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Erythema nodosum: An uncommon manifestation of Rickettsiosis



Eritema nodoso: una manifestación infrecuente en las rickettsiosis

Erythema nodosum (EN) is a well defined cutaneous syndrome that can be primary or secondary to systemic and autoimmune diseases, inflammatory bowel disease, pregnancy, neoplastic diseases, drugs or infections.¹ Between infectious agents, Streptococci and *Mycobacterium tuberculosis* are the most common causes in developed and developing countries, respectively. Many other microorganisms have been involved in EN, but *Rickettsia* spp. have only been related in very few case reports.^{2,3}

A 30-year-old woman without any previous diseases, had a property vaccinated dog and lived in a rural area. In mid-autumn she began suffering fevers of up to 38 °C, headache, stiff neck and vomiting, so she went to the Emergency Department of our hospital. Upon arrival, blood pressure was 110/78 mmHg, heart rate 124 beats per minute and oxygen saturation by pulse-oximetry was 100%. At physical exploration, neurological examination was normal; she had a black, scabby and painless skin lesion on her scalp, as well as multiple red, indurated and painful lesions on palpation in both lower limbs, suggestive of EN. A blood test was performed: CRP of 270 mg/L, procalcitonin of 1.41 ng/mL, neutrophilia of 8710/μL with lymphopenia of 770/μL and discrete prolongation of prothrombin time (15.5 s). CSF analysis was normal, and CSF, blood and urine cultures were all negative. Chest x-rays and abdominal ultra-

sound were normal too. The patient was admitted to the Infectious Diseases Unit. A skin biopsy from one of the lesions in the lower limbs was taken (Fig. 1).

On the day after admission, the patient referred blurred vision. An Ophthalmologist found mild vitritis, retinal vasculitis, patchy retinitis and severe papillitis in her right eye, as well as mild patchy vasculitis in the posterior pole of her left eye.

ANA, antiDNA and ENA antibodies were all negative. Serologies for *Coxiella burnetii*, HIV, VEB and CMV were negative but *Rickettsia* spp's serology was positive IgM and negative IgG (Chemiluminiscent immunoassay or CLIA; *Rickettsia conorii* Virclia, Vircell®: Moroccan strain ATCC VR-141). At that moment, doxycycline 100 mg every 12 h was initiated for 7 days, along with corticosteroids to treat the ocular disease. The patient became afebrile 36 h after starting doxycycline. She improved quickly and could be discharged home. New serologies were made against *Rickettsia* spp in successive weeks: positive IgM and negative IgG persisted 2 weeks later; 3 months later, serology was still IgM positive by CLIA but undetermined IgM (1/40; *Rickettsia conorii* IFA IgM, Vircell®: Moroccan strain ATCC VR-141) and positive total antibodies by immunofluorescence assay (IFA).

The dermatological manifestations of rickettsiosis can be diverse. An eschar with epidermal necrosis at the site of inoculation is characteristic (tache noire). In addition, this infection can cause generalized vasculitis with involvement of the intima and media with vascular and perivascular infiltration of polymorphonuclear cells, lymphocytes and histiocytes. Other findings rarely seen are

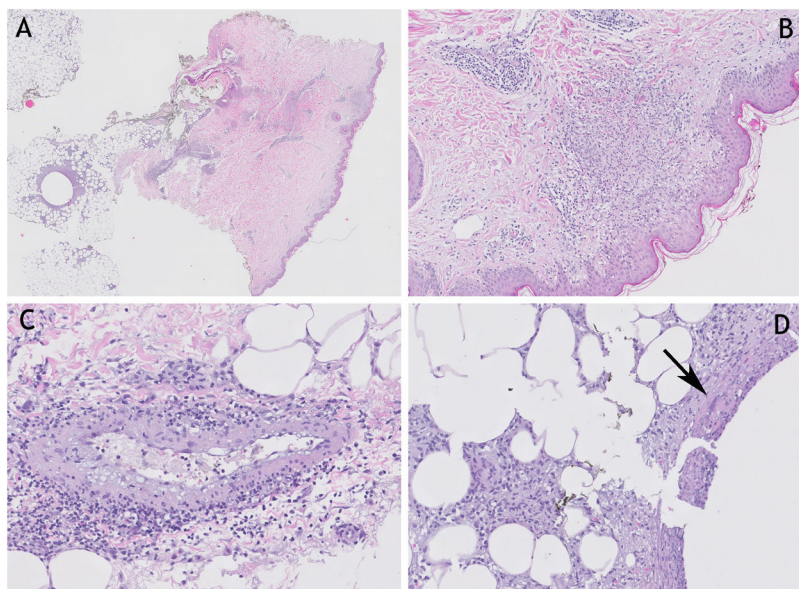


Fig. 1. (A) (H&E 20×) cutaneous punch in which superficial, deep dermis and adipose panniculus are appreciated. (B) (H&E 200×) detail of lichenoid dermatitis with vacuolar degeneration of basal epidermal layer, and underlying granulomatous reaction. (C) (H&E 200×) medium-sized vessel with vacuolated endothelium and enveloping lymphocytic inflammatory infiltrate. (D) (H&E 400×) lobular and septal panniculitis with presence of giant multinucleated cell (arrow). H&E: hematoxylin and eosin.

