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Scientific letter

Not everything aggresive is tumoral: *Bartonella henselae* osteomyelitis

Lo agresivo no siempre es tumoral: osteomielitis por Bartonella henselae

We present the case of a healthy 17-year-old woman who, after being scratched by a cat on her right leg, presented with headache, right inguinal lymphadenopathy, low back pain and a feeling of coldness. She had positive serology for *Bartonella henselae* (IgG+ 1/64, IgM negative) and received azithromycin for five days. The lymphadenopathy resolved, but fever and headache persisted. She was subsequently admitted for subdural haematoma following syncope. Over the following weeks, her low back pain persisted and nuclear magnetic resonance imaging (MRI) of the lumbosacral spine was performed, which revealed a solid infiltrative lesion measuring 48 x 20 mm in the right sacral ala and tuberosity (S1 level), extending locally and showing signs of radiological aggressiveness (cortical rupture, soft tissue mass and perilesional bone oedema), suggestive of malignancy. The study was completed with a thoraco-abdomino-pelvic computerised axial tomography (CT) scan, which revealed the lesion to be lytic, with irregular borders, a 3-cm right inguinal conglomerate and multiple subcentimetric hepatosplenic nodules of benign appearance (Fig. 1).

Different microbiological tests were ordered, including QuantiFERON® and serology for HIV, syphilis and different zoonoses, with *Bartonella henselae* serology being consistent with recent infection (IgM 1:20, IgG 1:128) and the rest being negative. Suspecting neurological symptoms secondary to *B. henselae* infection, eye fundus examination (normal) and lumbar puncture (biochemistry, culture, cytology and polymerase chain reaction [PCR] of *B. henselae* in CSF negative) were performed. Biopsy of inguinal lymphadenopathy ruled out malignancy. Necrotising granulomas were observed, some suppurative, surrounded by histiocytes and lymphocytes, with negative staining (PAS, Giemsa, Fite, Ziehl, Grocott, Warthin-Starry) and positive PCR for *B. henselae*. Oral treatment with doxycycline 100 mg/12 h and rifampicin 600 mg/day was started. One month later, the sacral lesion showed radiological improvement and there were no hepatosplenic micronodules. Tumour origin was definitively ruled out and a diagnosis of invasive *B. henselae* infection with right sacral osteomyelitis, hepatosplenic microabscesses and right inguinal lymphadenopathy was established. Despite the compatible clinical signs and symptoms, central nervous system involvement could not be confirmed. After three months of treatment, the patient was asymptomatic. MRI was repeated with clear radiological improvement (Fig. 1).

B. henselae infection is usually a benign, self-limiting disease presenting with fever, local skin lesion and locoregional lymphadenopathy (cat scratch disease). Severe cases (osteomyelitis, endocarditis, neuroretinitis, etc.) are rare.[1] Of these, osteomyelitis is particularly rare (0.1–0.3%)[1] and is typically seen in children, although in some series adults account for up to 23%.[2] Clinically, it presents with fever (occasionally prolonged), osteoarticular pain, including functional deficit, locoregional lymphadenopathy (84%) and general symptoms (34%). It may be associated with systemic involvement (hepatosplenic granulomas, erythema nodosum).[2,3] It generally affects the axial skeleton, preferentially the vertebral bodies (mostly dorsal, followed by lumbar, sacral and cervical)[1] and pelvis. Involvement of the skull, thoracic cage or long bones is exceptionally rare.[2] It is usually unifocal. It may be accompanied by abscesses or inflammation of soft tissue, fractures or dislocations. CT shows osteolytic lesions with a halo sign when contrast-enhanced,[1] although MRI better characterises solitary lesions. If multifocal involvement is suspected, it is advisable to perform a labelled leucocyte scintigraphy.[3] Lymph node biopsy usually shows necrotising granulomas surrounded by a neutrophilic infiltrate and occasionally microabscesses.[1,2] A bone biopsy, usually less accessible, may be necessary to rule out a tumour.

