Hospital San Pedro

Rioja Salud
Departamento de Enfermedades Infecciosas

PATÓGENOS ESPECIALES CIBIR
Centro de Rickettsiosis y Enfermedades transmitidas por Artrópodos Vectores

CIBIR
Centro de Investigación Biomédica de La Rioja

Las enfermedades humanas por garrapatas en riesgo de explosión

FIEBRE HEMORRÁGICA DE CRIMEA-CONGO

Dr. José A. Oteo

Sevilla, 2 de diciembre de 2022

Índice

Algunas generalidades sobre las garrapatas

Espectro de las enf. transmitidas por garrapatas en España

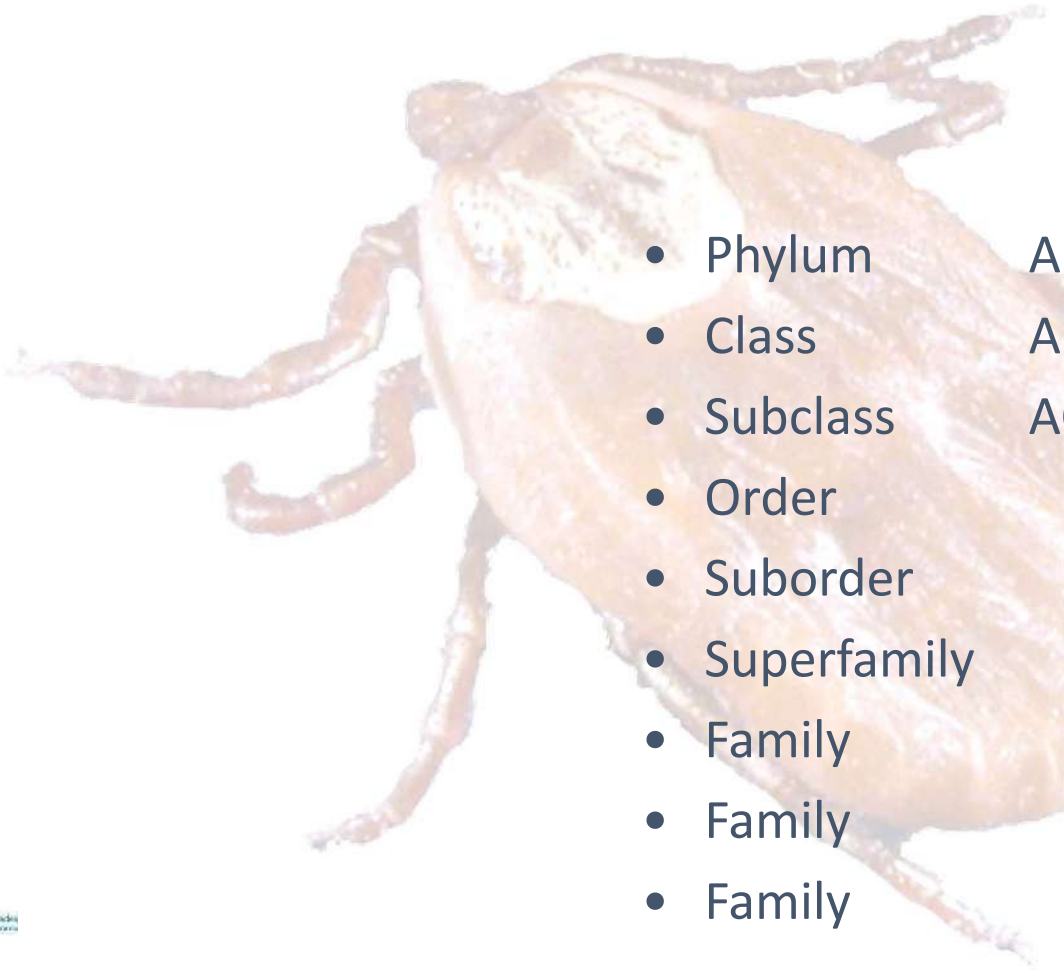
Fiebre hemorrágica de Crimea-Congo

Garrapatas

Características

- Artrópodos hematófagos (chupan sangre).
- Parásitos de mamíferos, aves, reptiles y anfibios.
- Vectores, hospedadores intermediarios y reservorios de agentes infecciosos.
- Artrópodos vectores más importantes de e. infecciosas en Europa y segundos en importancia mundial tras los mosquitos.

Taxonomía de las garrapatas



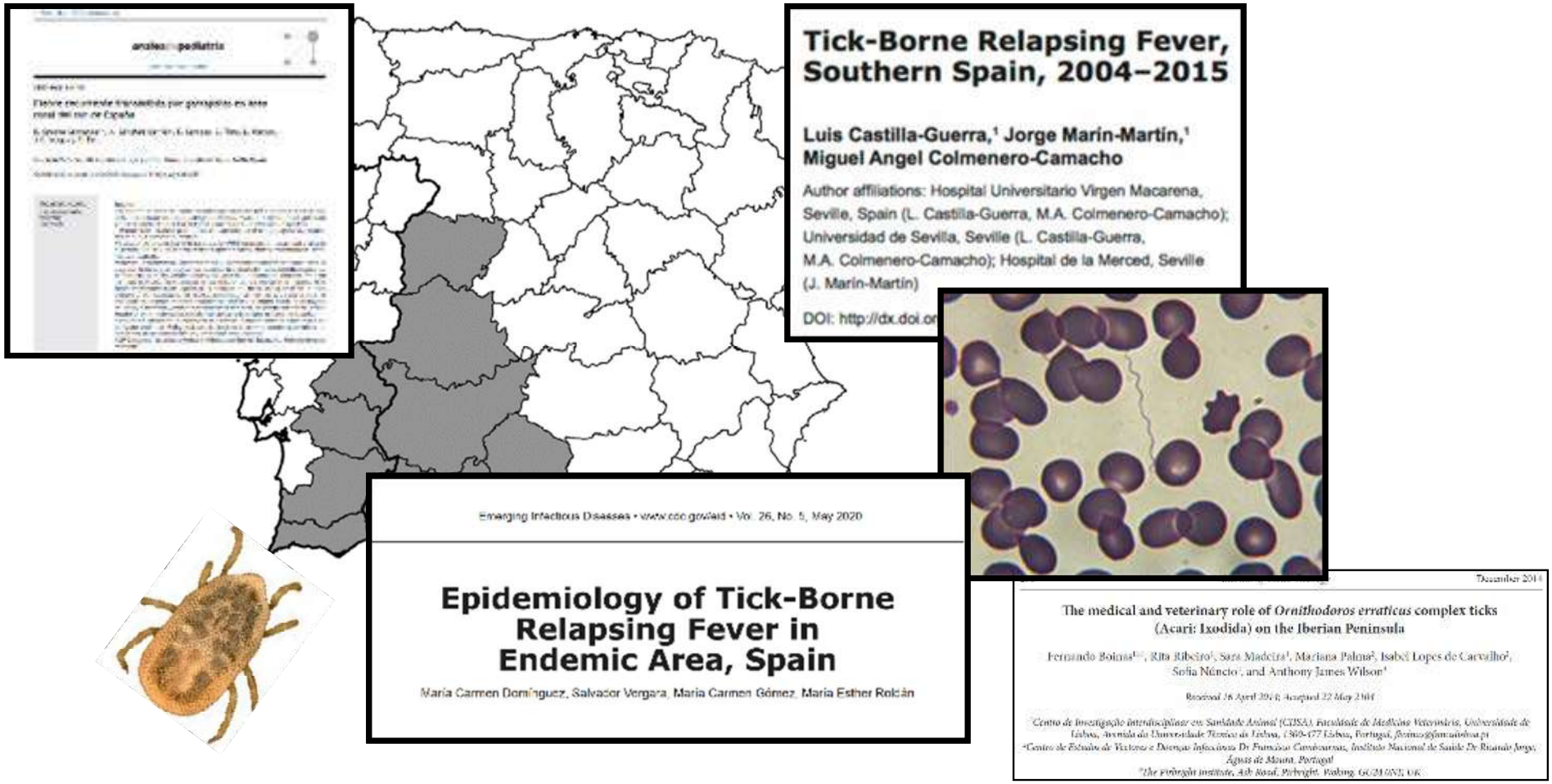
- Phylum ARTHROPODA
- Class ARACHNIDA
- Subclass ACARI
- Order PARASITIFORMES
- Suborder IXODIDA
- Superfamily IXODOIDEA
- Family **ARGASIDAE**
- Family **IXODIDAE**
- Family NUTTALLIELLIDAE

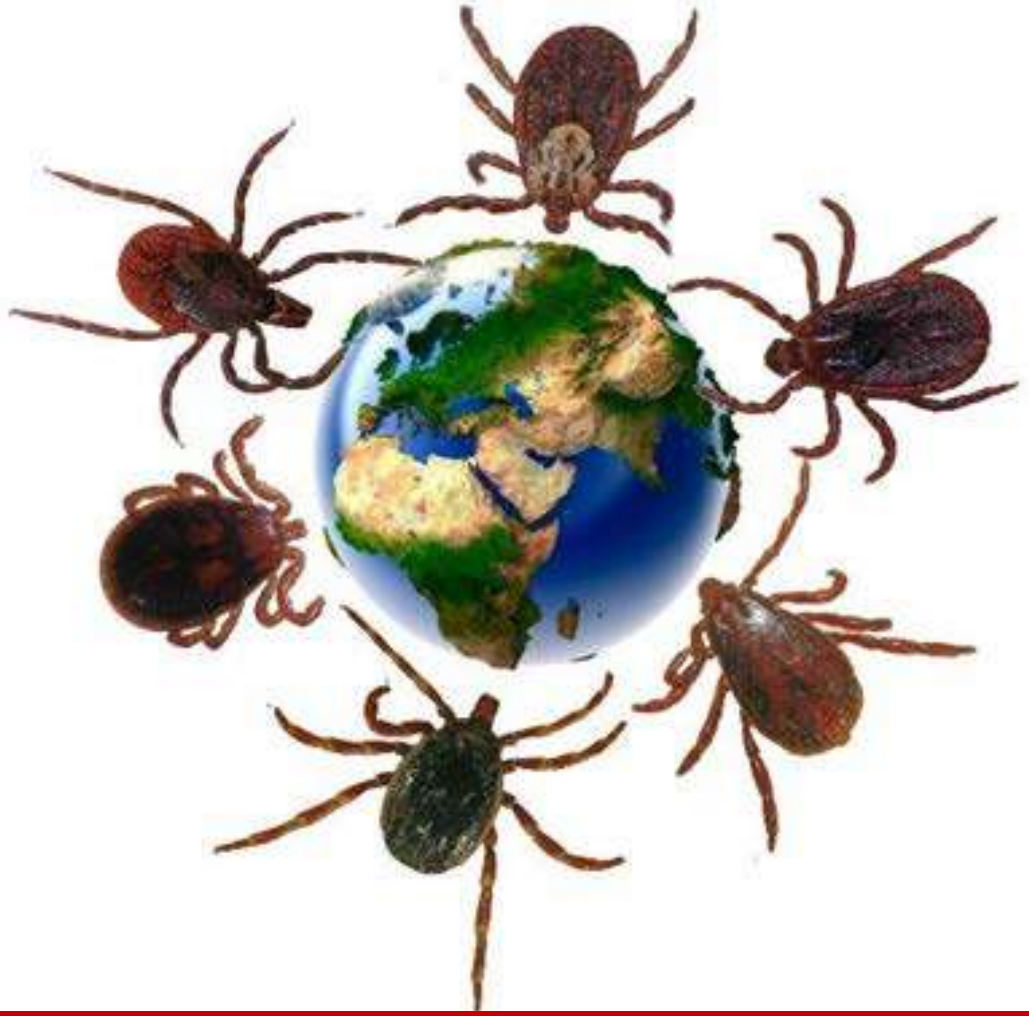
Familias de garrapatas con interés médico

Duras (Ixodidae)
(>700 especies en el mundo)

Blandas (Argasidae)
(200 especies en el mundo)

Distribución de *Ornithodorus erraticus*





Las garrapatas son cosmopolitas

Viven desde el Ecuador hasta las áreas circumpolares

Las garrapatas duras viven en hábitats muy diversos
(desde la montaña, al valle y costas)

El grado de humedad, altitud, latitud, vegetación y fauna condicionan la presencia de los diferentes géneros y especies

El tipo y número de animales condiciona la diversidad y cantidad de garrapatas

Presencia de *Rickettsia* spp.

Borrelia spp., *Anaplasma* y

del virus de la fiebre hemorrágica

de Crimea-Congo en garrapatas

recogidas sobre aves migratorias

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 18, No. 7, July 2012

DISPATCHES

Role of Birds in Dispersal of Etiologic Agents of Tick-borne Zoonoses, Spain, 2009

Ana M. Palomar, Paula Santibáñez, David Mazuelas, Lidia Roncero, Sonia Santibáñez, Aránzazu Portillo, and José A. Oteo

The Study

During April–October 2009, bird bandings were conducted in the protected area of Finca Ribavellosa in La Rioja, Spain (42°14′N, 2°54′W). Ticks were collected from birds and classified through taxonomic keys (*7*) and molecular methods (*8*). DNA was individually extracted by using 2 incubations of 20 minutes each with ammonium hydroxide (1 mL of 25% ammonia and 19 mL of Milli-Q water that had been autoclaved) at 100°C and 90°C.

DNA extracts were used as templates for PCRs targeting fragment genes for tick classification and for bacteria detection (Table 1). Two negative controls, 1 containing water instead of template DNA and the other with template DNA but without primers, and a positive control (a tick extract, *A. phagocytophilum*, *B. burgdorferi* sensu stricto, or *R. slovaca*) were included in all PCRs.

DISPATCHES

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 19, No. 2, February 2013

Crimean-Congo Hemorrhagic Fever Virus in Ticks from Migratory Birds, Morocco[1]

Ana M. Palomar, Aránzazu Portillo, Paula Santibáñez, David Mazuelas, Juan Arizaga, Ariñe Crespo, Óscar Gutiérrez, Juan Francisco Cuadrado, and José A. Oteo

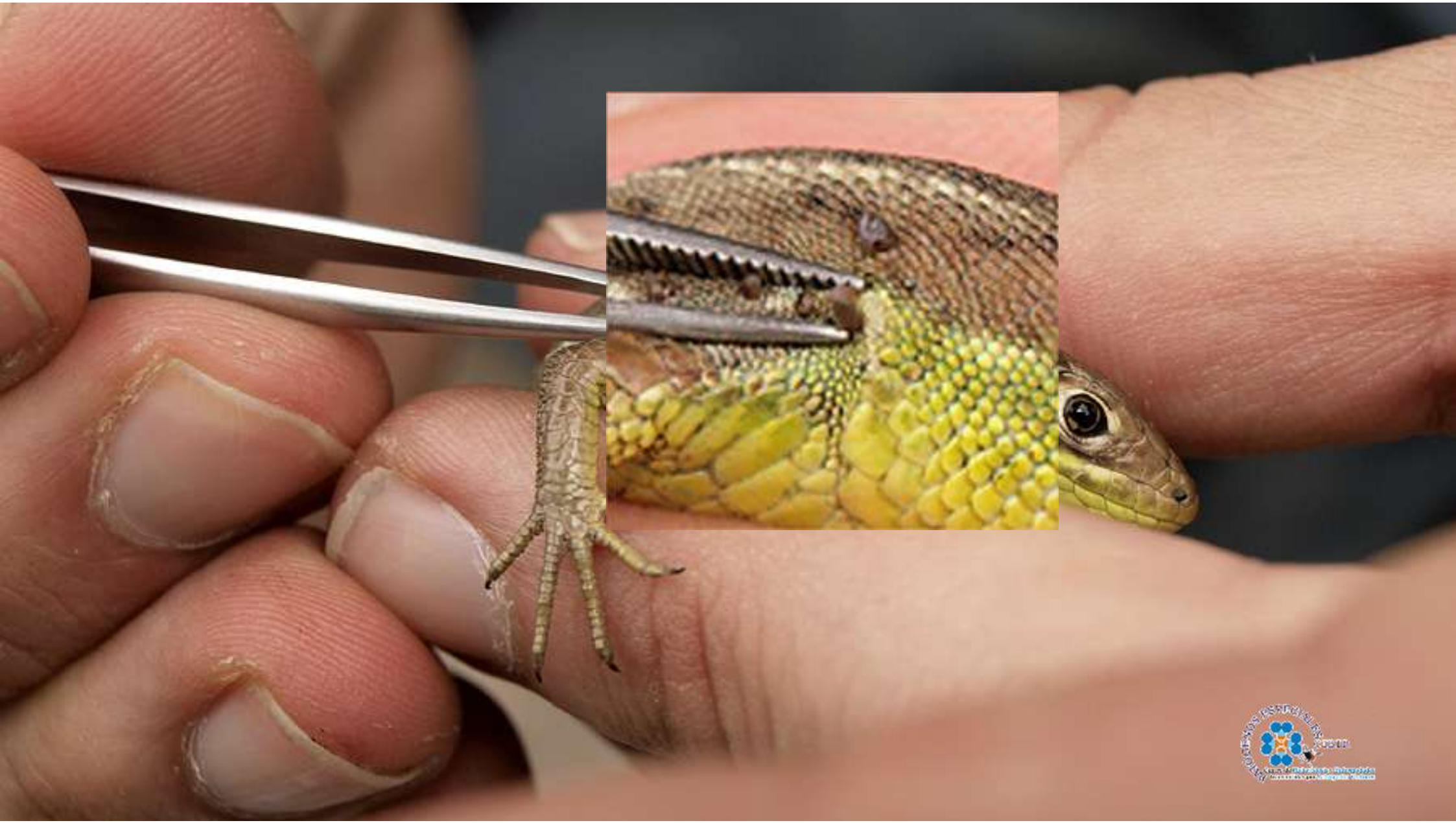
Crimean-Congo hemorrhagic fever virus was detected in ticks removed from migratory birds in Morocco. This finding demonstrates the circulation of this virus in northwestern Africa and supports the hypothesis that the virus can be introduced into Europe by infected ticks transported from

(*1*). Only imported cases have been reported in western Europe, although the causal agent has been amplified in *H. lusitanicum* ticks collected from deer in Spain (southwestern Europe) (*5*). This finding could be explained by the arrival of infected ticks transported by migratory birds coming from Africa (*5*). To confirm this hypothesis, we investigated the presence of CCHFV in ticks collected from migratory birds in northern Africa.

