Bartonella* seemed to generally require higher dosing of antidepressants, benzodiazepines, or the use of antipsychotics in order to function normally. Doses could be reduced as the presumed signs of *Bartonella* infection remitted following antibiotic treatment. All patients improved significantly and nearly achieved their normal, healthy baseline mental health status.

[Go to:](#)

Discussion

Bartonella with psychiatric symptoms is rarely discussed in the medical literature. In this article, we have presented case studies of patients with new clear psychiatric morbidity, sudden agitation, panic attacks, and treatment-resistant depression, all possibly attributed to *Bartonella*.

Reasonably compelling and broad data provided evidence for inclusion in this article and included:

exposure to endemic areas and endemic animals such as young cats, clear tick bites or probable flea transmission, abnormal lymph nodes, a “fever,” a positive antibody test, an eventually positive PCR, axillary papules, bacillary angiomatosis rashes, the unusual need for high psychiatric dosing to gain any benefit, information-processing limitations, poor memory, and a new, moderately severe daily headache.

The presence of *Bartonella*-induced psychiatric symptoms should not be surprising. First, psychiatric disorders are brain disorders, and *Bartonella* is documented as causing many diverse neurologic brain disorders. Second, *Bartonella* infections are associated with RBCs, which allow small *Bartonella* bacteria (a fraction of the RBC size) to enter the brain's vascular system.[\[68–83\]](#) These *Bartonella*-infected RBCs probably cause psychiatric morbidity due to brain pathology, as indicated by the fact that some *Bartonella* patients have neurologic disorders, such as seizures, hemiplegia, ischemic strokes, transverse myelitis,

and multiple granulomatous lesions, as well as meningitis and encephalitis.[\[38,84,85\]](#)

Finally, with 9 species or subspecies that can infect humans, it is possible this larger number of species can produce a wider range of signs and symptoms – some of which might be psychiatric in nature. Three clinical cases had psychiatric symptoms during *Bartonella* infections. All 3 cases were examined retrospectively. No patient was solicited for research. None had examinations or testing in excess of what was required by their physicians in order for them to make a clinical diagnosis. As *Bartonella* is an emerging infection, there is no clear standard of care with antibiotic treatment, with only 1 randomized double-blind study involving a brief trial of azithromycin having been conducted.[\[86\]](#)

Bartonella is an emerging infection that raises more questions than answers. The frequency of psychiatric pathology due to this emerging infection is unknown, and the best in vivo treatments against *Bartonella* are also still emerging. A review of the literature on laboratory

diagnosis and treatment in actual human patients in vivo shows that researchers do not offer uniform treatment, and most of the articles on *Bartonella* treatment are small and are characterized by various limitations. Therefore, we are not proposing optimal antibiotics, dosing, or treatment duration in the treatment of *Bartonella*. We are merely reporting the treatments used in each of these 3 cases, each of which had some support in the literature.

None of these cases offers certain proof of a *Bartonella* infection, but we raise the possibility that these patients had *Bartonella* infection and that it had an impact on their mental health.

[Go to:](#)

Conclusion

We note that the number of *Bartonella* species that infect humans currently outpaces the number of *Bartonella* species that can be tested by top national labs. Some antibiotics seem to have an effect, but dosing and duration are not clearly established or indicated by a broad

literature review. Further, clinical improvement and the cessation of symptoms do not always signify complete eradication. That is, it may be possible for a patient to relapse due to a significant medical stress to the body or a decrease in immune system capacity. Of greatest importance, we believe that *Bartonella* can enter the brain and cause not only well-documented neurologic disorders, but also some psychiatric disorders as well.

[Go to:](#)

Footnotes

[Reader Comments on: Do *Bartonella* Infections Cause Agitation, Panic Disorder, and Treatment-Resistant Depression?](#) See reader comments on this article and provide your own.

Readers are encouraged to respond to the author at moc.liamgrabme@rellahcsj or to Paul Blumenthal, MD, Deputy Editor of *MedGenMed*, for the editor's eyes only or for possible publication as an actual Letter in MedGenMed via email: ude.drofnats@nemulbp

[Go to:](#)

Contributor Information

James L. Schaller, Naples and Tampa, Florida Author's email: moc.liamgrabme@rellahcsj.

Glenn A. Burkland, Temple University School of Dental Medicine, Philadelphia, Pennsylvania.

P.J. Langhoff, Hustisford, Wisconsin.