Although culture remains the gold standard for detecting *B. henselae*, its sensitivity is low.[3,4] Serology tests and PCR are usually essential to confirm the diagnosis.[4] Serology may be negative in the first few weeks in 20% of patients, with cross-reactivity between different *Bartonella* and *Coxiella* species. Given the high prevalence of positive serology in our setting, serology testing is not sufficient for diagnosis.[5] PCR on tissue samples (lymph nodes, biopsies) has high sensitivity and specificity.[4] In our laboratory, diagnosis is performed by end-time PCR amplifying the internal transcribed spacer sequences located between the 16s-23s rRNA genes with final reading by agarose gel electrophoresis. Species identification is based on the size of the amplified product.

Antibiotic therapy is not well defined. A combination of antibiotics, mainly doxycycline and rifampicin,[1–3] is usually prescribed in a shorter regimen than the usual 4-6 weeks for osteomyelitis.[2,3] Cure without antibiotic therapy has also been reported in both osteomyelitis[2,3] and hepatosplenic abscesses.[6] The need for surgery to treat complications is described in the literature on numerous occasions.[1,3,7–9] The prognosis is good,[1,2] as in our case, with complete clinical and radiological resolution in most patients.

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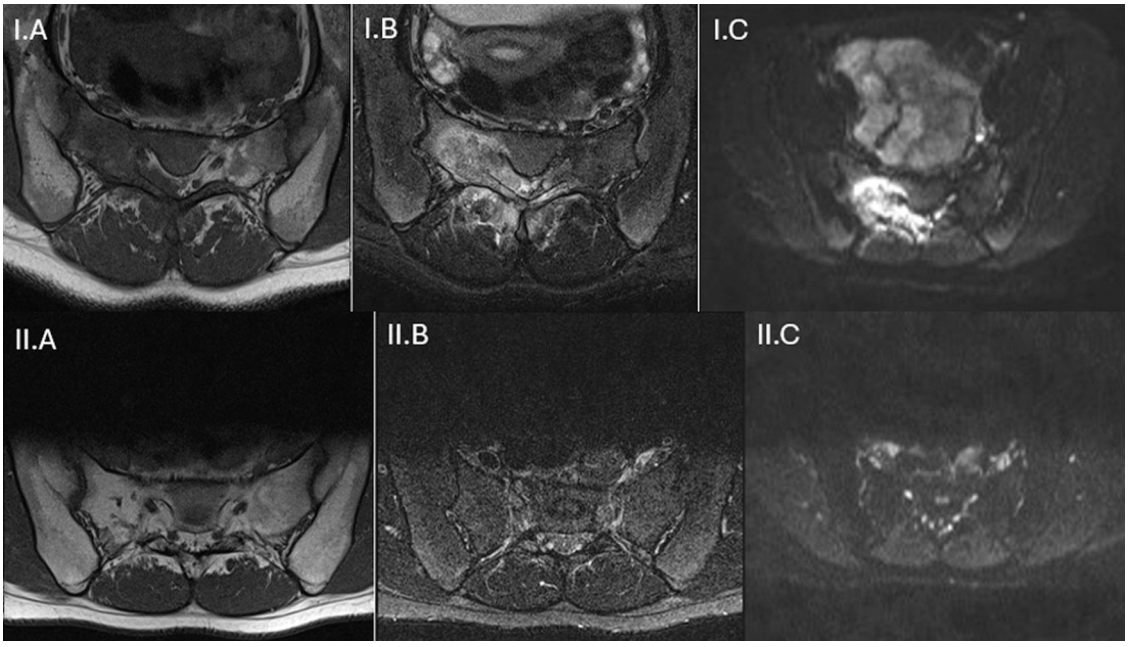

Fig. 1. I: Lumbosacral MRI at diagnosis. Axial slice at S1, sequences I.A) T1, I.B) STIR, I.C) DWI.
II: Lumbosacral MRI after three months of antibiotic therapy. Axial slice at S1, sequences II.A) T1, II.B) STIR, II.C) DWI.
T1: longitudinal relaxation time; STIR: Short time inversion recovery; DWI: Diffusion-weighted Image.

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Conflicts of interest

There are no conflicts of interest.

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