The Study

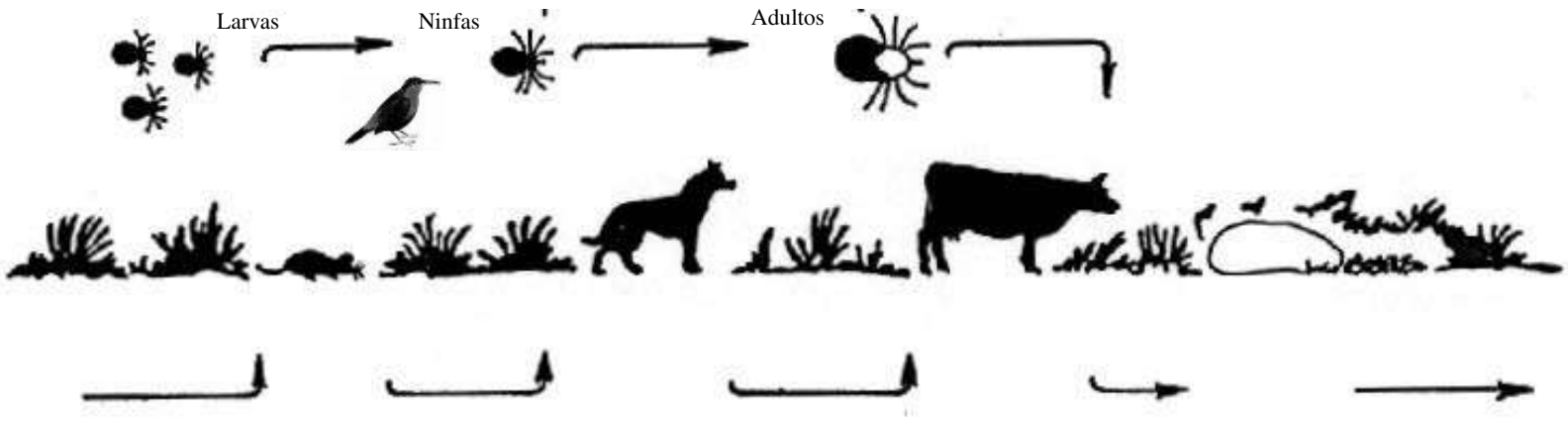
In April 2011, bird bandings were conducted in Zouala, Morocco (31°47□N, 4°14□W) (Figure 1). A total of 546 captured birds were checked for ticks, and parasites were found on 21 birds from 5 passerine bird species (*Phoenicurus phoenicurus*, *Erythropygia galactotes*, *Iduna opaca*, *Acrocephalus scirpaceus*, and *I. pallida*). All but *I. pallida* birds are passerine trans-Saharan migrant species, coming from central and southern Africa and able to reach the Iberian Peninsula.

A total of 52 ticks (19 larvae and 33 nymphs) were processed. Genomic DNA and total RNA from ticks were



Ciclo vital de las garrapatas duras

Hospedador accidental



Pasan por 3 fases o estadios y se alimentan sobre 1-2-3 hospedadores
El ciclo dura entre 1-3 años

Enfermedades Transmitidas por Garrapatas

Mecanismos Patogénicos

- Pérdida de sangre
- Inoculación de microorganismos
- Inoculación de neurotoxinas
- Reacciones de hipersensibilidad
- Traumatismo local/sobreinfección piógena

Virus	Bacterias	Protozoos	Nematodos
Flavivirus	*Borrelia* spp.	*Babesia* spp.	*Onchocercidae*
Phlebovirus	*Rickettsia* spp.	*Theleria* spp.	
Coltivirus	*Anaplasma* spp.	*Hepatozoon*	
Orbivirus	*Ehrlichia* spp.	*Cytauxzoon*	
Nairovirus	*Neoerhlichia mikurensis*		
Asfivirus	*Francisella tularensis*		
Thogotovirus			

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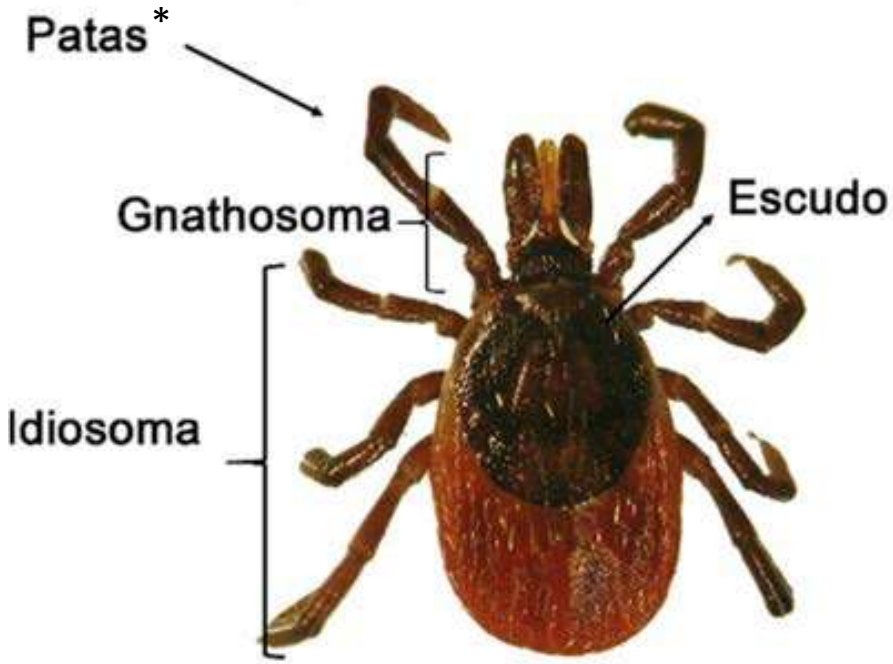
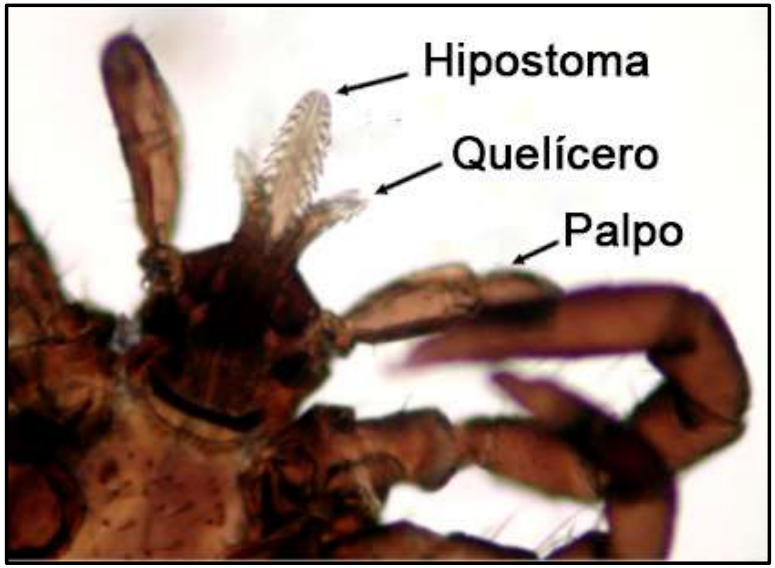
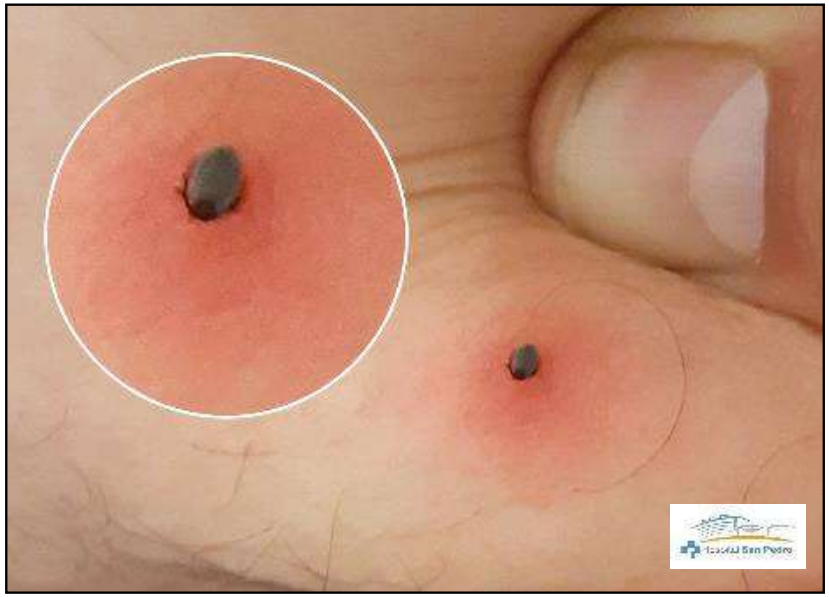
Anatomía básica de una garrapata dura





*Las larvas tienen 3 pares de patas y ninfas y adultos 4 pares

Garrapatas alimentándose sobre humanos



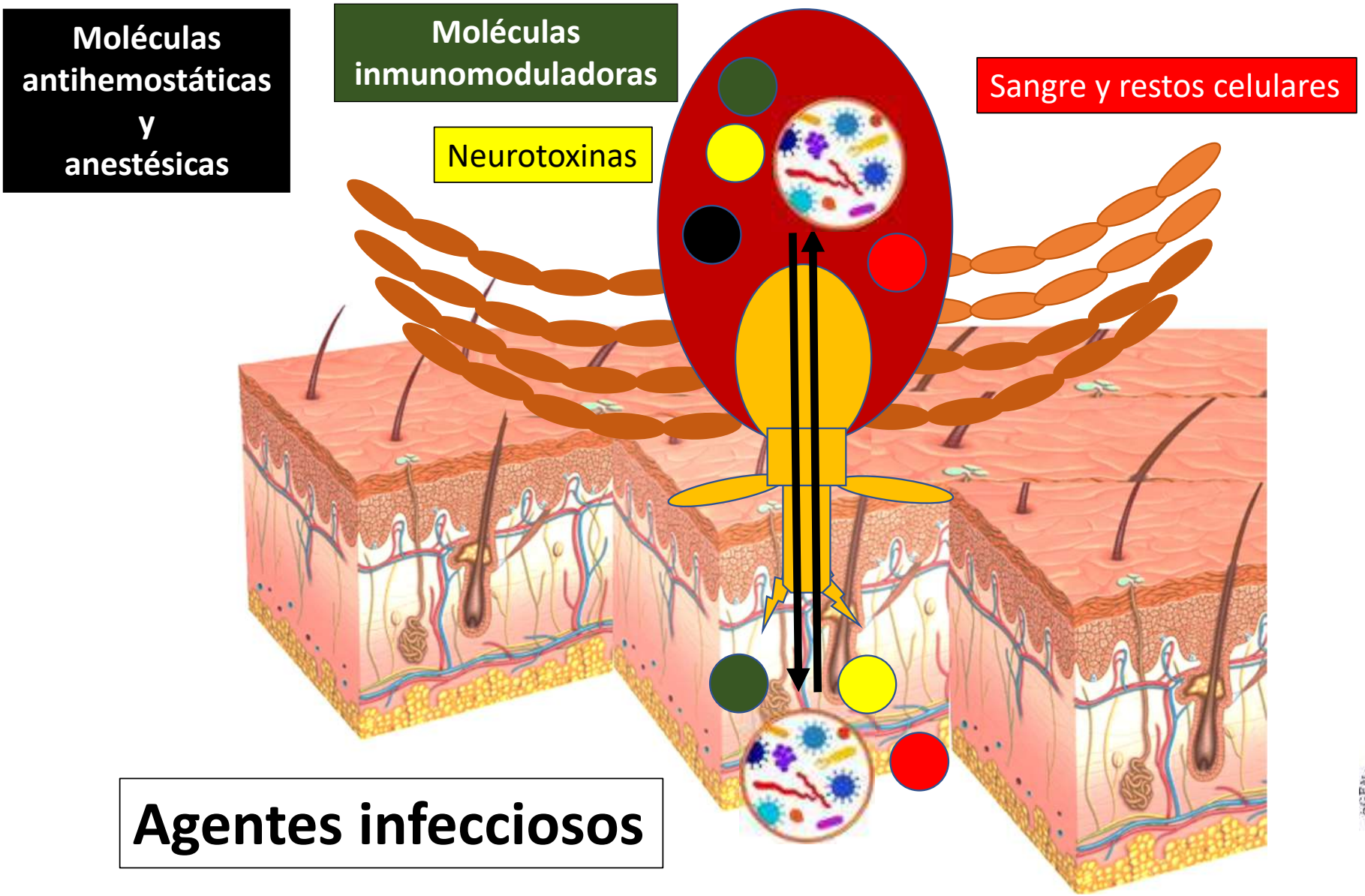
Si me pica una garrapata ¿desarrollaré una enfermedad?

¿Qué pasa si me pica una garrapata?

La mayoría de las veces únicamente se desarrolla una pápula pruriginosa que se autolimita

A tener en cuenta

- La picadura es indolora (componentes anestésicos y anticoagulantes en la saliva).
- Tamaño en función de la especie y estadio de la garrapata.
- En muchas ocasiones, simulan un lunar.
- **La mitad de los pacientes que sufren una picadura de garrapata no van a ser conscientes.**


Moléculas antihemostáticas y anestésicas
Moléculas inmunomoduladoras
Neurotoxinas
Sangre y restos celulares
Agentes infecciosos

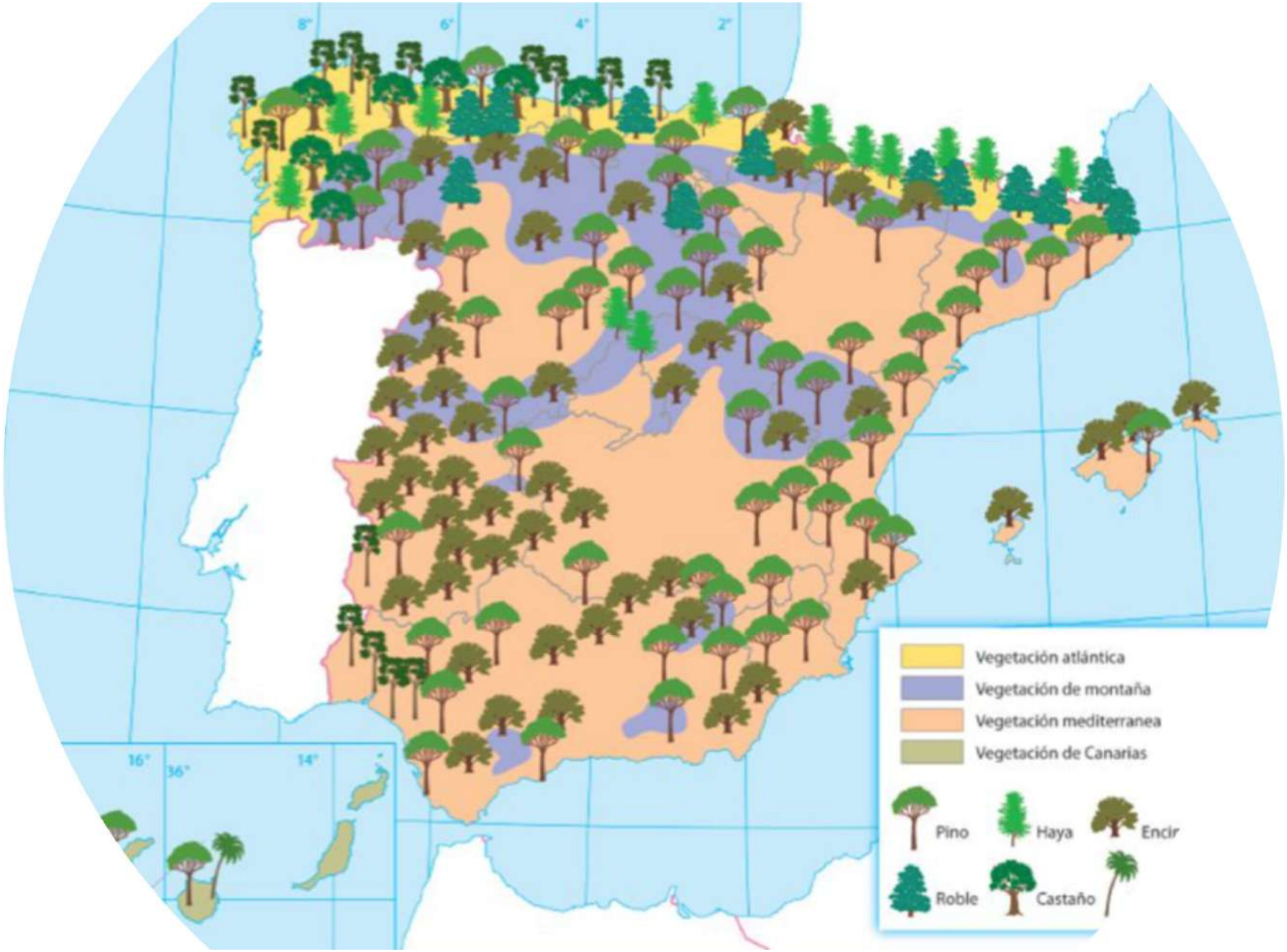
Factores condicionantes para la presencia de una enfermedad transmitida por garrapatas

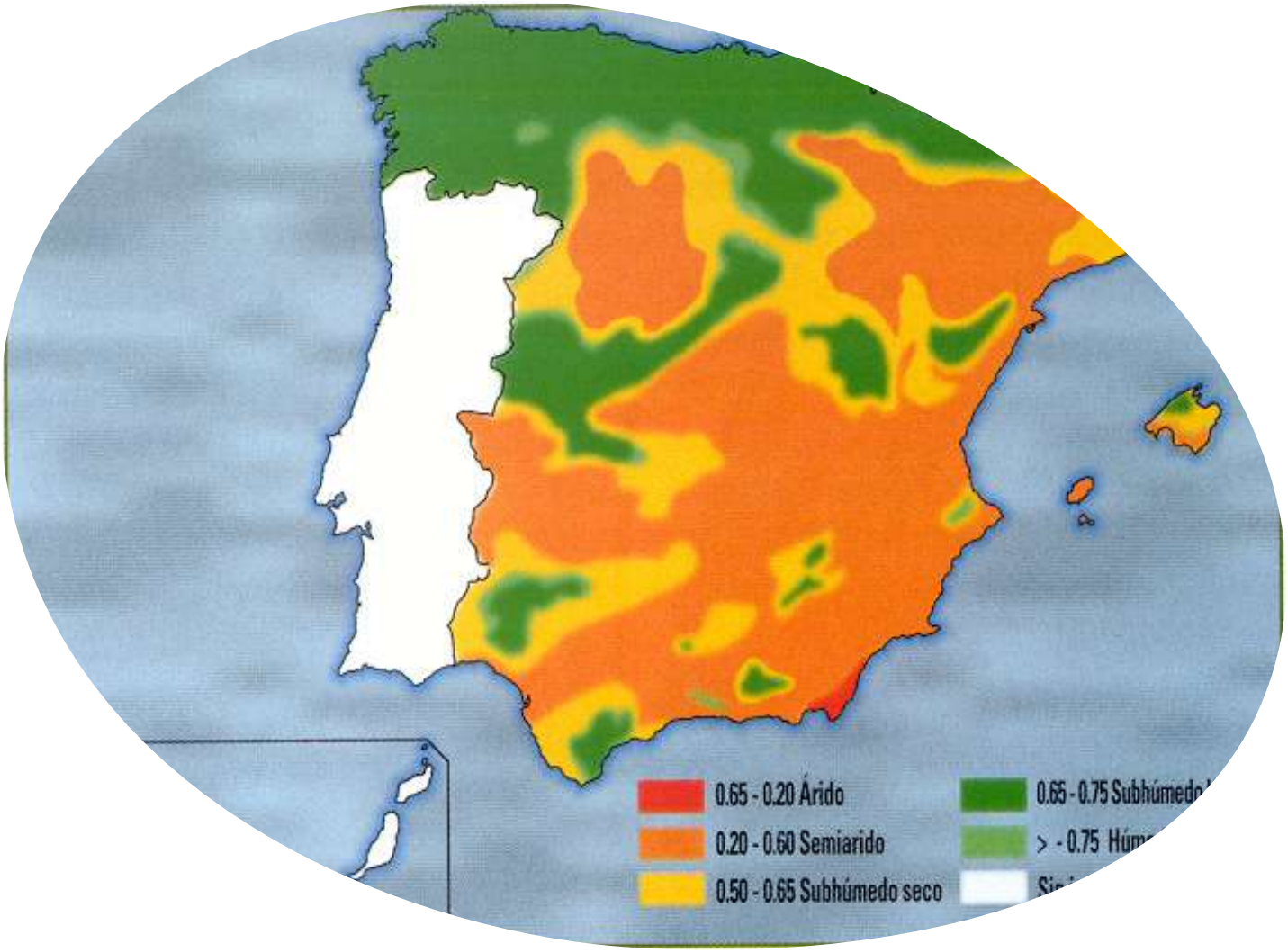
Presencia de una determinada especie de garrapata