[Go to:](#)

References

1. Massei F, Gori L, Macchia P, Maggiore G. The expanded spectrum of bartonellosis in children. *Infect Dis Clin North Am*. 2005;19:691–711. [[PubMed](#)] [[Google Scholar](#)]
2. Murakami K, Tsukahara M, Tsuneoka H, et al. Cat scratch disease: analysis of 130 seropositive cases. *J Infect Chemother*. 2002;8:349–352. [[PubMed](#)] [[Google Scholar](#)]
3. Jardine C, Waldner C, Wobeser G, Leighton FA. Effect of experimental ectoparasite control on Bartonella infections in wild Richardson's ground squirrels. *J Wildl Dis*. 2006;42:750–758. [[PubMed](#)] [[Google Scholar](#)]
4. Sreter-Lancz Z, Tornyai K, Szell Z, Sreter T, Marialigeti K. Bartonella infections in fleas (Siphonaptera: Pulicidae) and lack of Bartonellae in ticks (Acari: Ixodidae) from Hungary. *Folia Parasitol (Praha)* 2006;53:313–316. [[PubMed](#)] [[Google Scholar](#)]
5. Easterbrook JD, Kaplan JB, Vanasco NB, et al. A survey of zoonotic pathogens carried by Norway rats in Baltimore, Maryland, USA. *Epidemiol Infect*. 2007;Jan 15:1–8. [Epub ahead of print] [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
6. Izri A, Depaquit J, Parola P. [Phlebotomine sandflies and transmission of disease agents around the Mediterranean basin] [Article in French] *Med Trop (Mars)* 2006;66:429–435. [[PubMed](#)] [[Google Scholar](#)]
7. Vincent JM, Demers DM, Bass JW. Infectious exanthems and unusual infections. *Adolesc Med*. 2000;11:327–358. [[PubMed](#)] [[Google Scholar](#)]
8. Vincent JM, Demers DM, Bass JW. Infectious exanthems and unusual infections. *Adolesc Med*. 2000;11:327–358. [[PubMed](#)] [[Google Scholar](#)]
9. Massei F, Messina F, Talini I, et al. Widening of the clinical spectrum of Bartonella henselae infection as recognized through serodiagnostics. *Eur J Pediatr*. 2000;159:416–419. [[PubMed](#)] [[Google Scholar](#)]
10. Mikolajczyk MG, O'Reilly KL. Clinical disease in kittens inoculated with a pathogenic strain of Bartonella henselae. *Am J Vet Res*. 2000;61:375–379. [[PubMed](#)] [[Google Scholar](#)]
11. Reeves WK, Szumlas DE, Moriarity JR, et al. Louse-borne bacterial pathogens in lice (Phthiraptera) of rodents and cattle from Egypt. *J Parasitol*. 2006;92:313–318. [[PubMed](#)] [[Google Scholar](#)]

12. Reeves WK, Nelder MP, Korecki JA. Bartonella and Rickettsia in fleas and lice from mammals in South Carolina, U.S.A. J Vector Ecol. 2005;30:310–315. [[PubMed](#)] [[Google Scholar](#)]
13. McGill S, Rajs J, Hjelm E, Lindquist O, Friman G. A study on forensic samples of Bartonella spp antibodies in Swedish intravenous heroin addicts. APMIS. 2003;111:507–513. [[PubMed](#)] [[Google Scholar](#)]
14. Cat scratch disease. EMedicine. Available at: <http://www.emedicine.com/emerg/topic84.htm> Accessed September 6, 2007.
15. Jackson LA, Spach DH. Emergence of Bartonella quintana infection among homeless persons. Emerg Infect Dis. 1996;2:141–144. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
16. Heller R, Kubina M, Mariet P, et al. Bartonella alsatica sp. nov., a new Bartonella species isolated from the blood of wild rabbits. Int J Syst Bacteriol. 1999;49(Pt 1):283–288. [[PubMed](#)] [[Google Scholar](#)]
17. Maurin M, Raoult D. Bartonella infections: diagnostic and management issues. Curr Opin Infect Dis. 1998;11:189–193. [[PubMed](#)] [[Google Scholar](#)]
18. Marie JL, Fournier PE, Rolain JM, Briolant S, Davoust B, Raoult D. Molecular detection of Bartonella quintana, B. elizabethae, B. koehlerae, B. doshiae, B. taylorii, and Rickettsia felis in rodent fleas collected in Kabul, Afghanistan. Am J Trop Med Hyg. 2006;74:436–439. [[PubMed](#)] [[Google Scholar](#)]
19. Boulouis HJ, Chang CC, Henn JB, Kasten RW, Chomel BB. Factors associated with the rapid emergence of zoonotic Bartonella infections. Vet Res. 2005;36:383–410. [[PubMed](#)] [[Google Scholar](#)]
20. Vukelic D, Benic B, Bozinovic D, et al. An unusual outcome in a child with hepatosplenic cat-scratch disease. Wien Klin Wochenschr. 2006;118:615–618. [[PubMed](#)] [[Google Scholar](#)]
21. Lab Corp test name: Bartonella Antibody Profile. Test Number 163162. Available at: <http://www.labcorp.com/dos/index.html> Accessed September 6, 2007.
22. Quest Diagnostics test name: Bartonella Species Antibody (IGG, IGM) with Reflex to Titers. Code 34251. Available at: <http://cas2.questdiagnostics.com/scripts/webdos.wls?MGWLPN=QDCWS0209&wlap=DOS&OrderCode=34251&SITE=26&SearchString=B%2A&tmsradio=title> Accessed September 6, 2007.
23. Focus Technologies. Bartonella Antibody Panel, IFA (Serum) Code 4020. And Bartonella DNA, PCR. Code 47000. Available at: http://www.focusdx.com/focus/1-reference_laboratory/search_frame.asp?f=2 Accessed September 6, 2007.