blood extravasation in petechial lesions, vacuolization of basal epidermal layers, and even intraepidermal vesicles with inflammatory infiltrate in the papillary dermis; EN is very uncommon. Cutaneous lesions in the form of a maculopapulopetechial rash with palmoplantar involvement are very characteristic of *Rickettsia conorii*, although we could not confirm the species in our patient.⁴

Rickettsiosis usually have a good prognosis, and disease tend to be limited to 10–20 days without sequelae. Complications are usually related to delays in treatment, advanced age and comorbidities. There is also a “malignant” rickettsial form of the disease characterized by multi-organic failure, especially kidney failure, disseminated intravascular coagulation with purpuric exanthema, severe hepatic injury, pulmonary infiltrates and altered consciousness.^{5,6}

The basis of diagnosis is serology, being limited by cross reactions between members of the group of spotted fevers and those of the typhus group, leading to false positive results.⁶ Indirect immunofluorescence is the most sensitive and specific of all serological tests. Polymerase chain reaction (PCR) can also be performed in a eschar biopsy or blood sample and has the advantages of high specificity and being positive in the acute phase of disease.⁷

Between rickettsial species, *Rickettsia conorii* and *Rickettsia sibirica mongolitimonae* are the most frequent between May and September. *Rickettsia slovaca* and *Rickettsia rioja* are much more frequent in other times of the year and their eschars are commonly located on the scalp.⁸ Although in the south of Spain the autumns are getting warmer, either *Rickettsia slovaca* or *Rickettsia rioja* could be the causative agents of our case report.

Another recently described tick-borne infection that must be included in the differential diagnosis is the one caused by ‘*Candidatus Neorhlichia mikurensis*’. It is transmitted by *Ixodes ricinus* ticks and it causes an inflammatory disease affecting predominantly patients with underlying diseases.⁹

Some cases of EN labeled as idiopathic might be secondary to Rickettsial infections in endemic regions.^{2,3,10} Our case reports an uncommon manifestation of a relatively frequent infection in our country. Rickettsiosis could manifest just with fevers and dermatological manifestation like EN, so we suggest performing at least an initial serology and another one two weeks later in every patient presenting this dermatological sign in order to rule out an easy to treat infection.

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Conflict interest

All authors declare no conflicts of interest.

References

1. Chowaniec M, Starba A, Wiland P. Erythema nodosum – review of the literature. *Reumatologia*. 2016;54:79–82.
2. Schwartz RA, Nervi SJ. Erythema nodosum: a sign of systemic disease. *Am Fam Physician*. 2007;75:695–700.
3. Jiménez Nacher JJ, Navarro Ibáñez V, Nieto García A, Salavert Lleti M, Ferrer Tuset C, Febrer I. *Rickettsia conorii*: a new cause of erythema nodosum. *An Med Interna*. 1991;8:241–2.
4. Oteo JA, Portillo A. Tick-borne rickettsioses in Europe. *Ticks Tick Borne Dis*. 2012;3:271–8.
5. Baltadzhiev I, Popivanova N, Zaprianov Z. Malignant forms of Mediterranean spotted fever: risk factors for fatal outcomes. *Braz J Infect Dis*. 2016;20:511–2.
6. Rovey C, Raoult D. Mediterranean spotted fever. *Infect Dis Clin North Am*. 2008;22:515–30.
7. Leitner M, Yitzhaki S, Rzotkiewicz S, Keysary A. Polymerase chain reaction-based diagnosis of Mediterranean spotted fever in serum and tissue samples. *Am J Trop Med Hyg*. 2002;67 Suppl.:166–9.
8. Portillo A, Santibáñez S, García-Álvarez L, Palomar AM, Oteo JA. Rickettsioses in Europe. *Microbes Infect*. 2015;17:834–8.
9. Portillo A, Santibáñez P, Palomar AM, Santibáñez S, Oteo JA. ‘*Candidatus Neorhlichia mikurensis*’ in Europe. *New Microbes New Infect*. 2018;22:30–6.
10. Johnston RB. Panniculitis. In: Weedon’s skin pathology essentials. Elsevier; 2017. p. 349–68.

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Low sensitivity of rapid antigenic tests as a screening method in an outbreak of SARS-CoV-2 infection in prison[☆]



Baja sensibilidad de los test rápidos antigénicos como método de cribado en un brote de infección por SARS-CoV-2 en prisión

Dear Editor,

At present, the gold standard for the diagnosis of SARS-CoV-2 infection is detection of viral RNA by means of real-time polymerase chain reaction (rt-PCR) testing or an equivalent molecular tech-

nique. In Spain, rapid antigen testing (RAT) that is duly validated (sensitivity $\geq 80\%$ and specificity $\geq 97\%$) can be used within five days of the onset of symptoms in patients with no major immunosuppression and no criteria for intensive care unit (ICU) admission¹. RAT is less sensitive than rt-PCR testing in all stages of the infection, and even less so in asymptomatic cases, but its use in the absence of symptoms has not been ruled out in all cases^{1–3}. A recent report from the European Centre for Disease Prevention and Control (ECDC) recommends the use of RAT in patients with or without symptoms if a rate of positive tests $\geq 10\%$ is anticipated². It also advises its use in high-risk settings to quickly identify infected individuals and implement prevention and control measures to curb transmission, though it does recommend that negative cases be confirmed with rt-PCR testing^{1–3}.

We report the results of the use of RAT in a SARS-CoV-2 outbreak that occurred on a residential unit (RU) of Figueras prison in Girona, Spain, in late 2020. Between 23 and 25 December, SARS-

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