Presencia del reservorio (puede ser la propia garrapata)

Garrapata infectada o portadora de toxina

Susceptibilidad personal


8°
6°
4°
2°
16°
36°
14°
Vegetación atlántica
Vegetación de montaña
Vegetación mediterranea
Vegetación de Canarias
Pino
Haya
Encir
Roble
Castaño



Diferentes áreas pluviométricas

https://www.xlsemanal.com/conocer/naturaleza/20170817/grito-del-urogallo.html

https://cimanorte.com/el-rebeco-o-sarrio-en-el-pirineo/

https://www.ecoticias.com/naturaleza/194539/Liberado-ejemplar-lince-iberico-area-reintroduccion-Guadalmellato-Cordoba

Rutas migratorias de las aves

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 18, No. 7, July 2012

DISPATCHES

Role of Birds in Dispersal of Etiologic Agents of Tick-borne Zoonoses, Spain, 2009

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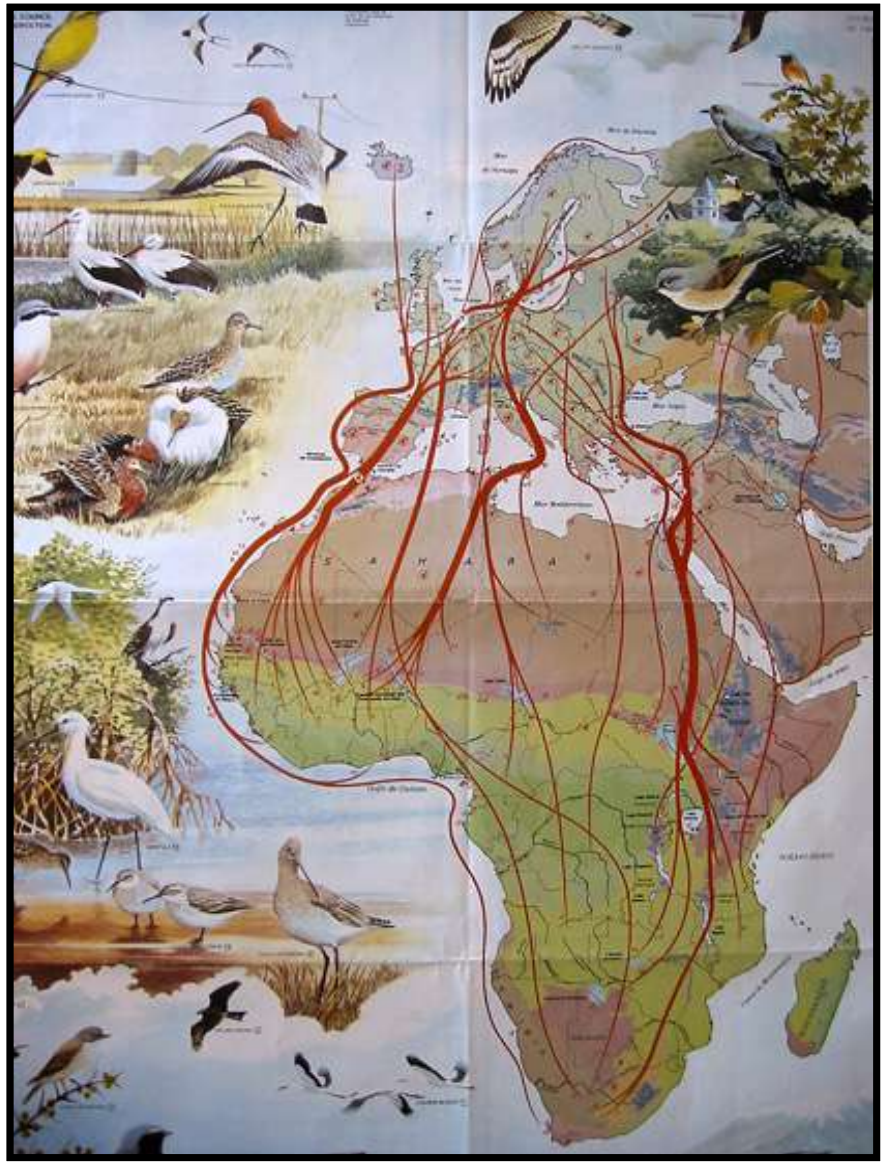

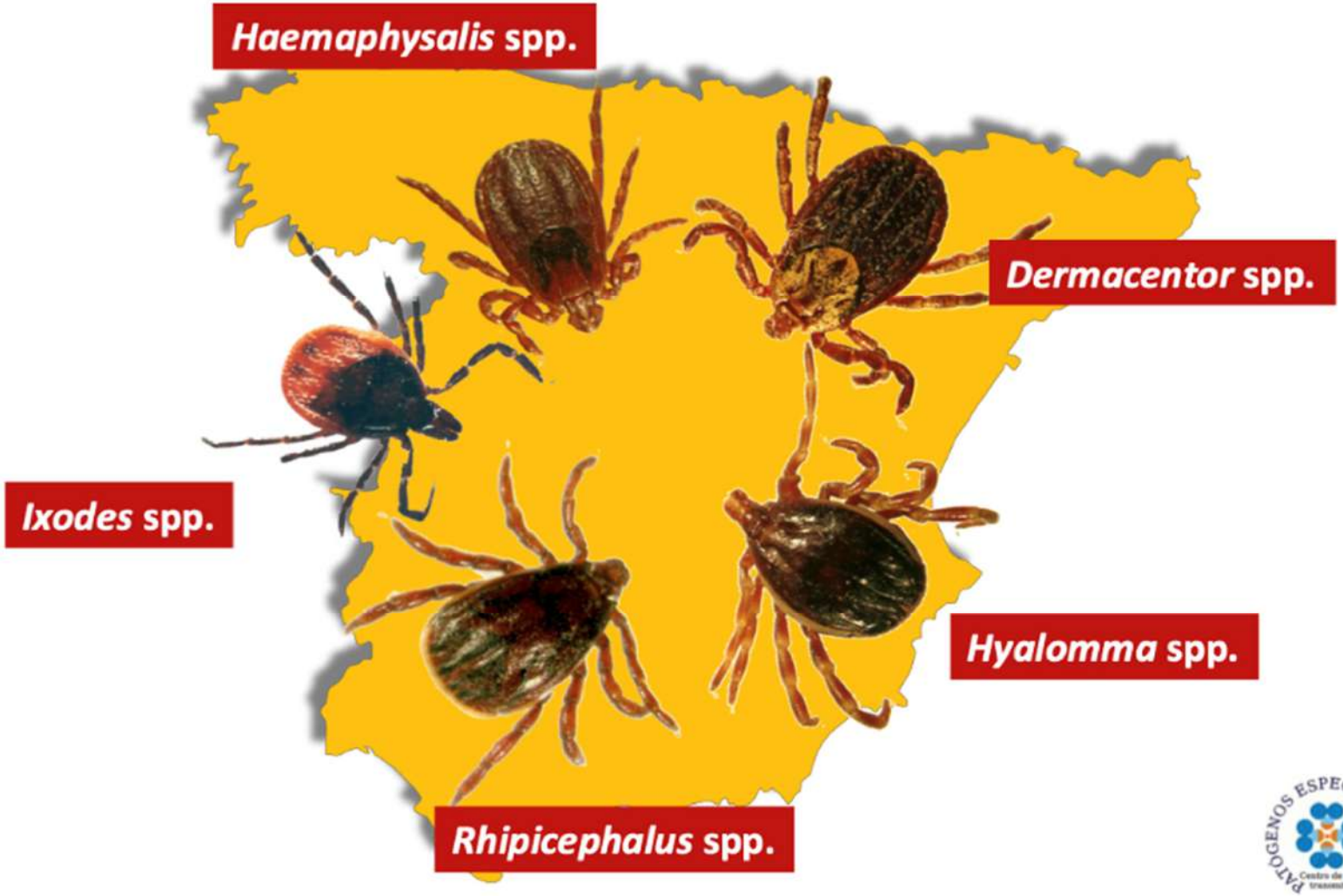

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Garrapatas duras presentes en España

Familia	Género	Nº especies	Antropofílicas
Ixodidae	*Dermacentor*	2	2
	Haemaphysalis	5	4
	Hyalomma	7	6
	Ixodes	11	8
	Rhipicephalus	6	6
Total	5	31	26

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Total	5	31	26

Enfermedades transmitidas por garrapatas en España

1987

- **1929 Fiebre botonosa o exantemática mediterránea: *Rickettsia conorii***
- **1984 Babesiosis: *Babesia* spp.**

WJCID World Journal of Clinical Infectious Diseases

Submit a Manuscript: http://www.wjgnet.com/esps/
Help Desk: http://www.wjgnet.com/esps/helpdesk.aspx
DOI: 10.5495/wjcid.v5.i3.51

World J Clin Infect Dis 2015 August 25; 5(3): 51-54
ISSN 2220-3176 (online)

EDITORIAL

New tools, new tick-borne diseases?

Aránzazu Portillo, José A Oteo

Enfermedades transmitidas por garrapatas en España

2022

- *1929* **Fiebre botonosa o exantemática mediterránea:** ***Rickettsia conorii***
- *1984* **Babesiosis humana:** ***Babesia divergens*** **y** ***Babesia microti***
- *1987* **Enfermedad de Lyme:** ***Borrelia burgdorferi*** **s.l.**
- *1990* **Parálisis neurotóxica transmitida por garrapatas**
- *1991* **Tularemia:** ***Francisella tularensis***
- *1996* **DEBONEL:** ***Rickettsia slovaca***
  Rickettsia rioja
  Rickettsia raoultii
- *1999* **Anaplasmosis humana:** ***Anaplasma phagocytophilum***
- *2007* ***Rickettsia monacensis***
- *2008* ***Rickettsia sibirica mongolitimonae***
- *2013* **Sensibilización a Alfa-gal**
- *2016* **Fiebre hemorrágica de Crimea-Congo**
- *2022* ***Neoehrlihia mikurensis***

ETG importadas en España

NOTA CLÍNICA

Infección por *Rickettsia africae*. Tres casos confirmados por reacción en cadena de la polimerasa

Localizador web Artículo 62.074

José A. Oteo, Aránzazu Portillo, José R. Blanco, Valvanera Ibarra y Sonia Santibáñez

Servicio de Medicina Interna y Enfermedades Infecciosas. Hospital de La Rioja. Logroño. España.

Journal of Travel Medicine

International Society of Travel Medicine

Advance Access Publication Date: 8 April 2021

Original Article

Original Article

Incidence of human granulocytic anaplasmosis in returning travellers with fever

Daniel Camprubí-Ferrer, MD[1,*], Aránzazu Portillo, PhD[2], Sonia Santibáñez, PhD[2], Alejandro Almuedo-Riera, MD[1], Natalia Rodríguez-Valero, MD[1], Carme Subirà, BSc[1], Miguel J. Martinez, PhD[1], Jessica Navero-Castillejos, BSc[1], Marc Fernandez-Pardos, MSc[1], Blaise Genton, PhD[3,4], Ludovico Cobuccio, MD[3,4], Steven Van Den Broucke, MD[5], Emmanuel Bottieau, PhD[5], Jose Muñoz, PhD[1,†] and José Antonio Oteo, PhD[2,†]

Am. J. Trop. Med. Hyg., 82(4), 2010, pp. 691–692
doi:10.4269/ajtmh.2010.09-0662

Case Report: A Patient from Argentina Infected with *Rickettsia massiliae*

Juan Carlos García-García, Aránzazu Portillo, Manuel J. Núñez, Sonia Santibáñez, Begoña Castro, and José A. Oteo*

Servicio de Medicina Interna, Hospital do Salnés, Villagarcía de Arosa, Pontevedra, Spain; Área de Enfermedades Infecciosas, Hospital San Pedro–Centro de Investigación Biomédica de La Rioja, Logroño, La Rioja, Spain

Am. J. Trop. Med. Hyg., 00(0), 2013, pp. 000–000
doi:10.4269/ajtmh.13-0436

Case Report: A Confirmed Case of *Rickettsia parkeri* Infection in a Traveler from Uruguay

Aránzazu Portillo,* Concepción García-García, M. Mercedes Sanz, Sonia Santibáñez, José M. Venzal, and José A. Oteo

Departamento de Enfermedades Infecciosas, Hospital San Pedro-CIBIR, Logroño, La Rioja, Spain; Departamento de Parasitología Veterinaria, Universidad de La República, Salto, Uruguay

Abstract. The first confirmed case of *Rickettsia parkeri* infection in Uruguay is reported. To date, in South America, molecularly confirmed cases of human infection have been found in Argentina and probably, Brazil. Our patient returned to Spain after a 7-day trip to Colonia Suiza (Southwestern Uruguay). He presented fever (39°C), chills, and two eschars (tache noire-like) surrounded by an indurated, erythematous halo on the inner side of the left ankle beside a maculopapular rash on the legs. After treatment with doxycycline for 7 days, he fully recovered. *R. parkeri* infection was diagnosed by molecular-based detection of the microorganism in a swab specimen of the eschar. Diagnosis was supported by seroconversion between acute- and convalescent-phase sera specimens.

Enferm Infecc Microbiol Clin 2019;37(Espec Cong 1):13–69

Enfermedades Infecciosas y Microbiología Clínica

XXIII Congreso Nacional de la Sociedad Española de Enfermedades Infecciosas y Microbiología Clínica (SEIMC)

Madrid, 23-25 de mayo de 2019

0046. VIRUS DE LA ENCEFALITIS TRANSMITIDA POR GARRAPATAS. CASOS IMPORTADOS EN ESPAÑA DESDE EUROPA

F. de Ory[1], A. Moreno Docon[2], J. Bravo Urbieta[3], A. Hernández-Betancor[4], I. Sanjoaquín Conde[5], L. Herrero[6], T. Mingalito[7], C. Contessotto Avilés[8], M.D. Navarro Martínez[9], M.J. Cruselis Canales[10], F. Molero[11], M.P. Sánchez-Seco[12] y A. Vázquez González[13]

Otros microorganismos transmitidos por Garrapatas

2022

- ***2005 Rickettsia aeschlimannii***
- ***2006 Rickettsia massiliae***
- ***2012 Rickettsia sibirica sibirica***
- ***2012 Rickettsia helvetica***
- ***2017 Borrelia miyamotoi***
- ***2005–2022 Gran cantidad de nuevos genotipos y potenciales especies nuevas***

Ticks and Tick-borne Diseases 3 (2012) 318–320

Contents lists available at SciVerse ScienceDirect

Ticks and Tick-borne Diseases

journal homepage: www.elsevier.com/locate/ttbdis

Original article

Genetic characterization of *Candidatus* Rickettsia vini, a new rickettsia amplified in ticks from La Rioja, Spain

Ana M. Palomar, Aránzazu Portillo, Paula Santibáñez, Sonia Santibáñez, Lara García-Álvarez, José A. Oteo*

Centre of Rickettsiosis and Arthropod-borne Diseases, Infectious Diseases Area, Hospital San Pedro-CIBIR, Logroño, Spain

frontiers in Veterinary Science

ORIGINAL RESEARCH
published: 29 March 2021
doi: 10.3389/fvets.2021.637837

Novel Genotypes of Nidicolous *Argas* Ticks and Their Associated Microorganisms From Spain

Ana M. Palomar[1], Jesús Veiga[2], Aránzazu Portillo[1], Sonia Santibáñez[1], Radovan Václav[3], Paula Santibáñez[1], José A. Oteo[1] and Francisco Valera[2]*

[1] Centre of Rickettsiosis and Arthropod-Borne Diseases, Hospital Universitario San Pedro-Center for Biomedical Research of La Rioja (CIBIR), Logroño, Spain, [2] Departamento de Ecología Funcional y Evolutiva, Estación Experimental de Zonas Áridas -Consejo Superior de Investigaciones Científicas (EEZA-CSIC), Ctra. de Sacramento s/n, La Cañada de San Urbano, Almería, Spain, [3] Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovakia

Detectados nuevos genotipos de *Rickettsia* spp, *Coxiella* y *Francisella*

Palomar *et al. Parasites & Vectors* (2022) 15:140
https://doi.org/10.1186/s13071-022-05238-2

Parasites & Vectors

SHORT REPORT

Open Access

Old zoonotic agents and novel variants of tick-borne microorganisms from Benguela (Angola), July 2017

Ana M. Palomar[1†], Israel Molina[2†], Cristina Bocanegra[2], Aránzazu Portillo[1], Fernando Salvador[2], Milagros Moreno[3] and José A. Oteo[1*]

Descripción de “nuevos microorganismos” pertenecientes a los géneros *Ehrlichia*, *Coxiella*, *Francisella*, *Spiroplasma* y *Babesia*

Detección de nuevos microorganismos


PLOS ONE

https://doi.org/10.1371/journal.pone.0213384 March 19, 2019

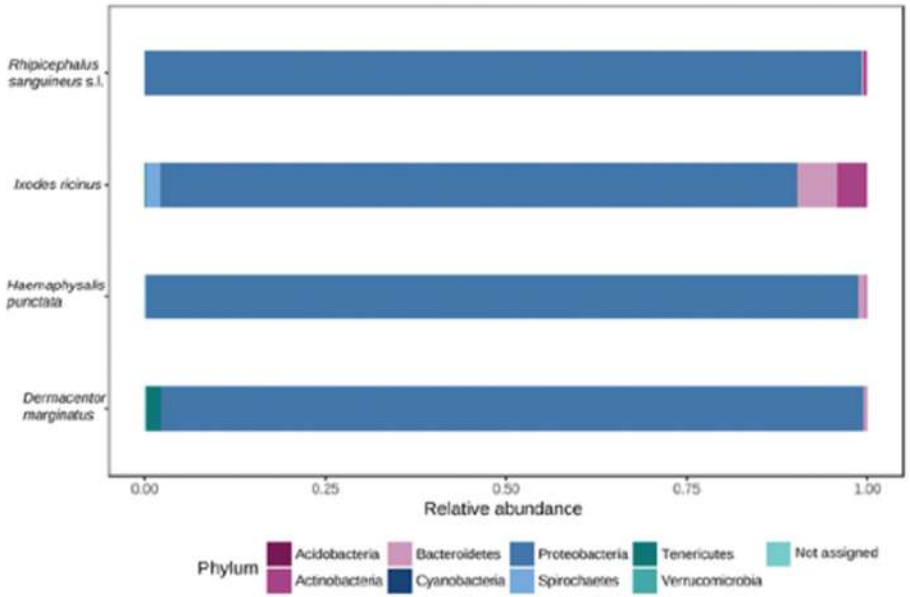
RESEARCH ARTICLE

Exploring the bacteriome in anthropophilic ticks: To investigate the vectors for diagnosis