24. Ziemssen F, Bartz-Schmidt KU, Gelissen F. Secondary unilateral glaucoma and neuroretinitis: atypical manifestation of cat-scratch disease. *Jpn J Ophthalmol*. 2006;50:177–179. [[PubMed](#)] [[Google Scholar](#)]
25. Ben-Ami R, Ephros M, Avidor B, et al. Cat-scratch disease in elderly patients. *Clin Infect Dis*. 2005;41:969–974. [[PubMed](#)] [[Google Scholar](#)]
26. Reynolds MG, Holman RC, Curns AT, O'Reilly M, McQuiston JH, Steiner CA. Epidemiology of cat-scratch disease hospitalizations among children in the United States. *Pediatr Infect Dis J*. 2005;24:700–704. [[PubMed](#)] [[Google Scholar](#)]
27. Ridder GJ, Boedeker CC, Technau-Ihling K, Sander A. Cat-scratch disease: Otolaryngologic manifestations and management. *Otolaryngol Head Neck Surg*. 2005;132:353–358. [[PubMed](#)] [[Google Scholar](#)]
28. Lamps LW, Scott MA. Cat-scratch disease: historic, clinical, and pathologic perspectives. *Am J Clin Pathol*. 2004;121(Suppl):S71–80. [[PubMed](#)] [[Google Scholar](#)]
29. Metzker-Cotter E, Kletter Y, Avidor B, et al. Long-term serological analysis and clinical follow-up of patients with cat scratch disease. *Clin Infect Dis*. 2003;37:1149–1154. [[PubMed](#)] [[Google Scholar](#)]
30. Murakami K, Tsukahara M, Tsuneoka H, et al. Cat scratch disease: analysis of 130 seropositive cases. *J Infect Chemother*. 2002;8:349–352. [[PubMed](#)] [[Google Scholar](#)]
31. Houpiikian P, Raoult D. Blood culture-negative endocarditis in a reference center: etiologic diagnosis of 348 cases. *Medicine (Baltimore)* 2005;84:162–173. [[PubMed](#)] [[Google Scholar](#)]
32. Pedersen BK. Sudden cardiac death in Swedish orienteers—a mystery solved? *Scand J Med Sci Sports*. 2001;11:259. [[PubMed](#)] [[Google Scholar](#)]
33. Meininger GR, Nadasdy T, Hruban RH, Bollinger RC, Baughman KL, Hare JM. Chronic active myocarditis following acute *Bartonella henselae* infection (cat scratch disease) *Am J Surg Pathol*. 2001;25:1211–1214. [[PubMed](#)] [[Google Scholar](#)]
34. Wesslen L, Ehrenborg C, Holmberg M, et al. Subacute *Bartonella* infection in Swedish orienteers succumbing to sudden unexpected cardiac death or having malignant arrhythmias. *Scand J Infect Dis*. 2001;33:429–438. [[PubMed](#)] [[Google Scholar](#)]
35. McGill S, Wesslen L, Hjelm E, Holmberg M, Rolf C, Friman G. Serological and epidemiological analysis of the prevalence of *Bartonella* spp. antibodies in Swedish elite orienteers 1992–93. *Scand J Infect Dis*. 2001;33:423–428. [[PubMed](#)] [[Google Scholar](#)]

