Enfermedades Infecciosas y Microbiología Clínica 42 (2024) 55–56

Enfermedades Infecciosas y Microbiología Clínica

www.elsevier.es/eimc

Scientific letter

Abdominal pain as a guide symptom of fever of unknown origin

Dolor abdominal como síntoma guía de la fiebre de origen desconocido

A previously healthy 12-year-old adolescent girl came into the emergency department of our centre with a seven-day history of fever (maximum axillary temperature of 39 °C) associated in the recent few hours with pain, predominantly in the right hypochondriac region, difficult to control with conventional analgesia. They report no environment of family epidemic or recent travel. The patient lives in an urban area (province of Barcelona) and has been living with a cat, properly vaccinated, for six months. Physical examination revealed pain on palpation in the right abdomen, with no masses or organomegaly. The rest of the physical examination was normal. A blood test was performed, showing mild leucocytosis (11,550/mm^3) with neutrophilia (7850/mm^3) and elevated C-reactive protein (102 mg/l). In view of the abdominal pain, abdominal ultrasound scan was performed, revealing a focal hepatic image and a nodular image in the hilum of the liver, both non-specific.

The study was completed with computed tomography of the abdomen, showing multiple focal liver images with peripheral enhancement in the arterial phase and a tendency towards homogenisation in the venous phase, and enlarged lymph nodes in the hilum of the liver (Fig. 1). The patient was admitted for further tests.

During admission, an abdominal MRI scan showed liver lesions (already seen in previous studies) and splenic lesions, suggestive of a disseminated infectious-inflammatory process. Tests were completed with tumour markers, tuberculosis screening (Interferon-Gamma Release Assay [IGRA]) and serology for CMV, *Treponema pallidum*, EBV, HBV, HIV, HCV and *Bartonella henselae (B. henselae)*.

We obtained positive IgM and IgG for *B. henselae*. IGRA and all other serologies were negative. It was suspected to be *B. henselae* cat-scratch disease with spread to the liver and spleen. In view of the confirmation of *B. henselae* infection in the serology, an extension study was performed, including fundus examination (which was normal) and an immunological study, with no evidence of immunodeficiency. Treatment was started with azithromycin (10 mg/kg on day one, then 5 mg/kg/day) in combination with rifampicin. The patient's temperature returned to normal and she was discharged after six days. After 14 days of treatment, the patient remains afebrile but continues to have intermittent abdominal pain. Follow-up ultrasound scan showed a slight increase in the lesions, some of which were associated with perilesional oedema. In view of the above developments, the antibiotic was prolonged for a further week and oral corticosteroids were added to the treatment. Further follow-up abdominal ultrasound scans showed a gradual decrease in the size of the lesions in the liver and spleen until they disappeared five months after diagnosis. The patient's C-reactive protein levels gradually returned to normal over one month and after two months, she was negative for anti-*B. henselae* IgM.

Fig. 1. Computed tomography of abdomen. Liver lesions with arterial phase enhancement.

B. henselae is a gram-negative bacillus whose natural reservoir is the cat and vector is the flea. Humans (especially the five-to-nine-year-old paediatric population) act as an accidental host. *Cat scratch disease* is an infection caused by *B. henselae* and is acquired after being scratched or bitten by a cat (typically young) or after exposure to infected cat fleas.[1] The most common clinical manifestation is a papule at the inoculation site along with locoregional lymphadenopathy, which can resolve spontaneously. Some patients may have atypical forms: fever without focus; eye manifestations (neuroretinitis, Parinaud's syndrome); neurological manifestations (encephalitis, transverse meningitis, cerebellar ataxia); bone involvement; or visceral dissemination with involvement of the liver and spleen.[1] Patients with liver and spleen involvement develop hepatic and/or splenic parenchymal lesions formed by granulomas and the clinical manifestations are characterised by abdominal pain, fever, weight loss and/or hepatosplenomegaly.[2–4] Diagnosis is based on clinical findings, history of exposure to cats and positive serology for *B. henselae* (sensitivity 80%–90% but cross-reactivity with other microorganisms). Treatment of visceral disease is based on azithromycin (10 mg/kg day 1, then 5 mg/kg) and rifampicin (10 mg/kg/12 h) for 10–14 days.[4,5] In the case of severe/persistent disease, corticosteroid therapy is indicated.[6] Both clinical and analytical follow-up are recommended, and repeat imaging should be considered after six months of treatment.

Authors

All the authors made substantial contributions to each of the following: 1) data collection; 2) the drafting of the article or the critical review of the intellectual content; and 3) final approval of the version submitted.

Ethical responsibilities

This has been accepted by the Fundació Sant Joan de Déu's Independent Ethics Committee for research with medicines (IECm). IECm Code: ART-02-23.

Funding

No funding was received.

Conflicts of interest

The authors have no conflicts of interest to declare.

References

1. Obando Santaella I, Moreno García MJ, Díez de los Ríos MJ, Martí Belda P, Corrales Barrio F. Enfermedad por arañazo de gato. Consideraciones diagnósticas y terapéuticas. An Esp Pediatr. 1997;47:209–10.
2. Florín TA, Zaoutis TE, Zaoutis LB. Beyond cat scratch disease: widening spectrum of Bartonella henselae infection. Pediatrics. 2008;121:e1413–25.
3. Arisoy ES, Correa AG, Wagner ML, Kaplan SL. Hepatosplenic cat-scratch disease in children: selected clinical features and treatment. Clin Infect Dis. 1999;28:778–84.
4. Margileth AM. Recent advances in diagnosis and treatment of cat scratch disease. Curr Infect Dis Rep. 2000;2:141–6.
5. Howard LM, Edwards KM. Bartonella infections. In: Cherry, Harrison, Kaplan, Steinbach, Hotez, editors. Textbook of pediatric infectious diseases. 8th ed Philadelphia: Elsevier; 2019. p. 1240–6.
6. Lerdluedeeporn P, Krogstad P, Roberts RL, Stiehm ER. Oral corticosteroids in cat-scratch disease. Clin Pediatr (Phila). 2003;42:71–3, http://dx.doi.org/10.1177/000992280304200111.

Carmen Agustí-Barjau[a], Anna Gamell[b], Mariona F. de Sevilla[a,c], Gemma Pons-Tomàs[a,*]

[a] *Servicio de Pediatría, Hospital Sant Joan de Déu, Barcelona, Spain*
[b] *Servicio de Enfermedades Infecciosas y Patología Importada, Hospital Sant Joan de Déu, Barcelona, Spain*
[c] *Consorcio de Investigación Biomédica en Red de Epidemiología y Salud Pública (CIBERESP), Madrid, Spain*

[*] Corresponding author.
E-mail address: gemma.pons@sjd.es (G. Pons-Tomàs).