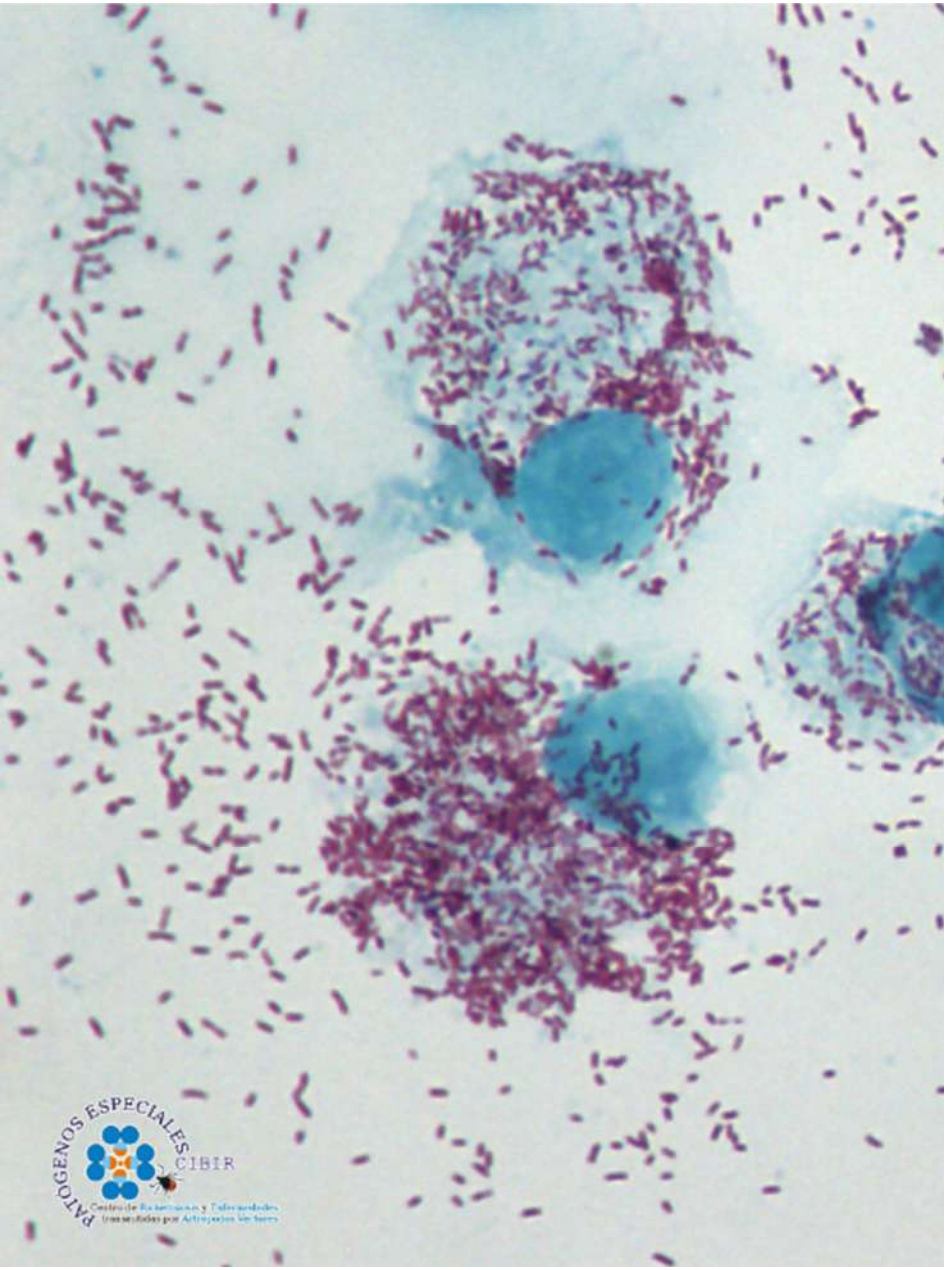
Aránzazu Portillo[1], Ana M. Palomar[1], María de Toro[2], Sonia Santibáñez[1], Paula Santibáñez[1], José A. Oteo[1]*

1 Center for Rickettsiosis and Arthropod-Borne Diseases, Infectious Diseases Department, Hospital Universitario San Pedro-Center for Biomedical Research from La Rioja (CIBIR), Logroño, Spain, 2 Genomics and Bioinformatics Core Facility, CIBIR, Logroño, Spain

* jaoteo@riojasalud.es



Las técnicas de metagenómica nos permiten detectar nuevos microorganismos (genotipos)



Toda *Rickettsia* sp. que se

encuentre en un artrópodo vector

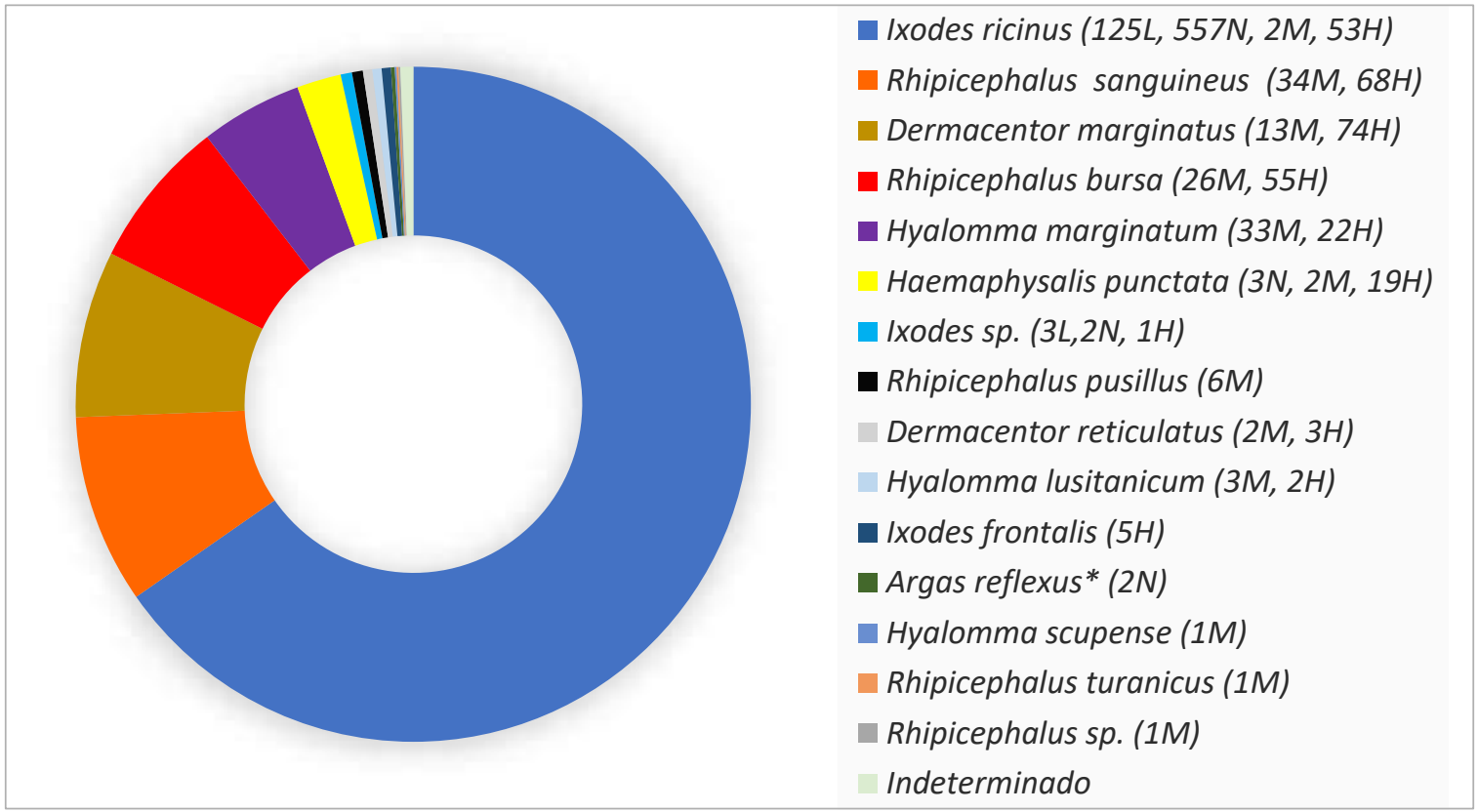
debería considerarse patógena,

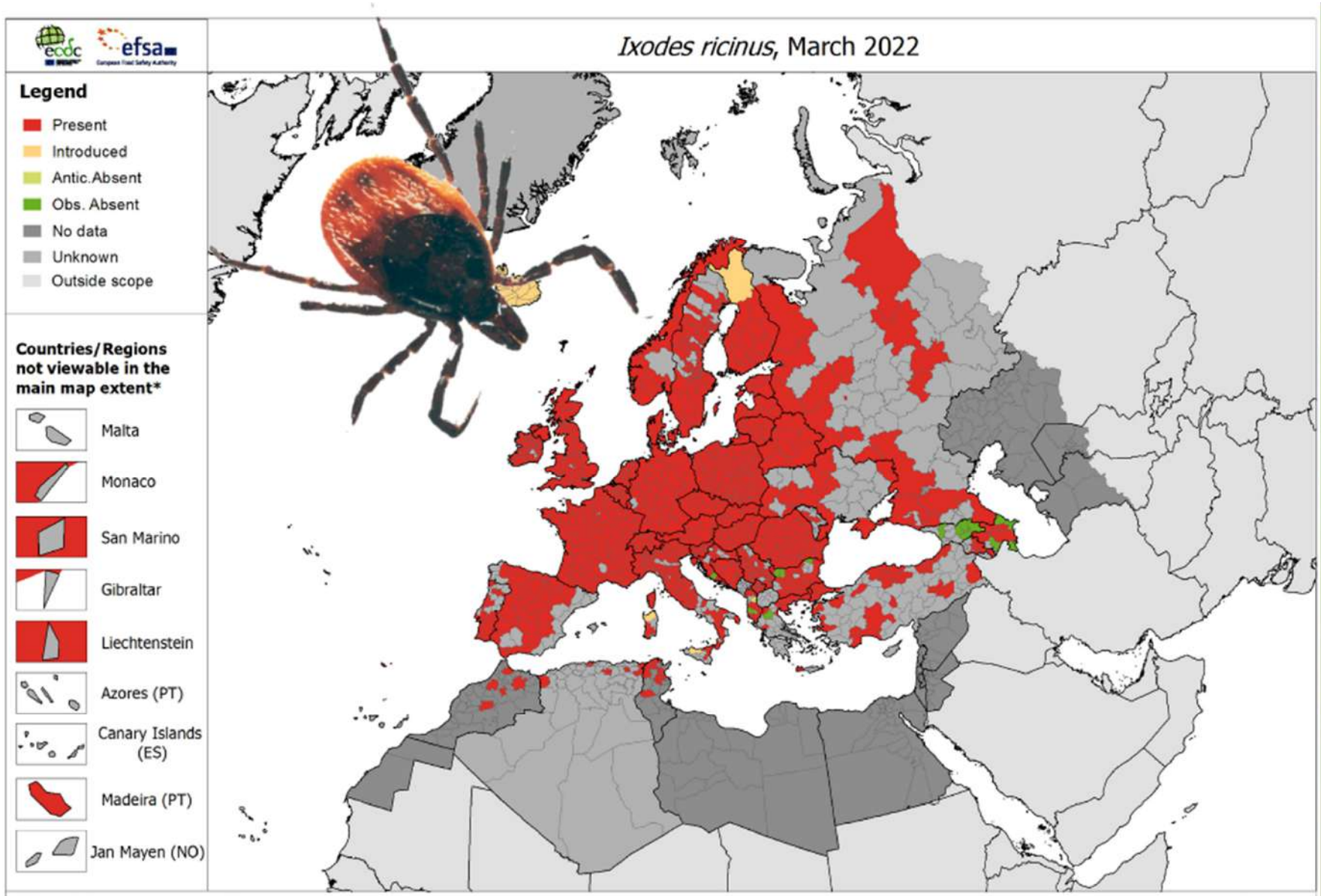
hasta que no se demuestre

lo contrario

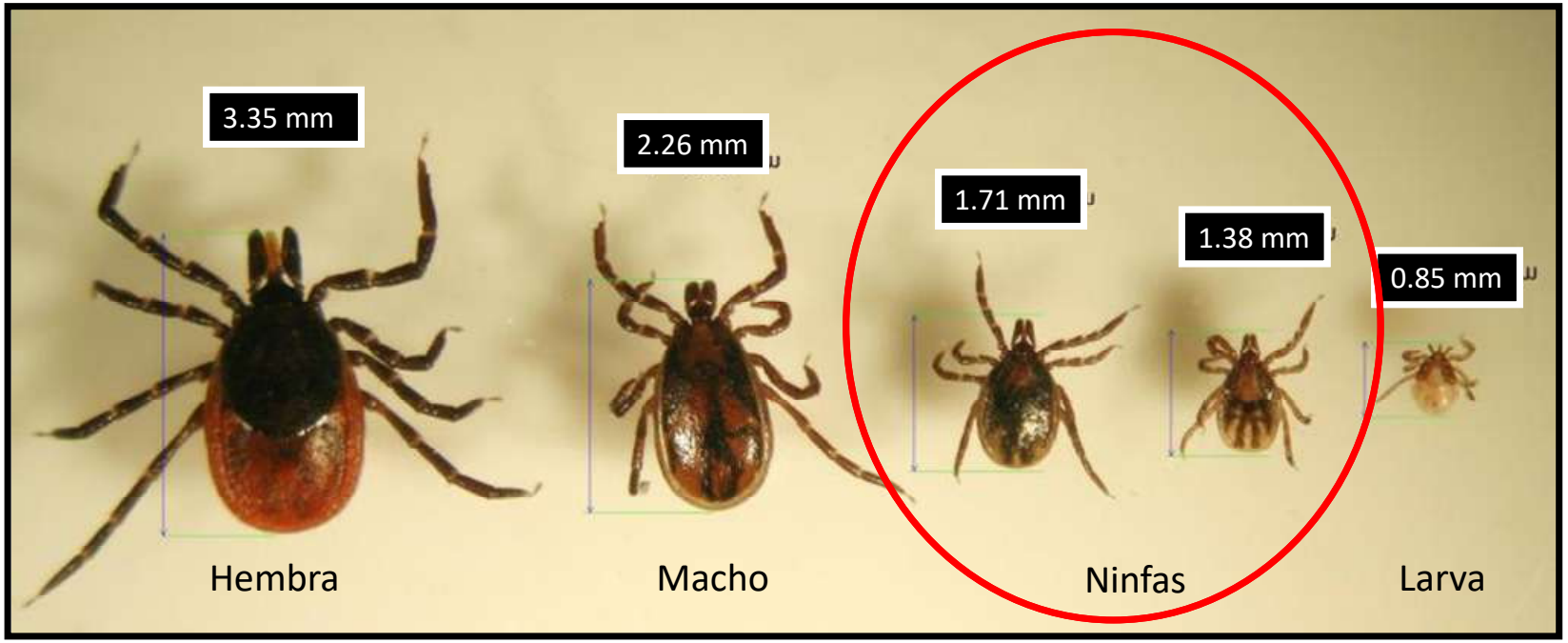
Garrapatas retiradas de personas enviadas para estudio al CRETAV (de toda España abril 2009-abril 2022)

N: 1.127




ecdc
efsa
European Food Safety Authority
Ixodes ricinus, March 2022
Legend
Present
Introduced
Antic.Absent
Obs. Absent
No data
Unknown
Outside scope
Countries/Regions not viewable in the main map extent*
Malta
Monaco
San Marino
Gibraltar
Liechtenstein
Azores (PT)
Canary Islands (ES)
Madeira (PT)
Jan Mayen (NO)
ECDC and EFSA, map produced on 9 Mar 2022. Data presented in this map are collected by the VectorNet project. Maps are validated by external experts prior to publication. Please note that the depicted data do not reflect the official views of the countries.
* Countries/Regions are displayed at different scales to facilitate their visualisation.The boundaries and names shown on this map do not imply official endorsement or acceptance by the European Union.Administrative boundaries © EuroGeographics, UNFAO.

Ixodes ricinus



Activa fundamentalmente desde marzo a noviembre

Distribuida fundamentalmente en la zona norte

Borreliosis de Lyme

Características

- Zoonosis multi-sistémica.
- Distribución Universal (hemisferio norte).
- Provocada por diferentes genoespecies de *Borrelia burgdorferi* s.l.
- Transmitida en Europa por *Ixodes ricinus.*

Eritema migratorio: mejor marcador de la b. de Lyme

ORIGINALES

Eritema migratorio (borreliosis de Lyme).
Características clínicoepidemiológicas de 50 pacientes

Hospital San Pedro

Si el eritema pasa desapercibido o se confunde y/o no se trata correctamente…

Anaplasmosis humana

First Report of Human Granulocytic Ehrlichiosis from Southern Europe (Spain)

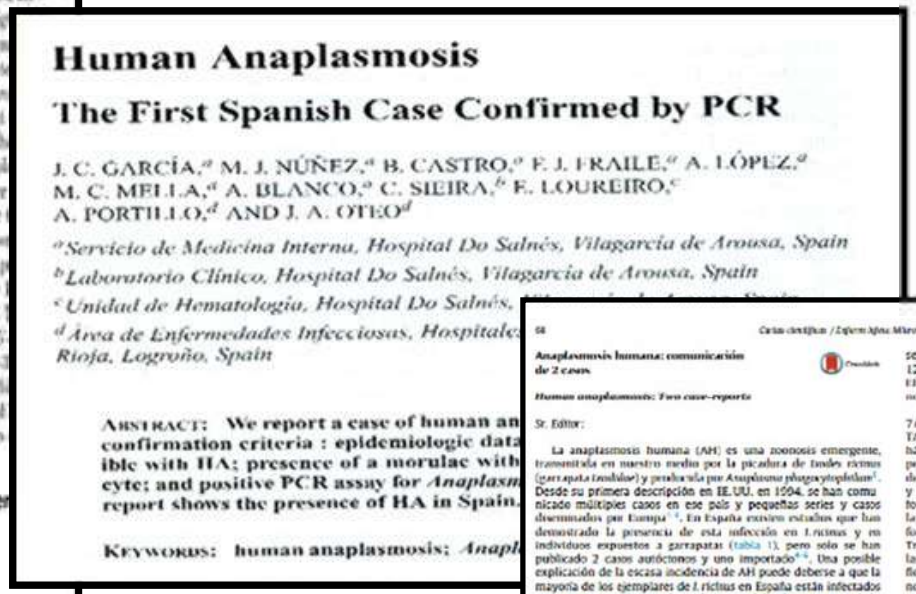
To the Editor: Human granulocytic ehrlichiosis (HGE) is a tickborne zoonosis described in the United States several years ago (1) and in Europe recently (2). Several hundred cases have been reported in the United States (3). In Europe, nine cases have been reported, six in Slovenia (2,4-6), and three in Sweden (I. Eliasson, http\\www.healthnet.org/pro-granulocytosis.html). We report a serologically confirmed case of HGE in La Rioja, a Lyme disease-endemic area in northern Spain (7-9).