36. Pedersen BK. [Bartonella bacterium is suspected as the cause of sudden death among Swedish cross-country runners.] [Article in Danish] Ugeskr Laeger. 2001;163:2951. [[PubMed](#)] [[Google Scholar](#)]
37. Posfay Barbe K, Jaeggi E, Ninet B, et al. Bartonella quintana endocarditis in a child. N Engl J Med. 2000;342:1841–1842. [[PubMed](#)] [[Google Scholar](#)]
38. Gerber JE, Johnson JE, Scott MA, Madhusudhan KT. Fatal meningitis and encephalitis due to Bartonella henselae bacteria. J Forensic Sci. 2002;47:640–644. [[PubMed](#)] [[Google Scholar](#)]
39. [No authors listed] Case records of the Massachusetts General Hospital. Weekly clinicopathological exercises. Case 1-1998. An 11-year-old boy with a seizure. N Engl J Med. 1998;338:112–119. Erratum in: N Engl J Med 1998;338:483. Comment in: N Engl J Med. 1998;338:1549–1550. [[PubMed](#)] [[Google Scholar](#)]
40. Wheeler SW, Wolf SM, Steinberg EA. Cat-scratch encephalopathy. Neurology. 1997;49:876–878. Comment in: Neurology. 1998;51:1239. [[PubMed](#)] [[Google Scholar](#)]
41. Chan L, Reilly KM, Snyder HS. An unusual presentation of cat scratch encephalitis. J Emerg Med. 1995;13:769–772. [[PubMed](#)] [[Google Scholar](#)]
42. Centers for Disease Control and Prevention (CDC) Encephalitis associated with cat scratch disease—Broward and Palm Beach Counties, Florida, 1994. MMWR Morb Mortal Wkly Rep. 1994;43:909, 915–916. [[PubMed](#)] [[Google Scholar](#)]
43. Baker J, Ruiz-Rodriguez R, Whitfeld M, Heon V, Berger TG. Bacillary angiomatosis: a treatable cause of acute psychiatric symptoms in human immunodeficiency virus infection. J Clin Psychiatry. 1995;56:161–166. [[PubMed](#)] [[Google Scholar](#)]
44. Marra CM. Neurologic complications of Bartonella henselae infection. Curr Opin Neurol. 1995;8:164–169. [[PubMed](#)] [[Google Scholar](#)]
45. Harvey RA, Misselbeck WJ, Uphold RE. Cat-scratch disease: an unusual cause of combative behavior. Am J Emerg Med. 1991;9:52–53. [[PubMed](#)] [[Google Scholar](#)]
46. Angibaud G, Balague JP, Lafontan JF. [Bartonella henselae encephalopathy] [Article in French] Presse Med. 2005;34:297–298. [[PubMed](#)] [[Google Scholar](#)]
47. Singhal AB, Newstein MC, Budzik R, et al. Diffusion-weighted magnetic resonance imaging abnormalities in Bartonella encephalopathy. J Neuroimaging. 2003;13:79–82. [[PubMed](#)] [[Google Scholar](#)]
48. Touyama M, Uezu K, Nakamoto A, et al. [A case of cat scratch disease with encephalopathy] [Article in Japanese] Kansenshogaku Zasshi. 2002;76:113–117. [[PubMed](#)] [[Google Scholar](#)]

