Bartonella henselae

- Post-COVID reactivation of latent Bartonella henselae infection: a case report and literature review
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Bartonella henselae, formerly Rochalimæa, is a proteobacteria that can cause bacteremia, endocarditis, bacillary angiomatosis, and peliosis hepatis. It is also the causative agent of cat-scratch disease (bartonellosis) which, as the name suggests, occurs after a cat bite or scratch. The disease is characterized by lymphadenopathy (swelling of the lymph nodes) and fever.

Peliosis hepatis caused by B. henselae can occur alone or develop with cutaneous bacillary angiomatosis or bacteremia. Patients with peliosis hepatis present with gastrointestinal symptoms, fever, chills, and an enlarged liver and spleen containing blood-filled cavities. This systemic disease is mostly seen in patients infected with HIV and other immunocompromised individuals.

Bartonella henselae is a member of the class of the Bartonella genus, one of the most common types of bacteria in the world. It infects the host cell by sticking to it using the Trimeric Autotransporter Adhesins (TAA).

The presence of bacteria can be detected by a special stain called Warthin-Starry stain, or by a similar silver stain technique performed on infected tissue.

Case reports

2023

A 28-year-old woman who presented with a four-month history of progressive, asymmetric, bilateral painless vision loss. Her past medical history was significant for systemic lupus erythematosus. Notably, she had been on a high dose of prednisone for her immunosuppressive regimen. Brain MRI showed numerous contrast-enhancing lesions scattered throughout bilateral cerebral and cerebellar hemispheres and brainstem. She underwent a brain biopsy, and infection with Bartonella henselae was confirmed via a polymerase chain reaction. The patient was started on doxycycline and rifampin with improvement in vision and resolution of lesions as confirmed by a follow-up brain MRI. The literature review did not reveal any cases of multiple brain abscesses due to central nervous system Bartonella. The case report aims to promote consider Bartonella infection as a cause of multiple brain abscesses in immunocompromised patients. It is essential to note that Bartonella can imitate other central nervous system infections, including toxoplasmosis, cryptococcosis, cysticercosis, and tuberculomas. Early identification is crucial as prompt treatment can lead to a complete cure [1)]

A 54 year-old Chinese woman admitted to our hospital with a paroxysmal headache for 2 years that had worsened in the past 3 months. Brain CT and MRI showed a meningioma-like lesion below the occipital plate. En bloc resection of the sinus junction area was performed. A pathological examination showed granulation tissue and fibrosis with acute and chronic inflammation, granuloma, and central stellate microabscess, which was suspected as the cat-scratch disease. The paraffin-embedded tissue was sampled for a polymerase chain reaction (PCR) test to amplify the corresponding pathogen gene sequence, which was Bartonella henselae.

The case underscores the fact that the incubation period of CSD may be very long. On the contrary, CSD can involve the meninges, resulting in tumor-like lesions [2].

Dornbos et al., report a rare case of multifocal thoracic osteomyelitis with an epidural abscess in a patient with a biopsy-proven pathogen of cat scratch disease. A 5-year-old girl, who initially presented with vague constitutional symptoms, was diagnosed with cat scratch disease following biopsy of an inguinal lymph node. Despite appropriate antibiotics, she presented several weeks later with recurrent symptoms and back pain. Magnetic resonance imaging revealed 2 foci of osteomyelitis at T-8 and T-11 with an associated anterior epidural abscess from T-9 to T-12. Percutaneous image-guided vertebral biopsy revealed B. henselae by polymerase chain reaction analysis, and she was treated conservatively with doxycycline and rifampin with favorable clinical outcome [3].

A 47-year-old man was investigated for fever, splenomegaly, and cervical adenopathy. A lymphoma was suspected on the clinical picture, the laboratory tests, and the computed tomographic scan. [(18)F]-fluoro-2-deoxy-d-glucose-positron emission tomography detected splenic nodules and a hypermetabolic focus of C7 vertebral body compatible with a vertebral osteomyelitis on magnetic resonance imaging. B henselae infection was confirmed by polymerase chain reaction performed on lymph node biopsy. A 34-year-old woman was investigated for fever and right upper quadrant abdominal pain. She had consulted 2 weeks before for a unique lesion of right index and an axillar adenopathy that have improved spontaneously. A technetium bone scan performed 1 week later because of a thoracic backache demonstrated an increased uptake of the T6 vertebra. Vertebral magnetic resonance imaging was compatible with a T6 osteomyelitis. B henselae infection was confirmed by serology (seroconversion). Both patients were treated with rifampin and doxycycline and recovered within 3 months.

B henselae vertebral osteomyelitis can involve immunocompetent adults. In the case of vertebral osteomyelitis with negative blood cultures, recent history of local lymphadenopathy and cat exposure must be investigated and B henselae serology must be performed. Nevertheless, even if serology is positive, vertebral biopsy is required to rule out other pathogens or malignancy. B henselae infection can be confirmed by polymerase chain reaction performed on vertebral or lymph node biopsy [4]

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Rodriguez W, Fedorova M, Rukmangadachar L. From (Cat) Scratch: A Unique Presentation of Central Nervous System Bartonella Infection. Cureus. 2023 Apr 2;15(4):e37044. doi: 10.7759/cureus.37044. PMID: 37153245; PMCID: PMC10154252.
2)
Fang Q, Wang P, Qin S, Liu S, He J. Case report: Intracranial lesions of cat-scratch disease mimicking an atypical meningioma. Front Neurol. 2023 Feb 8;14:1080331. doi: 10.3389/fneur.2023.1080331.

PMID: 36846144; PMCID: PMC9944760.
3)

Dornbos D 3rd, Morin J, Watson JR, Pindrik J. Thoracic osteomyelitis and epidural abscess formation due to cat scratch disease: case report. J Neurosurg Pediatr. 2016 Dec;25(6):713-716. PubMed PMID: 27662446.
4)

Graveleau J, Grossi O, Lefebvre M, Redon H, Caignon JM, Pallardy A, Bodet-Milin C, Néel A, Hamidou MA. Vertebral osteomyelitis: an unusual presentation of Bartonella henselae infection. Semin Arthritis Rheum. 2011 Dec;41(3):511-6. doi: 10.1016/j.semarthrit.2011.04.011. PubMed PMID: 21840042.