On August 7, 1999, a 16-year-old man from La Rioja, who had been bitten by a tick 15 days before, was seen in an emergency room and treated with 100 mg of doxycycline twice a day. On August 9, he was hospitalized with a 5-day

José A. Oteo,* José R. Blanco,* Victor Martínez de Artola,* and Valvanera Ibarra*

Hospital de La Rioja, Logroño (Spain)

Emerg Infect Dis 2000; 6:430-431



Human Anaplasmosis

The First Spanish Case Confirmed by PCR

J. C. GARCÍA,[a] M. J. NÚÑEZ,[a] B. CASTRO,[a] F. J. FRAILE,[a] A. LÓPEZ,[a] M. C. MELLA,[a] A. BLANCO,[a] C. SIEIRA,[b] F. LOUREIRO,[c] A. PORTILLO,[d] AND J. A. OTEO[d]

[a]*Servicio de Medicina Interna, Hospital Do Salnés, Vilagarcía de Arousa, Spain*
[b]*Laboratorio Clínico, Hospital Do Salnés, Vilagarcía de Arousa, Spain*
[c]*Unidad de Hematología, Hospital Do Salnés,*
[d]*Área de Enfermedades Infecciosas, Hospitales Riojanos, Logroño, Spain*

ABSTRACT: We report a case of human an confirmation criteria : epidemiologic data ible with HA; presence of a morulae with cyte; and positive PCR assay for *Anaplasm* report shows the presence of HA in Spain.

KEYWORDS: human anaplasmosis; *Anapl*

Anaplasmosis humana: comunicación de 2 casos

Human anaplasmosis: Two case-reports

Sr. Editor:

La anaplasmosis humana (AH) es una zoonosis emergente, transmitida en nuestro medio por la picadura de todos ricinus (garrapata taxódica) y producida por *Anaplasma phagocytophilum*[1]. Desde su primera descripción en EE.UU. en 1994, se han comunicado múltiples casos en ese país y pequeñas series y casos diseminados por Europa [2-5]. En España existen estudios que han demostrado la presencia de esta infección en I. ricinus y en individuos expuestos a garrapatas (tabla 1), pero solo se han publicado 2 casos autóctonos y uno importado[6-8]. Una posible explicación de la escasa incidencia de AH puede deberse a que la mayoría de los ejemplares de I. ricinus en España están infectados por cepas no patógenas de *A. phagocytophilum*[9], aunque también puede que esté infradiagnosticada, por la inespecificidad de su presentación clínica y falta de concienciación por parte de los profesionales.

Juan C. García[a,*], Manuel J. Núñez[a], Aránzazu Portillo[b] y José A. Oteo[b]

serológico de convalecencia mostró seroconversión (título de IgG 128) frente a *A. phagocytophilum* (Focus Diagnostics, Cypress, CA, EE.UU.). La paciente se encontraba asintomática y con análisis normalizados.

Caso 2. Varón de 33 años que ingresa por fiebre y cefalea de 7 días de evolución. El sedimento urinario, radiografía de tórax, TAC cerebral y una punción lumbar fueron normales. Vivía en hábitat rural y poseía un perro. En la exploración presentaba temperatura de 39,6 °C, sin otros datos reseñables. En la analítica destacaba: leucocitos 2.100/mm³ con fórmula normal, VSG 75 mm y PC reactiva 52 mg/l. El frotis de sangre periférica mostró linfocitos de aspecto activado. La radiografía de tórax fue normal, y la ecografía abdominal mostró esplenomegalia leve sin lesiones focales. Se extrajeron hemocultivos y se inició ciprofloxacino i.v. Tras 5 días, la fiebre y la leucopenia persistían y se elevaron las transaminasas. Se inició tratamiento con doxiciclina oral y la fiebre desapareció en 48 h. El quinto día, los leucocitos se habían normalizado y las transaminasas habían disminuido. Los hemocultivos y la PCR de *A. phagocytophilum* en sangre fueron negativos. Las serologías de virus de hepatitis A, B y C, VIH, VEB, CMV, sífilis, *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Brucella* sp., *C. burnetii*, *B. burgdorferi* sensu lato, *Bartonella henselae* y *B. quintana*,

Fiebre, leucopenia y trombopenia con elevación de transaminasas en áreas de distribución de *Ixodes ricinus*

Anaplasmosis humana

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Promoting healthy travel worldwide
Journal of Travel Medicine, 2021, 1–6
doi: 10.1093/jtm/taa[illegible]
Advance Access Publication Date: 9 April 2021
Original Article

Original Article

Incidence of human granulocytic anaplasmosis in returning travellers with fever

Daniel Camprubí-Ferrer, MD[1,*], Aránzazu Portillo, PhD[2], Sonia Santibáñez, PhD[2], Alejandro Almuedo-Riera, MD[1], Natalia Rodríguez-Valero, MD[1], Carme Subirà, BSc[1], Miguel J. Martínez, PhD[1], Jessica Navero-Castillejos, BSc[1], Marc Fernandez-Pardos, MSc[1], Blaise Genton, PhD[3,4], Ludovico Cobuccio, MD[3,4], Steven Van Den Broucke, MD[5], Emmanuel Bottieau, PhD[5], Jose Muñoz, PhD[1,†] and José Antonio Oteo, PhD[2,†]

[1]ISGlobal, Hospital Clínic—Universitat de Barcelona, 08036 Barcelona, Spain, [2]Center of Rickettsiosis and Arthropod-Borne Diseases, Hospital Universitario San Pedro-CIBIR, 26006 Logroño, Spain, [3]Swiss Tropical and Public Health Institute, 4051 Basel, Switzerland, [4]Center for Primary Care and Public Health, University of Lausanne, 1010, Switzerland and [5]Institute of Tropical Medicine, 2000 Antwerp, Belgium

*To whom correspondence should be addressed. Tel: +34 93 227 1852. E-mail: dcamprubi@clinic.cat

†These authors contributed equally to this work.

Submitted 18 February 2021; Revised 23 March 2021; Accepted 31 March 2021

La anaplasmosis humana es una causa de fiebre de duración intermedia
Considerar en viajeros

Babesiosis humana

Agentes causales: *Babesia divergens* y *B. microtii*

Cuadro similar a la Malaria en zonas no endémicas de Paludismo

Especialmente grave en esplenectomizados e inmunodeprimidos

Babesiosis humana

N: 11

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Rickettsia monacensis e *Ixodes ricinus*

Emerg Infect Dis **2007; 13:1406-1407**

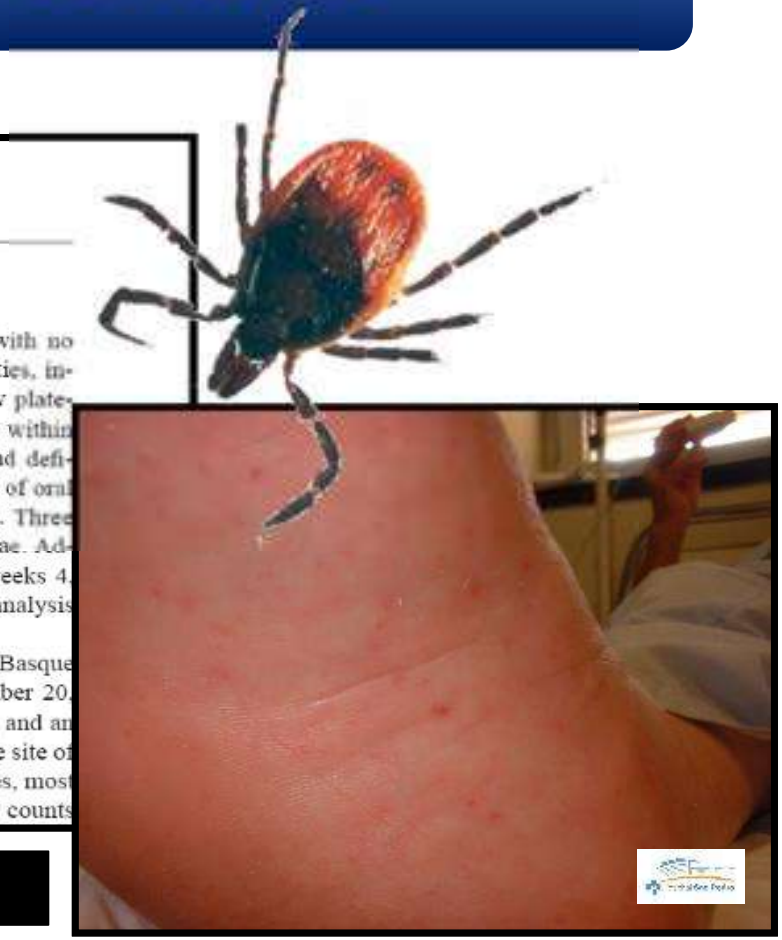
Rickettsia monacensis and Human Disease, Spain

Isabel Jado,* José A. Oteo,† Mikel Aldámiz,‡ Horacio Gil,* Raquel Escudero,* Valvanera Ibarra,† Joseba Portu,‡ Aranzazu Portillo,† María J. Lezaun,‡ Cristina García-Amil,* Isabel Rodríguez-Moreno,* and Pedro Anda*

We identified *Rickettsia monacensis* as a cause of acute tickborne rickettsiosis in 2 humans. Its pathogenic

a nonpruritic, disseminated maculopapular rash, with no inoculation eschar, of the trunk and lower extremities, including palms and soles. Other than a slightly low platelet count (82,000/mm^3), examination findings were within normal limits. MSF was diagnosed, and serum and defibrinated blood samples were taken before a course of oral doxycycline (100 mg/12 h for 10 d) was initiated. Three days later, fever and rash were gone without sequelae. Additional serial serum samples were taken during weeks 4, 13, and 26 after onset and reserved for serologic analysis (Table).

Patient 2 was a 59-year-old woman from Basque Country, who sought medical attention on September 20, 2003, 4 days after onset of fever (38°C), headache, and an erythematous rash, with no inoculation eschar, at the site of a tick bite. The patient reported a history of tick bites, most recently 1 week before symptom onset. Blood cell counts



Primera implicación a nivel mundial como patógeno humano

Rickettsia monacensis provoca un cuadro similar a la fiebre botonosa

Borrelia miyamotoi

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Enfermedades Infecciosas y Microbiología Clínica

www.elsevier.es/eimc

Brief report

Enf Infecc y Microbiol Clin 2018; 36(9):568-571

Borrelia miyamotoi: Should this pathogen be considered for the diagnosis of tick-borne infectious diseases in Spain?

Ana M. Palomar, Aránzazu Portillo, Paula Santibáñez, Sonia Santibáñez, José A. Oteo*

Centro de Rickettsiosis y Enfermedades Transmitidas por Artrópodos Vectores, Departamento de Enfermedades Infecciosas, Hospital San Pedro-CIBIR, Logroño (La Rioja), Spain

Borrelia sp. del grupo de la fiebre recurrente pero transmitido por garrapatas duras
Provoca síndrome febril en el inmunocompetente y
trastornos neurológicos (ej:meningoencefalitis) en el inmunodeprimido

Palomar et al. Parasites & Vectors 2014, 7:57
http://www.parasitesandvectors.com/content/7/1/57

Parasites &Vectors

RESEARCH Open Access

Detection of tick-borne '*Candidatus* Neoehrlichia mikurensis' and *Anaplasma phagocytophilum* in Spain in 2013

Ana M Palomar, Lara García-Álvarez, Sonia Santibáñez, Aránzazu Portillo and José A Oteo*

MINI REVIEW

'*Candidatus* Neoehrlichia mikurensis' in Europe

A. Portillo, P. Santibáñez, A. M. Palomar, S. Santibáñez and J. A. Oteo
Center of Rickettsiosis and Arthropod-Borne Diseases, Infectious Diseases Department, Hospital San Pedro–Center of Biomedical Research from La Rioja (CIBIR), La Rioja, Spain

New Microbes and New Infections, Volume 22 Number C, March 2018

International intracellular bacteria meeting 2022

Title

First confirmed case of 'Candidatus Neoehrlichia mikurensis' infection in a patient with antecedent of hematological neoplasm in Spain

Paola González-Carmona; Aránzazu Portillo, Cristina Cervera, Manuel Vargas, Sara Muñiz, Manuel Vargas, Sara Muñiz, Lorena García, Isabel Blanco, Irene Ramiro, Alberto Farreras, Raquel Álvarez & José A. Oteo

Results

A 68-year-old woman with antecedent of germinal centre diffuse large B-cell lymphoma (stage IV-B) diagnosed in a splenectomy piece who completed first-line treatment (R-CHOP) with complete response, begun with arthromyalgia/anorexia/night sweats/evening fever five months after finishing treatment. Few days later, she developed deep thrombophlebitis in her right leg. A relapsed lymphoma was suspected but a PET-CT scan showed diffuse and homogeneous bone marrow hyper-metabolism without data of tumor activity. Piperacillin/tazobactam and granulocyte-colony-stimulating factor were administered because neutropenia (400 neutrophils/mm^3) was observed. Although the patient recovered from the neutropenia (attributed to methamizole intake to control their symptoms), fever persisted. Bone-marrow biopsy did not show tumor infiltration nor hematopoietic alterations. Hematology Service at Jarrio's Hospital (Asturias) contacted to CRETAV (La Rioja, Spain). Bone marrow DNA extract, sera (acute/4th and 6th-month) and EDTA-blood (4th and 6th-month) were sent for '*Ca.* N. mikurensis' PCR screening. Amplicons were detected in bone marrow, acute serum and EDTA-blood at 4th-month. Sequences corresponded to '*Ca.* N. mikurensis' (CP054597/MN701626) (Table 1; Figure 1).

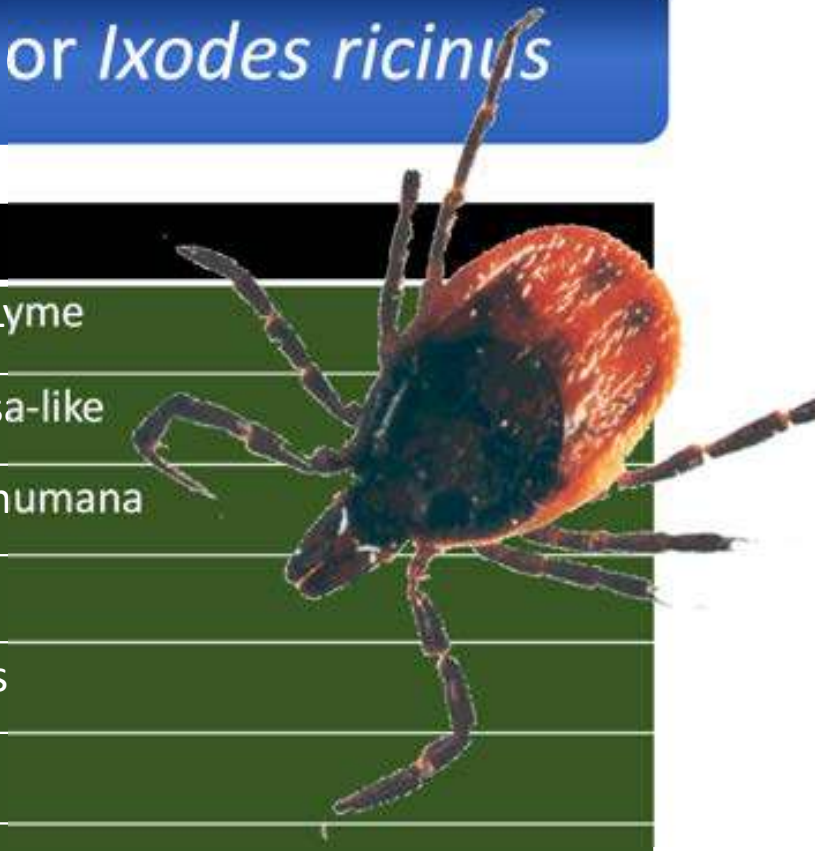
Re-interrogated, the patient remembered a tick-bite 20 days before the symptoms onset. She was treated with 100 mg doxycycline twice/day for three weeks. Fever disappeared at 72h.

Conclusions

1. This is the first documented and confirmed case of '*Ca.* N. mikurensis' infection from Spain.
2. '*Ca.* N. mikurensis' infection must be considered as a cause of persistent fever and venous thrombotic events in hematological malign disorder/immunosuppressed patients with possibility of tick-bite that do not respond to conventional therapy.

https://www.rickettsiology.org/resources/ESCCAR_CHLAMYDIA_2022.pdf

Agentes patógenos transmitidos por *Ixodes ricinus*



Agente	Enfermedad
Borrelia burgdorferi s.l.	Borreliosis de Lyme
Rickettsia monacensis	Fiebre botonosa-like
Anaplasma phagocytophilum	Anaplasmosis humana
Babesia divergens & *Babesia microti*	Babesiosis
Neoehrlichia mikurensis	Neoehrlichiosis
Rickettsia helvetica	Innominada
Borrelia miyamotoi	Innominada
TBE virus	Encefalitis centro-Europea

I. ricinus está involucrada en la transmisión de un amplio número de infecciones humanas

CONSENSUS STATEMENT OF THE SPANISH SOCIETY OF INFECTIOUS DISEASES AND CLINICAL MICROBIOLOGY (SEIMC), SPANISH SOCIETY OF NEUROLOGY (SEN), SPANISH SOCIETY OF IMMUNOLOGY (SEI), SPANISH SOCIETY OF PEDIATRIC INFECTOLOGY (SEIP), SPANISH SOCIETY OF RHEUMATOLOGY (SER), AND SPANISH ACADEMY OF DERMATOLOGY AND VENEREOLOGY (AEDV), ON THE DIAGNOSIS, TREATMENT AND PREVENTION OF LYME BORRELIOSIS

COORDINATOR

1. **José A. Oteo.** Centro de Rickettsiosis y Enfermedades Transmitidas por Artrópodos Vectores (CRETAV). Departamento de Enfermedades Infecciosas. Hospital Universitario San Pedro-Centro de Investigación Biomédica de La Rioja (CIBIR). C/ Piqueras, 98. 26006 Logroño (España). Phone: +34 941 298 993; E-mail: jaoteo@riojasalud.es

AUTHORS, IN ALPHABETICAL ORDER

2. **Héctor Corominas,** Spanish Society of Rheumatology. Rheumatology and Systemic Autoimmune Diseases Department. Hospital de la Santa Creu i Sant Pau/Hospital Dos de Maig. Barcelona (Spain).
3. **Raquel Escudero,** Special Pathogens Reference and Research Laboratory. Centro Nacional de Microbiología; Instituto de Salud Carlos III, Majadahonda (Spain).
4. **Fernando Fariñas-Guerrero,** Spanish Society of Immunology. Institute of Clinical Immunology and Infectious Diseases. YNMUN Biomedicine Group. Málaga (Spain).
5. **Juan Carlos García-Moncó,** Spanish Society of Neurology. Department of Neurology, Hospital Universitario Basurto, Bilbao (Spain).
6. **Miguel A. Goenaga,** Infectious Diseases Service. Hospital Donostia. OSI Donostialdea. Instituto BioDonostia. San Sebastián (Spain)
7. **Sara Guillén,** Spanish Society of Pediatric Infectology (SEIP). Department of Pediatrics. Hospital Universitario de Getafe. Madrid (Spain).
8. **José M. Mascaró,** Spanish Academy of Dermatology and Venereology. Department of Dermatology. Hospital Clínic de Barcelona. University of Barcelona. Barcelona (Spain).
9. **Aránzazu Portillo,** Center of Rickettsiosis and Arthropod-Borne Diseases. Department of Infectious Diseases. Hospital Universitario San Pedro-Centro de Investigación Biomédica de La Rioja (CIBIR). Logroño (Spain).