49. Chmielewski T, Podsiad3y E, Tylewska-Wierzbanowska S. Presence of Bartonella spp in various human populations. *Pol J Microbiol.* 2007;56:33–38. [[PubMed](#)] [[Google Scholar](#)]
50. Borboli S, Afshari NA, Watkins L, Foster CS. Presumed oculoglandular syndrome from Bartonella quintana. *Ocul Immunol Inflamm.* 2007;15:41–43. [[PubMed](#)] [[Google Scholar](#)]
51. Rolain JM, Arnoux D, Parzy D, Sampil J, Raoult D. Experimental infection of human erythrocytes from alcoholic patients with Bartonella quintana. *Ann NY Acad Sci.* 2003;990:605–611. [[PubMed](#)] [[Google Scholar](#)]
52. Breathnach AS, Hoare JM, Eykyn SJ. Culture-negative endocarditis: contribution of Bartonella infections. *Heart.* 1997;77:474–476. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
53. Comer JA, Flynn C, Regnery RL, Vlahov D, Childs JE. Antibodies to Bartonella species in inner-city intravenous drug users in Baltimore, Md. *Arch Intern Med.* 1996;156:2491–2495. [[PubMed](#)] [[Google Scholar](#)]
54. Zimmerman M, Coryell W. The validity of a self-report questionnaire for diagnosing major depressive disorder. *Arch Gen Psychiatry.* 1988;45:738–740. [[PubMed](#)] [[Google Scholar](#)]
55. Zimmerman M, Coryell W. The Inventory to Diagnose Depression (IDD): a self-report scale to diagnose major depressive disorder. *J Consult Clin Psychol.* 1987;55:55–59. [[PubMed](#)] [[Google Scholar](#)]
56. Zimmerman M, Coryell W, Corenthal C, Wilson S. A self-report scale to diagnose major depressive disorder. *Arch Gen Psychiatry.* 1986;43:1076–1081. [[PubMed](#)] [[Google Scholar](#)]
57. Leyfer OT, Ruberg JL, Woodruff-Borden J. Examination of the utility of the Beck Anxiety Inventory and its factors as a screener for anxiety disorders. *J Anxiety Disord.* 2006;20:444–458. [[PubMed](#)] [[Google Scholar](#)]
58. Kabacoff RI, Segal DL, Hersen M, Van Hasselt VB. Psychometric properties and diagnostic utility of the Beck Anxiety Inventory and the State-Trait Anxiety Inventory with older adult psychiatric outpatients. *J Anxiety Disord.* 1997;11:33–47. [[PubMed](#)] [[Google Scholar](#)]
59. Creamer M, Foran J, Bell R. The Beck Anxiety Inventory in a non-clinical sample. *Behav Res Ther.* 1995;33:477–485. [[PubMed](#)] [[Google Scholar](#)]
60. Goren JL, Stoll AL, Damico KE, Sarmiento IA, Cohen BM. Bioavailability and lack of toxicity of S-adenosyl-L-methionine (SAME) in humans. *Pharmacotherapy.* 2004;24:1501–1507. [[PubMed](#)] [[Google Scholar](#)]

61. Delle Chiaie R, Pancheri P, Scapicchio P. Efficacy and tolerability of oral and intramuscular S-adenosyl-L-methionine 1,4-butanedisulfonate (SAME) in the treatment of major depression: comparison with imipramine in 2 multicenter studies. *Am J Clin Nutr*. 2002;76:1172S–1176S. [[PubMed](#)] [[Google Scholar](#)]
62. Mischoulon D, Fava M. Role of S-adenosyl-L-methionine in the treatment of depression: a review of the evidence. *Am J Clin Nutr*. 2002;76:1158S–1161S. [[PubMed](#)] [[Google Scholar](#)]
63. Di Rocco A, Rogers JD, Brown R, Werner P, Bottiglieri T. S-adenosyl-methionine improves depression in patients with Parkinson's disease in an open-label clinical trial. *Mov Disord*. 2000;15:1225–1229. [[PubMed](#)] [[Google Scholar](#)]
64. Williams AL, Girard C, Jui D, Sabina A, Katz DL. S-adenosylmethionine (SAME) as treatment for depression: a systematic review. *Clin Invest Med*. 2005;28:132–139. [[PubMed](#)] [[Google Scholar](#)]
65. Alpert JE, Papakostas G, Mischoulon D, et al. S-adenosyl-L-methionine (SAME) as an adjunct for resistant major depressive disorder: an open trial following partial or nonresponse to selective serotonin reuptake inhibitors or venlafaxine. *J Clin Psychopharmacol*. 2004;24:661–664. [[PubMed](#)] [[Google Scholar](#)]
66. Bodner RA, Lynch T, Lewis L, Kahn D. Serotonin syndrome. *Neurology*. 1995;45:219–223. [[PubMed](#)] [[Google Scholar](#)]
67. Lane R, Baldwin D. Selective serotonin reuptake inhibitor-induced serotonin syndrome: review. *J Clin Psychopharmacol*. 1997;17:208–221. [[PubMed](#)] [[Google Scholar](#)]
68. Mehock JR, Greene CE, Gherardini FC, Hahn TW, Krause DC. Bartonella henselae invasion of feline erythrocytes in vitro. *Infect Immun*. 1998;66:3462–3466. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
69. Kordick DL, Breitschwerdt EB. Intraerythrocytic presence of Bartonella henselae. *J Clin Microbiol*. 1995;33:1655–1656. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
70. Mandle T, Einsele H, Schaller M, et al. Infection of human CD34+ progenitor cells with Bartonella henselae results in intraerythrocytic presence of B. henselae. *Blood*. 2005;106:1215–1222. [[PubMed](#)] [[Google Scholar](#)]
71. Medkova Z. [Bartonellosis] [Article in Czech] *Klin Mikrobiol Infekc Lek*. 2004;10:207–213. [[PubMed](#)] [[Google Scholar](#)]
72. Schmid MC, Schulein R, Dehio M, Denecker G, Carena I, Dehio C. The VirB type IV secretion system of Bartonella henselae mediates invasion, proinflammatory

activation and antiapoptotic protection of endothelial cells. *Mol Microbiol.* 2004;52:81–92. [[PubMed](#)] [[Google Scholar](#)]

73. Rolain JM, Locatelli C, Chabanne L, Davoust B, Raoult D. Prevalence of *Bartonella clarridgeiae* and *Bartonella henselae* in domestic cats from France and detection of the organisms in erythrocytes by immunofluorescence. *Clin Diagn Lab Immunol.* 2004;11:423–425. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

74. Seubert A, Hiestand R, de la Cruz F, Dehio C. A bacterial conjugation machinery recruited for pathogenesis. *Mol Microbiol.* 2003;49:1253–1266. [[PubMed](#)] [[Google Scholar](#)]

75. Rolain JM, Maurin M, Mallet MN, Parzy D, Raoult D. Culture and antibiotic susceptibility of *Bartonella quintana* in human erythrocytes. *Antimicrob Agents Chemother.* 2003;47:614–619. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

76. Schulein R, Dehio C. The VirB/VirD4 type IV secretion system of *Bartonella* is essential for establishing intraerythrocytic infection. *Mol Microbiol.* 2002;46:1053–1067. [[PubMed](#)] [[Google Scholar](#)]

77. Rolain JM, Foucault C, Guieu R, La Scola B, Brouqui P, Raoult D. *Bartonella quintana* in human erythrocytes. *Lancet.* 2002;360:226–228. [[PubMed](#)] [[Google Scholar](#)]

78. Rolain JM, La Scola B, Liang Z, Davoust B, Raoult D. Immunofluorescent detection of intraerythrocytic *Bartonella henselae* in naturally infected cats. *J Clin Microbiol.* 2001;39:2978–2980. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

79. Koesling J, Aebischer T, Falch C, Schulein R, Dehio C. Cutting edge: antibody-mediated cessation of hemotropic infection by the intraerythrocytic mouse pathogen *Bartonella grahamii*. *J Immunol.* 2001;167:11–14. [[PubMed](#)] [[Google Scholar](#)]

80. Schulein R, Seubert A, Gille C, et al. Invasion and persistent intracellular colonization of erythrocytes. A unique parasitic strategy of the emerging pathogen *Bartonella*. *J Exp Med.* 2001;193:1077–1086. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]

81. Guptill L, Wu CC, Glickman L, Turek J, Slater L, HogenEsch H. Extracellular *Bartonella henselae* and artifactual intraerythrocytic pseudoinclusions in experimentally infected cats. *Vet Microbiol.* 2000;76:283–290. [[PubMed](#)] [[Google Scholar](#)]

82. Bass JW, Vincent JM, Person DA. The expanding spectrum of *Bartonella* infections: II. Cat-scratch disease. *Pediatr Infect Dis J.* 1997;16:163–179. [[PubMed](#)] [[Google Scholar](#)]

83. Kordick DL, Breitschwerdt EB. Intra-erythrocytic presence of *Bartonella henselae*. *J Clin Microbiol*. 1995;33:1655–1656. [[PMC free article](#)] [[PubMed](#)] [[Google Scholar](#)]
84. Puligheddu M, Giagheddu A, Genugu F, Giagheddu M, Marrosu F. Epilepsia partialis continua in cat scratch disease. *Seizure*. 2004;13:191–195. Erratum in: *Seizure*. 2006;15:357. [[PubMed](#)] [[Google Scholar](#)]
85. Rocha JL, Pellegrino LN, Riella LV, Martins LT. Acute hemiplegia associated with cat-scratch disease. *Braz J Infect Dis*. 2004;8:263–266. [[PubMed](#)] [[Google Scholar](#)]
86. Conrad DA. Treatment of cat-scratch disease. *Curr Opin Pediatr*. 2001;13:56–59. [[PubMed](#)] [[Google Scholar](#)]