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Enfermedades Infecciosas y Microbiología Clínica xxx (xxxx) xxx–xxx

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Enfermedades Infecciosas y Microbiología Clínica

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Consensus document

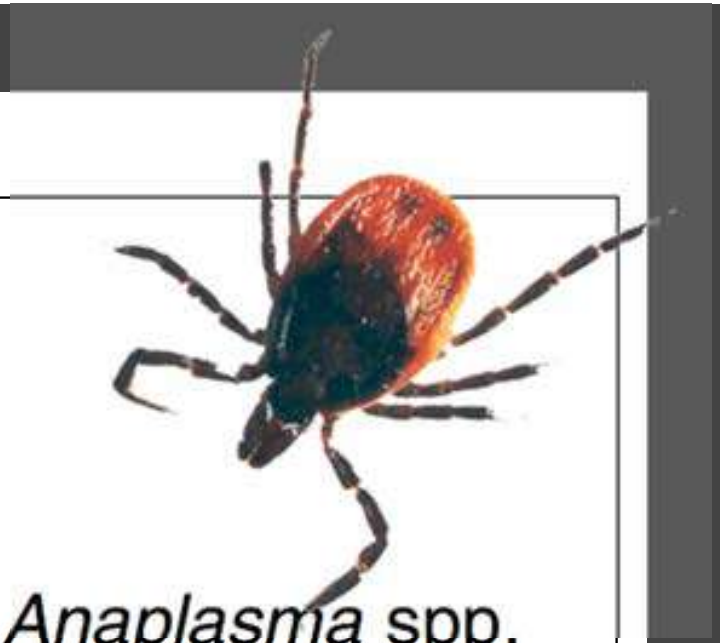
Executive summary of the consensus statement of the Spanish Society of Infectious Diseases and Clinical Microbiology (SEIMC), Spanish Society of Neurology (SEN), Spanish Society of Immunology (SEI), Spanish Society of Pediatric Infectology (SEIP), Spanish Society of Rheumatology (SER), and Spanish Academy of Dermatology and Venereology (AEDV), on the diagnosis, treatment and prevention of lyme borreliosis

José A. Oteo, Héctor Corominas, Raquel Escudero, Fernando Fariñas-Guerrero, Juan Carlos García-Moncó, Miguel A. Goenaga, Sara Guillén, José M. Mascaró, Aránzazu Portillo

https://seimc.org/contenidos/documentoscientificos/seimc-dc-2022-LymeBorreliosis.pdf

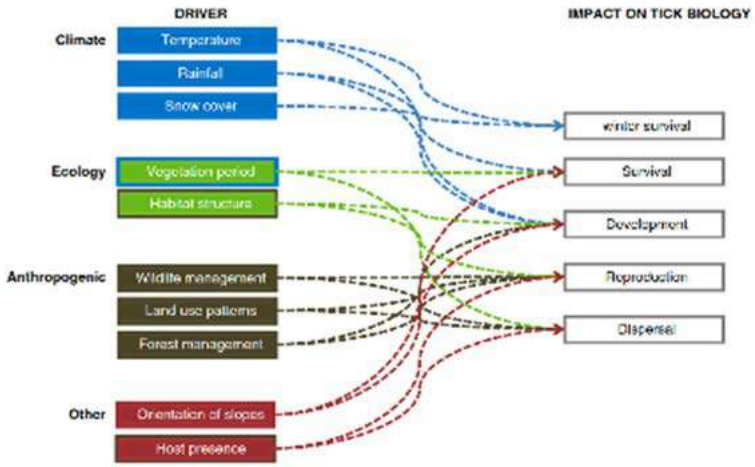
VECTOR-BORNE AND ZOONOTIC DISEASES
Volume 17, Number 1, 2017

DOI: 10.1089/vbz.2016.1960



Guidelines for the Direct Detection of *Anaplasma* spp. in Diagnosis and Epidemiological Studies

Cornelia Silaghi,[1,*] Ana Sofia Santos,[2,*] Jacinto Gomes,[3] Iva Christova,[4] Ioana Adriana Matei,[5] Gernot Walder,[6] Ana Domingos,[7] Lesley Bell-Sakyi,[8] Hein Sprong,[9] Friederike D. von Loewenich,[10] José A. Oteo,[11] José de la Fuente,[12,13] and J. Stephen Dumler[14,15]



Medlock et al. Parasites & Vectors 2013, 6:1
http://www.parasitesandvectors.com/content/6/1/1

Parasites & Vectors

REVIEW Open Access

Driving forces for changes in geographical distribution of *Ixodes ricinus* ticks in Europe

Jolyon M Medlock[*], Kayleigh M Hansford[1], Antra Bormane[2], Marketa Derdakova[3,10], Agustin Estrada-Peña[4], Jean-Claude George[5], Irina Golovljova[6], Thomas GT Jaenson[7], Jens-Kjeld Jensen[8], Per M Jensen[9], Maria Kazimirova[10], José A Oteo[11], Anna Papa[12], Kurt Pfister[13], Olivier Plantard[14], Sarah E Randolph[15], Annapaola Rizzoli[16], Maria Margarida Santos-Silva[17], Hein Sprong[18], Laurence Vial[19], Guy Hendrickx[20], Herve Zeller[21] and Wim Van Bortel[21]

Fiebre botonosa o exantemática mediterránea

(*Rickettsia conorii* y subespecies de *R. conorii*)

Rhipicephalus sanguineus

Hasta los noventa única rickettsiosis transmitida por garrapatas en Europa






Exantema y gangrena distal
(*Rickettsia conorii*)

Hospital San Pedro

WJCID World Journal of Clinical Infectious Diseases

Submit a Manuscript: http://www.wjgnet.com/esps/
Help Desk: http://www.wjgnet.com/esps/helpdesk.aspx
DOI: 10.5495/wjcid.v5.i3.51

World J Clin Infect Dis 2015 August 25; 5(3): 51-54
ISSN 2220-3176 (online)

EDITORIAL

New tools, new tick-borne diseases?

Aránzazu Portillo, José A Oteo

Observación clínica

Nuevas herramientas de diagnóstico

Nuevas rickettsiosis transmitidas por garrapatas

Rickettsiosis transmitidas por garrapatas en Europa

REFERENCIA	AÑO	*RICKETTSIA* SP.	ENFERMEDAD
Eremeeva, et al	1991	*R. conorii caspia*	FB (Astrakhan SF)
Raoult, et al	1996	*R. sibirica mongolitimonae*	LAR
Raoult, et al	1997	*R. slovaca*	DEBONEL/TIBOLA
Bacellar, et al	1999	*R. conorii israel*	FB (Israel SF)
Nilsson, et al	1999	*R. helvetica*	Innominada
Raoult, et al	2002	*R. aeschlimannii*	FB-like
Oteo, et al (*)	2004	*R. raoultii*	DEBONEL/TIBOLA
Vitale, et al	2005	*R. massiliae*	FB-like
Jado, et al (*)	2007	*R. monacensis*	FB-like
Portillo, et al (*)	2009	*Candidatus* R. rioja	DEBONEL/TIBOLA
Katargina, et al	2015	*Candidatus* R. tarasevichiae	FB-like

Muchas de las FEM estaban causadas por estas “nuevas” *Rickettsia* spp.

Rickettsiosis transmitidas por garrapatas en Europa

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Rickettsia monacensis

Emerg Infect Dis 2007; 13:1406-1407

Rickettsia monacensis and Human Disease, Spain

Isabel Jado,* José A. Oteo,† Mikel Aldámiz,‡ Horacio Gil,* Raquel Escudero,* Valvanera Ibarra,† Joseba Portu,‡ Aranzazu Portillo,† María J. Lezaun,‡ Cristina García-Amil,* Isabel Rodríguez-Moreno,* and Pedro Anda*

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Primera implicación a nivel mundial como patógeno humano

Rickettsia monacensis provoca un cuadro similar a la fiebre botonosa

Rickettsia sibirica mongolitimonae

Lymphangytis **A**ssociated **R**ickettsiosis (LAR)

- **<u>Amplio espectro de manifestaciones clínicas</u>:**
- Similar a fiebre botonosa
- Fiebre sin exantema
- Shock séptico
- Miocarditis

- **Escara y linfangitis en 1/3 de los casos**

- **Vector**: *¿Rhipicephalus pusillus* y otras especies de *Rhipicephalus? ¿Hyalomma* spp.*?*

R. sibirica mongolotimonae

Human *Rickettsia sibirica mongolitimonae* Infection, Spain

To the Editor: *Rickettsia sibirica mongolitimonae* has been recently reported as a subspecies of *R. sibirica* (*1*). The first evidence of *R. sibirica mongolitimonae* pathogenicity in humans was documented in France in 1996 (*2*). Since then, 11 more cases in France, Algeria, South Africa, Greece, and Portugal have been reported (*3–6*). Because the main clinical manifestations include lymphangitis, the

IU/L, gamma-glutamyl-transpeptidase 111 IU/L, total bilirubin 1.3 mg/dL, and C-reactive protein 4.3 mg/dL. Because the patient had been bitten by a tick, acute-phase serum and EDTA-treated blood samples were sent to the Special Pathogens Laboratory (Área de Enfermedades Infecciosas – Hospital San Pedro from La Rioja), where a presumptive diagnosis of rickettsiosis was made. On June 22, 2007, treatment with doxycycline was begun (100 mg/day for 12 days), and his condition rapidly improved.

The early-phase serum yielded low immunoglobulin (Ig) G titer (<64) against *Rickettsia conorii* and *Anaplasma phagocytophilum* antigens, and results of ELISA and West-

lent in southern Spain. In our region in northern Spain, *Hyalomma marginatum* represented 8% of ticks that fed on humans during 2001–2005, although an increase in this number was recorded last year (data not shown).

In our patient, *Rickettsia*'s pathogenic role was demonstrated by PCR, a technique that has previously enabled us to identify other arthropod-borne *Rickettsia* species (*5,9*). This case suggests that *R. sibirica mongolitimonae* infection should be considered in the differential diagnosis of rickettsiosis and tick-bite febrile patients in Spain and confirms the distribution of this rickettsia in southern Europe. According to the literature (*3*), some patients in whom *R. sibirica mongoli-*

Koldo Aguirrebengoa, Aranzazu Portillo, Sonia Santibañez, Juan J. Marín, Miguel Montejo and José A. Oteo

RESEARCH NOTE *Clin Microbiol and Infection 2012* 10.1111/j.1469-0691.2012.03887.x

Septic shock in a patient infected with *Rickettsia sibirica mongolitimonae*, Spain

V. Ibarra, A. Portillo, A. M. Palomar, M. M. Sanz, L. Metola, J. R. Blanco and J. A. Oteo
Área de Enfermedades Infecciosas, Hospital San Pedro-Centro de Investigación Biomédica de La Rioja (CIBIR), La Rioja, Spain

A 69-year-old man was admitted to the Hospital San Pedro in La Rioja (Spain) on September 2011, with a 4-day history of fever, myalgia, headache and prostration. The patient, who had hypertension, atrial fibrillation and mitral regurgitation, was being treated with irbesartan (150 mg/day), digoxin and acenocumarol. Seven days before, he had returned from a 2-week vacation in a rural area in the South-East of La Rioja. He was in contact with domestic ani-

Acute Myopericarditis Associated with Tickborne *Rickettsia sibirica mongolitimonae*

Pablo Revilla-Martí, Álvaro Cecilio-Irazola, Jara Gayán-Ordás, Isabel Sanjoaquín-Conde, Jose Antonio Linares-Vicente, José A. Oteo

Author affiliations: Hospital Clínico Universitario Lozano Blesa, Zaragoza, Spain (P. Revilla-Martí, A. Cecilio-Irazola, J. Gayán-Ordás, I. Sanjoaquín-Conde, J.A. Linares-Vicente); Centro de Investigación Biomédica de La Rioja, Logroño, Spain (J.A. Oteo)

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XXV CONGRESO NACIONAL
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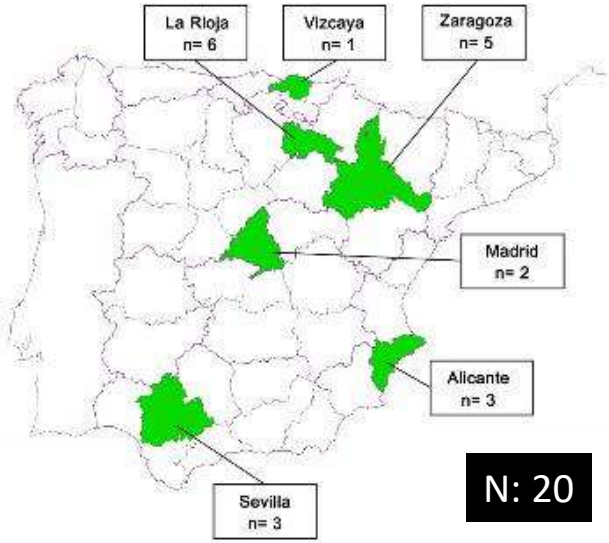
2 - 4 JUNIO 2022

Infección por Rickettsia sibirica mongolitimonae. La experiencia en el CRETAV.

Santibáñez S.[1], Ramos J.M.[2], Sanjoaquin I.[3]., Guillen S.[4] , Llorente M. [5], Lozano M.C. [6], Ramírez-Arellano E.[7], Cervera C.[1], García-García C. [1], Santibáñez P.[1], Portillo A. [1], Oteo J.A. [1]

[1] Hospital Universitario San Pedro-Centro de Investigación Biomédica de la Rioja, Logroño, [2],Hospital General Universitario Dr. Balmis, Alicante, [3] Hospital Clínico Universitario Lozano Blesa, Zaragoza, [4] Hospital Universitario de Getafe, Getafe. [5] Hospital del Sureste, Arganda del rey, [6] Hospital Universitario Virgen del Rocio, Sevilla, [7] Hospital Universitario Virgen Macarena, Sevilla.

Código de presentación: 0763



N: 20


Hospital San Pedro

Enferm Infecc Microbiol Clin 2002;20(2):51-2

EDITORIAL

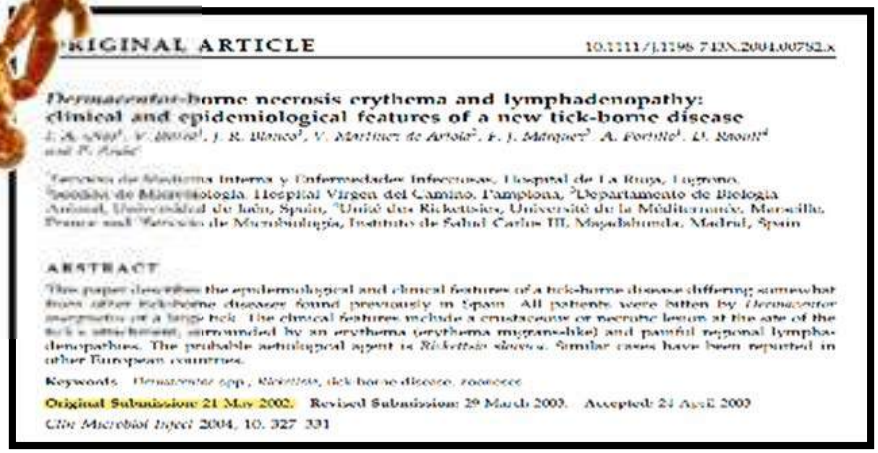
DEBONEL (*Dermacentor-borne*-necrosis-*erythema-lymphadenopathy*). ¿Una nueva enfermedad transmitida por garrapatas?

José A. Oteo y Valvanera Ibarra

Servicio de Medicina Interna y Enfermedades Infecciosas. Hospital de La Rioja. Logroño.

Manuscrito recibido el 26-07-2001; aceptado el 3-08-2001.

DEBONEL/TIBOLA



ORIGINAL ARTICLE

10.1111/j.1198-743X.2004.00752.x

Dermacentor-borne necrosis erythema and lymphadenopathy: clinical and epidemiological features of a new tick-borne disease

J. A. Oteo[1], V. Blanco[1], J. R. Blanco[2], V. Martinez de Artola[3], F. J. Marquez[3], A. Portillo[1], D. Roncal[4] and P. Ibarra[5]

[1]Servicio de Medicina Interna y Enfermedades Infecciosas, Hospital de La Rioja, Logroño, [2]Sección de Microbiología, Hospital Virgen del Camino, Pamplona, [3]Departamento de Biología Animal, Universidad de Jaén, Spain, [4]Unité des Rickettsies, Université de la Méditerranée, Marseille, France and [5]Servicio de Microbiología, Instituto de Salud Carlos III, Majadahonda, Madrid, Spain

ABSTRACT

This paper describes the epidemiological and clinical features of a tick-borne disease differing somewhat from other tick-borne diseases found previously in Spain. All patients were bitten by *Dermacentor marginatus* or a large tick. The clinical features include a crusticonic or necrotic lesion at the site of the tick's attachment, surrounded by an erythema (erythema migrans-like) and painful regional lymphadenopathies. The probable aetiological agent is *Rickettsia slovaca*. Similar cases have been reported in other European countries.

Keywords *Dermacentor* spp., *Rickettsia*, tick borne disease, rickettsiae

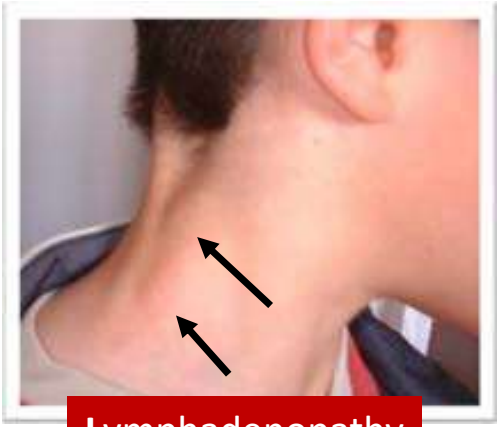
Original Submission: 21 May 2002, Revised Submission: 29 March 2003, Accepted: 24 April 2003

Clin Microbiol Infect 2004, 10, 327–331

DErmacentor-**BO**rne

Necrosis

Erythema



Lymphadenopathy

DEBONEL

pathogens

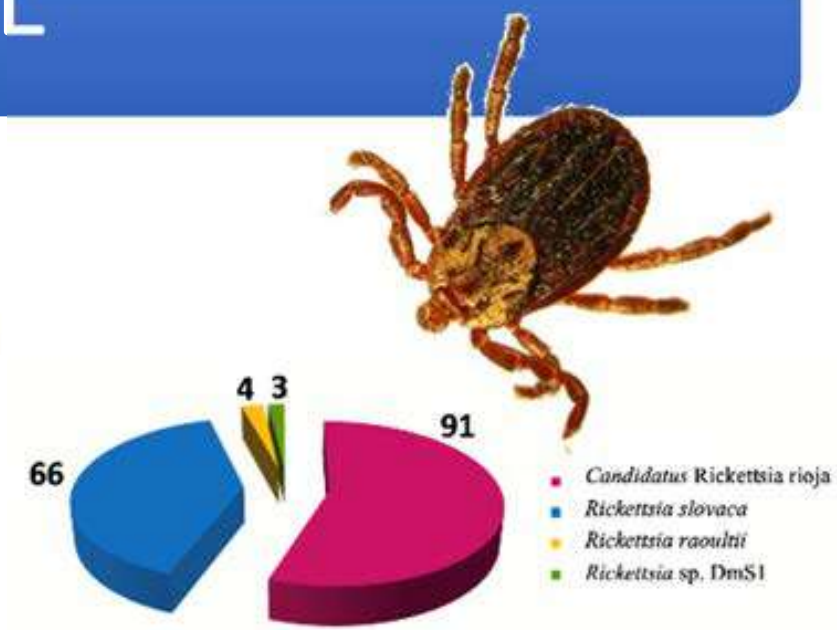
MDPI

Article

Epidemiological, Clinical, and Microbiological Characteristics in a Large Series of Patients Affected by *Dermacentor*-Borne-Necrosis-Erythema-Lymphadenopathy from a Unique Centre from Spain

Sonia Santibáñez, Aránzazu Portillo *, Valvanera Ibarra, Paula Santibáñez, Luís Metola, Concepción García-García, Ana M. Palomar, Cristina Cervera-Acedo, Jorge Alba, José R. Blanco and José A. Oteo

Pathogens 2022, *11*, 528. https://doi.org/10.3390/pathogens11050528



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International Journal of Infectious Diseases 28 (2014) e126–e139

Contents lists available at ScienceDirect

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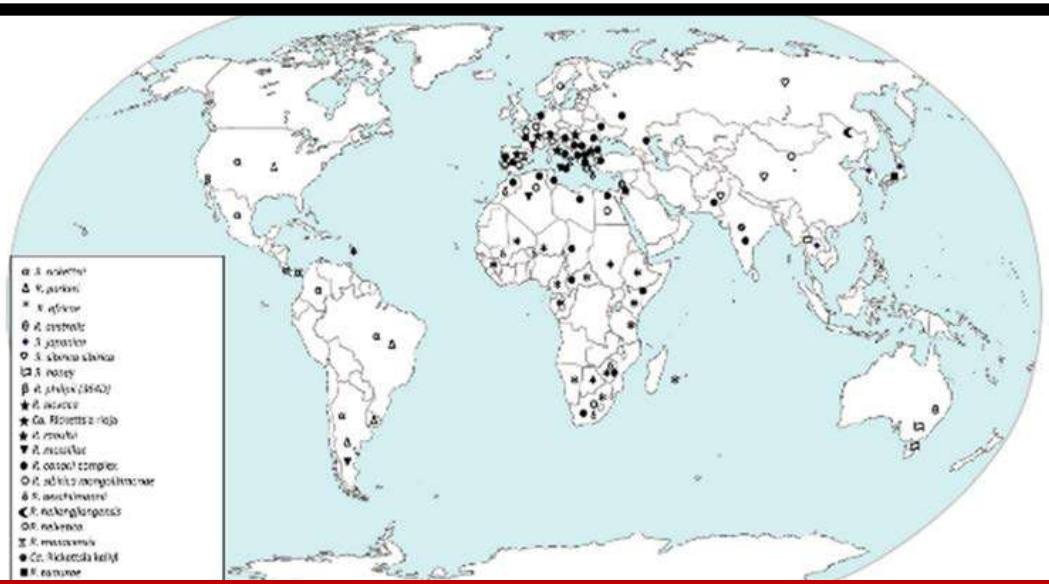
journal homepage: www.elsevier.com/locate/ijid

Review

Syndromic classification of rickettsioses: an approach for clinical practice

Álvaro A. Faccini-Martínez [a], Lara García-Álvarez [b], Marylin Hidalgo [a], José A. Oteo [b,*]

[a] Microbiology Department, Faculty of Sciences, Pontificia Universidad Javeriana, Bogotá, Colombia
[b] Infectious Diseases Department, Center of Rickettsioses and Vector-borne Diseases, Hospital San Pedro-CIBIR, Logroño, Spain



Clasificación en función de la presencia, o no, de escara, tipo de exantema …

VECTOR-BORNE AND ZOONOTIC DISEASES
Volume 17, Number 1, 2017

DOI: 10.1089/vbz.2016.1966

Guidelines for the Detection of *Rickettsia* spp.

Aránzazu Portillo,[1] Rita de Sousa,[2] Sonia Santibáñez,[1] Ana Duarte,[3] Sophie Edouard,[4]
P. Fonseca,[3] Cátia Marques,[3] Marketa Novakova,[5,6] Ana M. Palomar,[1] Marcos Santos,[3]
Cornelia Silaghi,[7] Laura Tomassone,[8] Sara Zúquete,[3] and José A. Oteo[1]

Tularemia

6th International Congress
for Infectious Diseases

Prague, Czech Republic
April 26 - 30, 1994

Organized by the
International Society for Infectious Diseases

In Collaboration with the
Czech and Slovak Societies for Infectious Diseases

and the
World Health Organization

ABSTRACT BOOK

660

TICK-BORNE DISEASES IN SPAIN

J.A.Oteo, V. Martínez de Artola, J.M. Casas
Dept. Internal Medicine and Microbiology. Hospital de La Rioja (Logroño) and Hospital Virgen del Camino (Pamplona). Spain

Ticks, distributed throughout the world, are arthropods feeding on different host animals during their life-cycle and important for transmitting different tick-borne diseases to humans. The clinical spectrum of tick-borne related depends of tick's species distribution and presence or absence of their reservoir host.
We describe the clinical spectrum of tick-borne diseases in the North of Spain, where the most abundant tick species (Ixodoidea) which bites to humans are *Ixodes ricinus, Rhipicephalus sanguineus, Dermacentor marginatus* and *Haemaphisalis punctate*.
Patient 1: *Erythema chronicum migrans* (characteristic lesion of the early localized Lyme disease).
Patient 2: Lymphocitic meningitis with cranial neuritis (bilateral facial palsy) and painful radiculoneuritis: Meningoradiculitis of Garin-Bujadox-Bannwarth (the most common neurologic manifestation of the early disseminated Lyme disease).
Patient 3: Tick paralysis (neurotoxin produced in the tick salivary glands).
Patient 4: *Francisella tularensis* infection by a tick bite. Ulcero glandular disease.
Patient 5: Mediterranean Spotted Fever. *Rickettsia conorii* infection.
Besides in Spain exist the risk of other tick-bite related diseases, communicated by other researchers and our study group has confirmed the existence of *Borrelia burgdorferi, Rickettsia* of the spotted fever group (including *Ehrlichia* sp.) and *Babesia bovis* in a high percentage of collected ticks.

218

Parálisis neurotóxica

Oteo JA. *Med Clin* (Barc) 1990

Alergia/Anafilaxia

Tick Bite Anaphylaxis in a Patient Allergic to Bee Venom

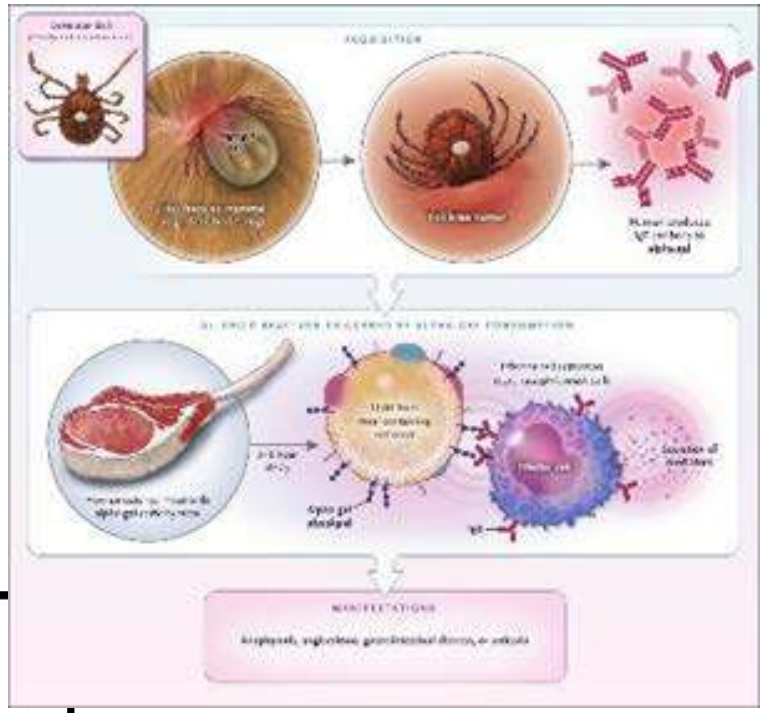
M Sánchez,[1] M Venturini,[1] A Blasco,[1] T Lobera,[1] B Bartolomé,[2] JA Oteo[3]

[1]*Allergy Section, Hospital San Pedro, Logroño, Spain*
[2]*R&D Department, Bial-Aristegui, Bilbao, Spain*
[3]*Infectious Diseases Department, Hospital San Pedro-CIBIR, Logroño, Spain*

Key words: Anaphylaxis. Bee. Venom. Tick. Bite.

Palabras clave: Anafilaxia. Abeja. Veneno. Garrapata. Picadura.

J Investig Allergol Clin Immunol 2014; Vol. 24(4): 267-285



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2016 IMPACT FACTOR 3.094

Return to content in this issue

IgE antibodies to alpha-gal in foresters and forest workers from La Rioja, North of Spain

Venturini M[1], Lobera T[1], Sebastián A[2], Portillo A[3], Oteo JA[3]

[1]Allergy Department, Centro de Alta Resolución San Millán, Logroño (La Rioja), Spain
[2]Neumology Department, Hospital Clínico Universitario Lozano Blesa, Zaragoza, Spain
[3]Center of Rickettsioses and Artropod-Borne Diseases, Hospital San Pedro-CIBIR, Logroño (La Rioja), Spain

J Investig Allergol Clin Immunol 2018; Vol. 28(2)
doi: 10.18176/jiaci.0218

Otras ETG en España

Granuloma de cuerpo extraño

Sobreinfección piógena

Hospital San Pedro

PATOGENOS ESPECIALES CIBIR

Lo que no se busca nunca se encuentra

Emergencia de la fiebre hemorrágica de Crimea-Congo en España

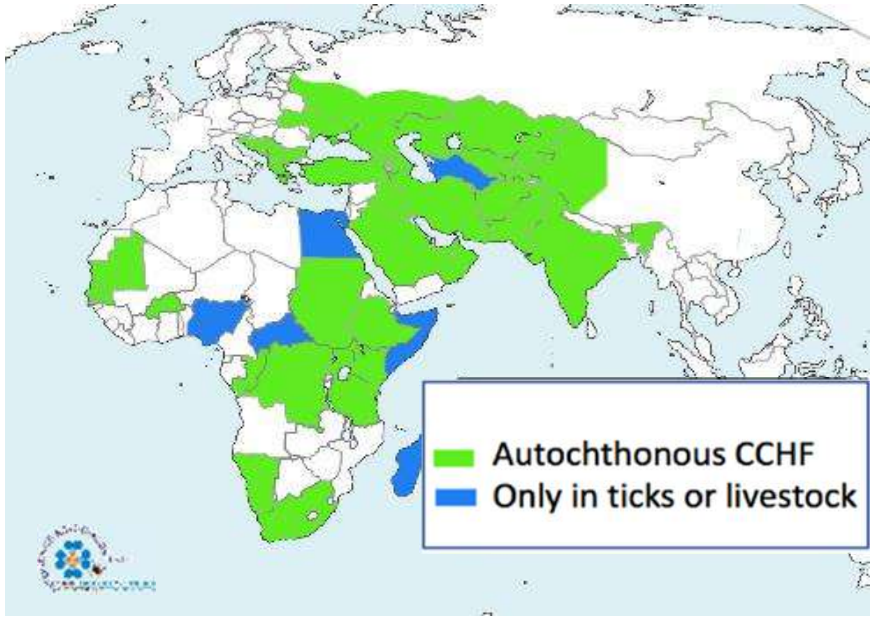
2006

✓ Presencia del vector/reservorio y creciente número de picaduras

Incremento de las personas picadas por *Hyalomma marginatum* en La Rioja

Fiebre hemorrágica de Crimea-Congo

- Arbovirosis transmitida por garrapatas más distribuida en el mundo (África, Asia y Europa oriental y Balcanes).



2006
Descrito en 30 países

Situación de FHCC en España en 2009

- Amplia distribución del vector/vectores
- Creciente número de picaduras humanas *de Hyalomma marginatum*
- Casos de FHCC en países europeos del área mediterránea oriental y antigua URSS.

¿Por qué no se diagnosticaban casos de FHCC en España?

Emergencia de la fiebre hemorrágica de Crimea-Congo en España

2006

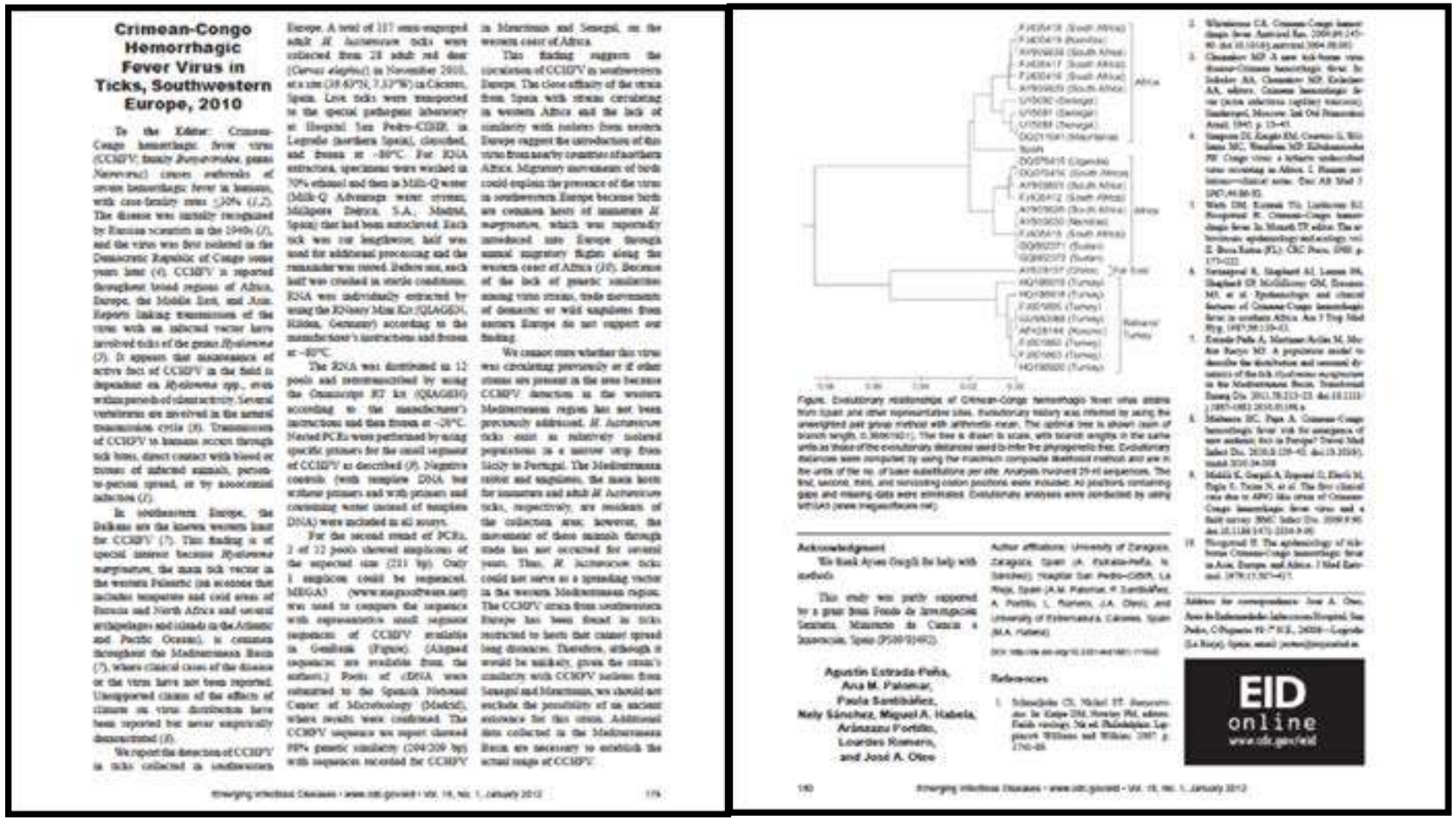
2010

- ✓ Presencia del vector/reservorio y creciente número de picaduras
- ✓ Primera detección del virus en el sur de Europa

Cáceres

Hyalomma lusitanicum

Cervus elaphus



Crimean-Congo Hemorrhagic Fever Virus in Ticks, Southwestern Europe, 2010

To the Editor: Crimean-Congo hemorrhagic fever virus (CCHFV; family *Bunyaviridae*, genus *Nairovirus*) causes outbreaks of severe hemorrhagic fever in humans, with case-fatality rates >30% (*1,2*). The disease was initially recognized by Russian scientists in the 1940s (*1*), and the virus was first isolated in the Democratic Republic of Congo some years later (*4*). CCHFV is reported throughout broad regions of Africa, Europe, the Middle East, and Asia. Reports linking transmission of the virus with an infected vector have involved ticks of the genus *Hyalomma* (*5*). It appears that maintenance of active foci of CCHFV in the field is dependent on *Hyalomma* spp., even within periods of relatively inactivity. Several vertebrates are involved in the natural transmission cycle (*6*). Transmission of CCHFV to humans occurs through tick bites, direct contact with blood or tissues of infected animals, person-to-person spread, or by nosocomial infection (*1*).

In southwestern Europe, the Balkans are the known western limit for CCHFV (*7*). This finding is of special interest because *Hyalomma marginatum*, the main tick vector in the western Palearctic (in regions that include temperate and cold areas of Eurasia and North Africa and several archipelagos and islands in the Atlantic and Pacific Oceans), is common throughout the Mediterranean Basin (*7*), where clinical cases of the disease or the virus have not been reported. Unsupported claims of the effects of climate on virus distribution have been reported but never empirically demonstrated (*8*).

We report the detection of CCHFV in ticks collected in southwestern Europe. A total of 117 ticks engorged adult *H. lusitanicum* ticks were collected from 28 adult red deer (*Cervus elaphus*) in November 2010, at a site (39.40°N, 7.33°W) in Cáceres, Spain. Live ticks were transported to the special pathogens laboratory at Hospital San Pedro-CIBIR in Logroño (northern Spain), classified, and frozen at −80°C. For RNA extraction, specimens were washed in 70% ethanol and then in Milli-Q water (Milli-Q Advantage water system; Millipore Iberica, S.A., Madrid, Spain) that had been autoclaved. Each tick was cut lengthwise; half was used for additional processing and the remainder was stored. Before use, each half was crushed in sterile conditions. RNA was individually extracted by using the RNeasy Mini Kit (QIAGEN, Hilden, Germany) according to the manufacturer's instructions and frozen at −80°C.

The RNA was distributed in 12 pools and retranscribed by using the Omniscript RT kit (QIAGEN) according to the manufacturer's instructions and then frozen at −20°C. Nested PCRs were performed by using specific primers for the small segment of CCHFV as described (*9*). Negative controls (with template DNA but without primers and with primers and containing water instead of template DNA) were included in all assays.

For the second round of PCRs, 2 of 12 pools showed amplicons of the expected size (211 bp). Only 1 amplicon could be sequenced. MEGA5 (www.megasoftware.net) was used to compare the sequence with representative small segment sequences of CCHFV available in GenBank (Figure). (Aligned sequences are available from the authors.) Pools of cDNA were returned to the Spanish National Center of Microbiology (Madrid), where results were confirmed. The CCHFV sequence we report showed 98% genetic similarity (204/209 bp) with sequences recorded for CCHFV in Mauritania and Senegal, on the western coast of Africa.

This finding suggests the circulation of CCHFV in southwestern Europe. The close affinity of the strain from Spain with strains circulating in western Africa and the lack of similarity with isolates from western Europe suggest the introduction of this virus from nearby countries of northern Africa. Migratory movements of birds could explain the presence of the virus in southwestern Europe because birds are common hosts of immature *H. marginatum*, which was repeatedly introduced into Europe through annual migratory flights along the western coast of Africa (*10*). Because of the lack of genetic similarities among virus strains, trade movements of domestic or wild ungulates from eastern Europe do not support our finding.

We cannot state whether this virus was circulating previously or if other strains are present in the area because CCHFV detection in the western Mediterranean region has not been previously addressed. *H. lusitanicum* ticks exist as relatively isolated populations in a narrow strip from Sicily to Portugal. The Mediterranean tortoise and ungulates, the main hosts for immatures and adult *H. lusitanicum* ticks, respectively, are resident of the collection area; however, the movement of these animals through trade has not occurred for several years. Thus, *H. lusitanicum* ticks could not serve as a spreading vector in the western Mediterranean region. The CCHFV strain from southwestern Europe has been found in ticks restricted to hosts that cannot spread long distances. Therefore, although it would be unlikely, given the strain's similarity with CCHFV isolates from Senegal and Mauritania, we should not exclude the possibility of an ancient entrance for this strain. Additional data collected in the Mediterranean Basin are necessary to establish the actual range of CCHFV.

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 18, No. 1, January 2012 179

Figure. Evolutionary relationships of Crimean-Congo hemorrhagic fever virus strains from Spain and other representative sites. Evolutionary history was inferred by using the unweighted pair group method with arithmetic mean. The optimal tree is shown (sum of branch length, 0.3806760). The tree is drawn to scale, with branch lengths in the same units as those of the evolutionary distances used to infer the phylogenetic tree. Evolutionary distances were computed by using the maximum composite likelihood method and are in the units of the no. of base substitutions per site. Analysis involved 29 nt sequences. The first, second, third, and noncoding codon positions were included. All positions containing gaps and missing data were eliminated. Evolutionary analyses were conducted by using MEGA5 (www.megasoftware.net).

Acknowledgment

We thank Ayse Gargili for help with methods.

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Agustín Estrada-Peña, Ana M. Palomar, Paula Santibáñez, Nely Sánchez, Miguel A. Habela, Arántzazu Portillo, Lourdes Romero, and José A. Oteo

Author affiliations: University of Zaragoza, Zaragoza, Spain (A. Estrada-Peña, N. Sánchez); Hospital San Pedro-CIBIR, La Rioja, Spain (A.M. Palomar, P. Santibáñez, A. Portillo, L. Romero, J.A. Oteo); and University of Extremadura, Cáceres, Spain (M.A. Habela)

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Address for correspondence: José A. Oteo, Área de Enfermedades Infecciosas Hospital San Pedro, C/Piqueras 98, 26050 Logroño (La Rioja), Spain; email: joteo@riojasalud.es

Se describe por primera vez la presencia del vFHCC en el sur de Europa

Secuencias similares a las de Mauritania y diferentes a las Europeas

DISPATCHES

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 19, No. 2, February 2013

Crimean-Congo Hemorrhagic Fever Virus in Ticks from Migratory Birds, Morocco[1]

Ana M. Palomar, Aránzazu Portillo, Paula Santibáñez, David Mazuelas, Juan Arizaga, Ariñe Crespo, Óscar Gutiérrez, Juan Francisco Cuadrado, and José A. Oteo

Crimean-Congo hemorrhagic fever virus was detected in ticks removed from migratory birds in Morocco. This finding demonstrates the circulation of this virus in northwestern Africa and supports the hypothesis that the virus can be introduced into Europe by infected ticks transported from Africa by migratory birds.

(*1*). Only imported cases have been reported in western Europe, although the causal agent has been amplified in *H. lusitanicum* ticks collected from deer in Spain (southwestern Europe) (*5*). This finding could be explained by the arrival of infected ticks transported by migratory birds coming from Africa (*5*). To confirm this hypothesis, we investigated the presence of CCHFV in ticks collected from migratory birds in northern Africa.

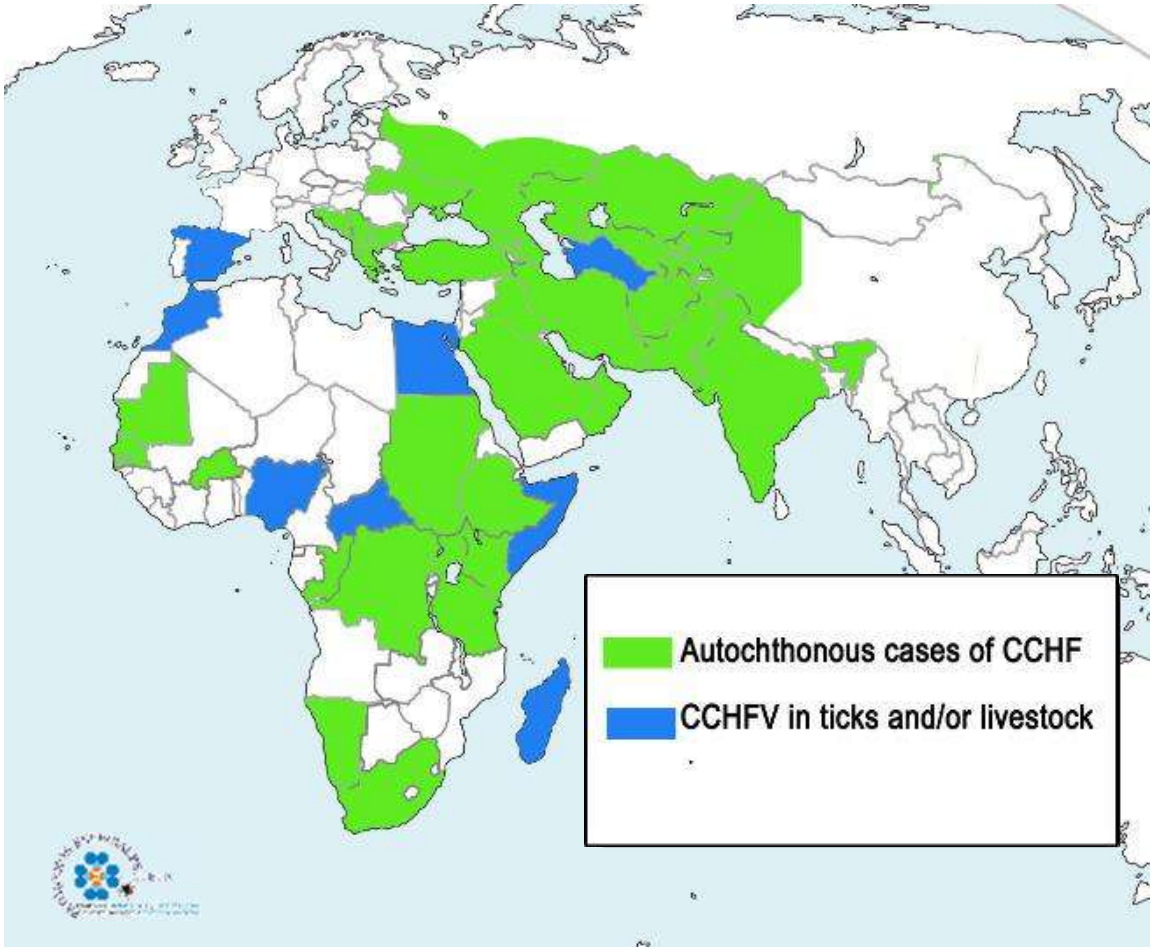
The Study

In April 2011, bird bandings were conducted in Zouala, Morocco (31°47□N, 4°14□W) (Figure 1). A total of 546 captured birds were checked for ticks, and parasites were found on 21 birds from 5 passerine bird species (*Phoenicurus phoenicurus*, *Erythropygia galactotes*, *Iduna opaca*, *Acrocephalus scirpaceus*, and *I. pallida*). All but *I. pallida* birds are passerine trans-Saharan migrant species, coming from central and southern Africa and able to reach the Iberian Peninsula.

A total of 52 ticks (19 larvae and 33 nymphs) were processed. Genomic DNA and total RNA from ticks were individually purified by using the AllPrep DNA/RNA

Detección del virus de la FHCC en garrapatas recogidas sobre aves migratorias en Marruecos
Secuencias similares a las de Cáceres

Fiebre hemorrágica de Crimea-Congo



Distribución en 2013

Emergencia de la fiebre hemorrágica de Crimea-Congo en España

2006

✓ Presencia del vector/reservorio y creciente número de picaduras

2010

✓ Primera detección del virus

2016

✓ Primeros casos de enfermedad


RESEARCH LETTERS

Retrospective Identification of Early Autochthonous Case of Crimean-Congo Hemorrhagic Fever, Spain, 2013

Ana Negredo,[1] María Sánchez-Ledesma,[1] Francisco Llorente, Mayte Pérez-Olmeda, Moncef Belhassen-García, David González-Calle, María Paz Sánchez-Seco,[2] Miguel Ángel Jiménez-Clavero[2]

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 27, No. 6, June 2021

Emergencia de la fiebre hemorrágica de Crimea-Congo en España

2006

✓ Presencia del vector/reservorio y creciente número de picaduras

2010

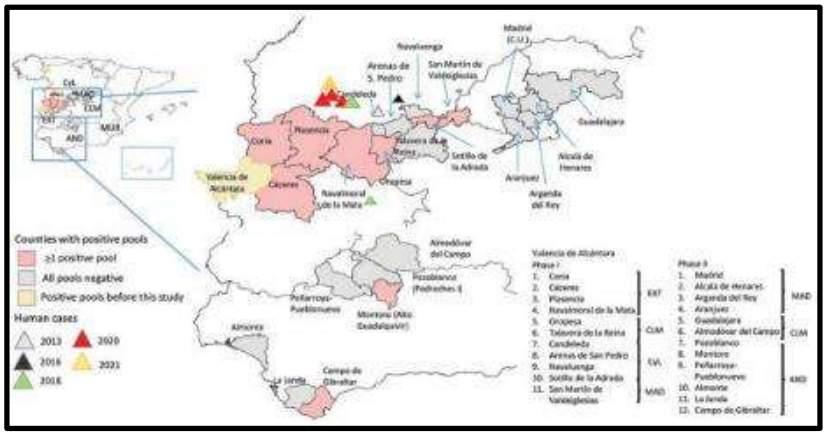
✓ Primera detección del virus

2013
2016

✓ Primeros casos de enfermedad

2016
2018

✓ Mayor distribución y nuevas variantes del virus



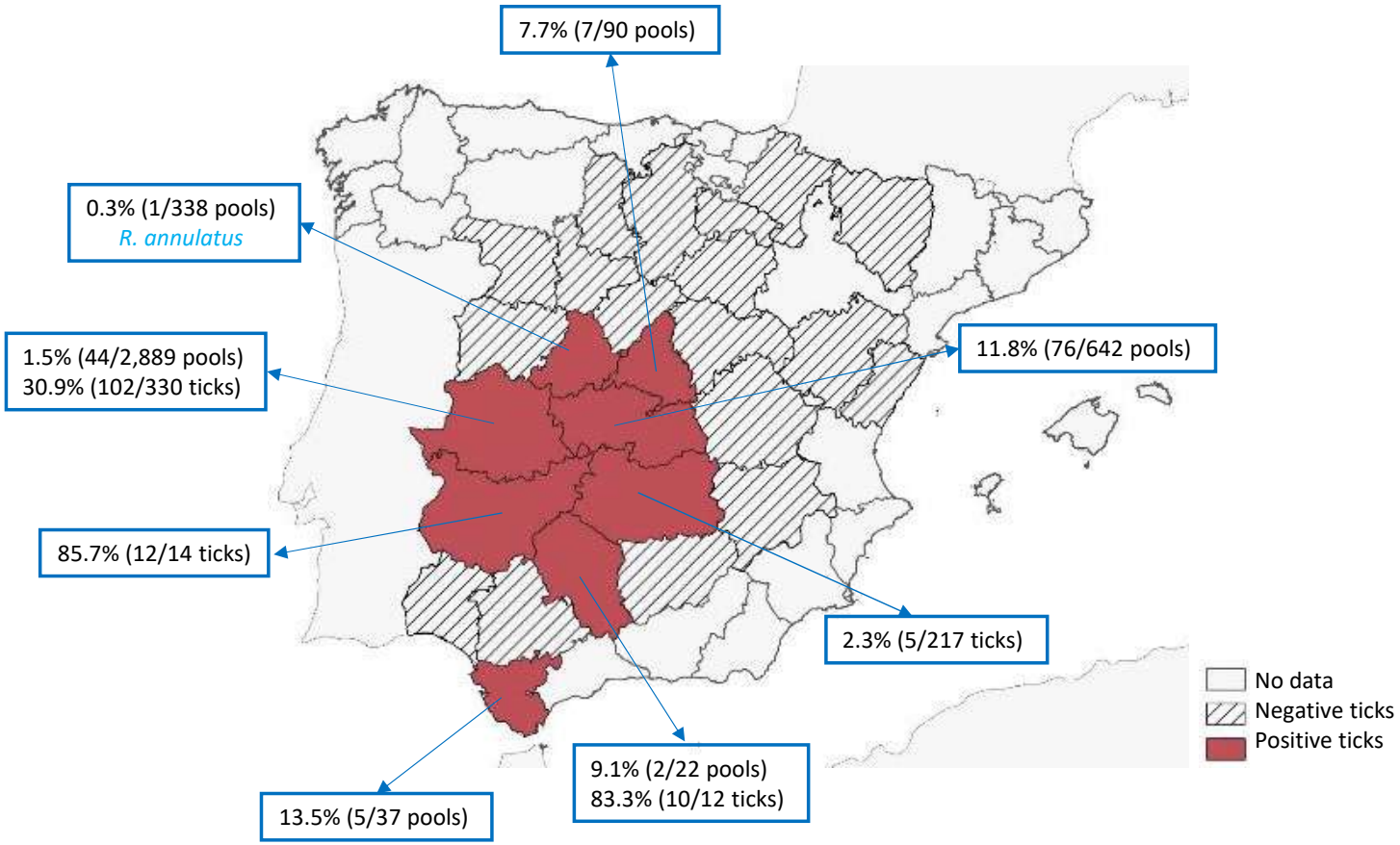
Emerg Infect Dis. 2022 Feb; 28(2): 394–402.
doi: 10.3201/eid2802.211308

PMCID: PMC8798670
PMID: 35076008

Widespread Detection of Multiple Strains of Crimean-Congo Hemorrhagic Fever Virus in Ticks, Spain

María Paz Sánchez-Seco[X], María José Sierra, Agustín Estrada-Peña, Félix Valcárcel, Ricardo Molina, Eva Ramírez de Arellano, Angeles Sonia Olmeda, Lucía García San Miguel, Maribel Jiménez, Luis J. Romero, Anabel Negredo, and Group for CCHFv Research

Prevalencia del vFHCC en garrapatas

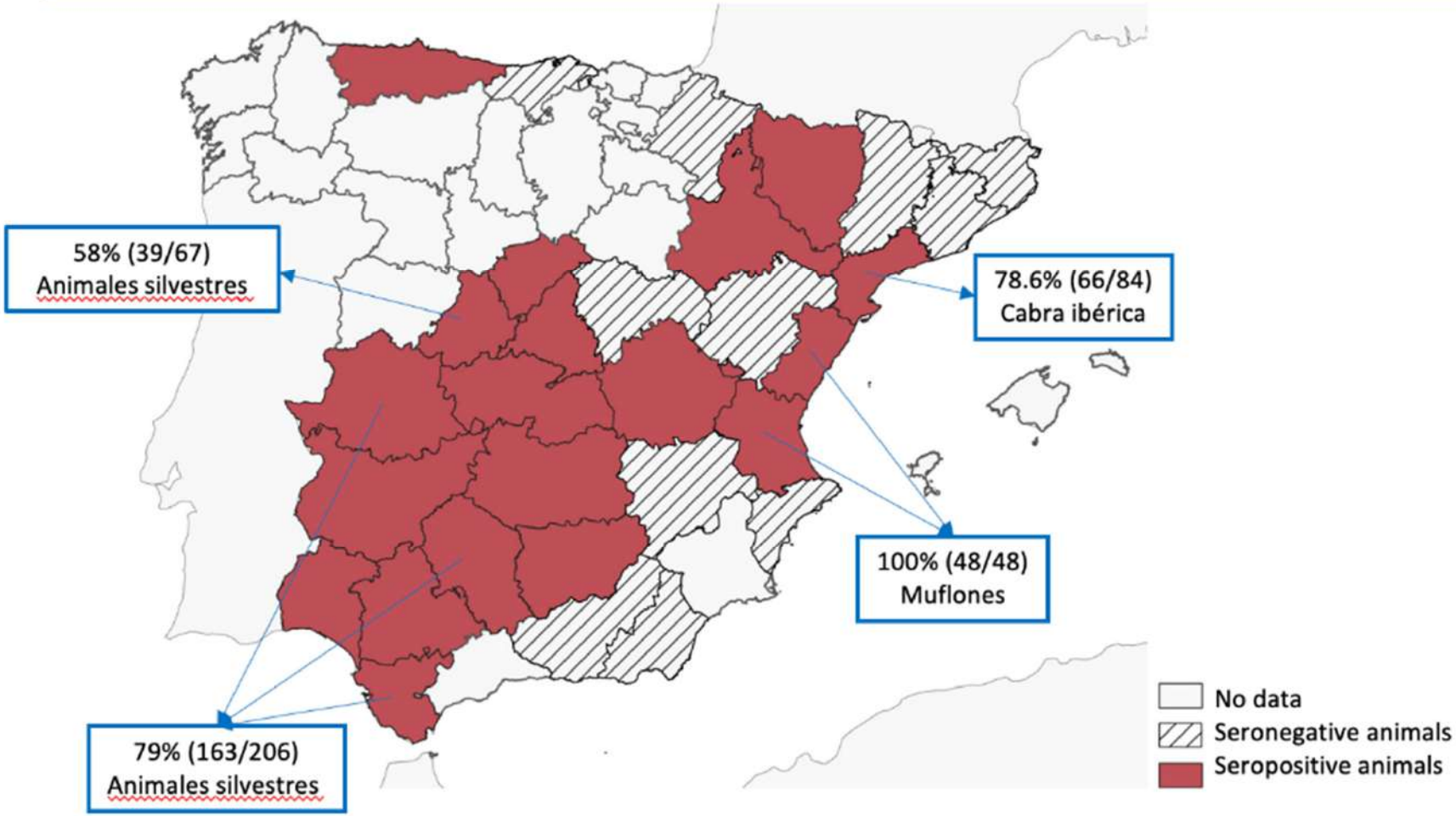



ENOS ESPECIALES
CIBIR

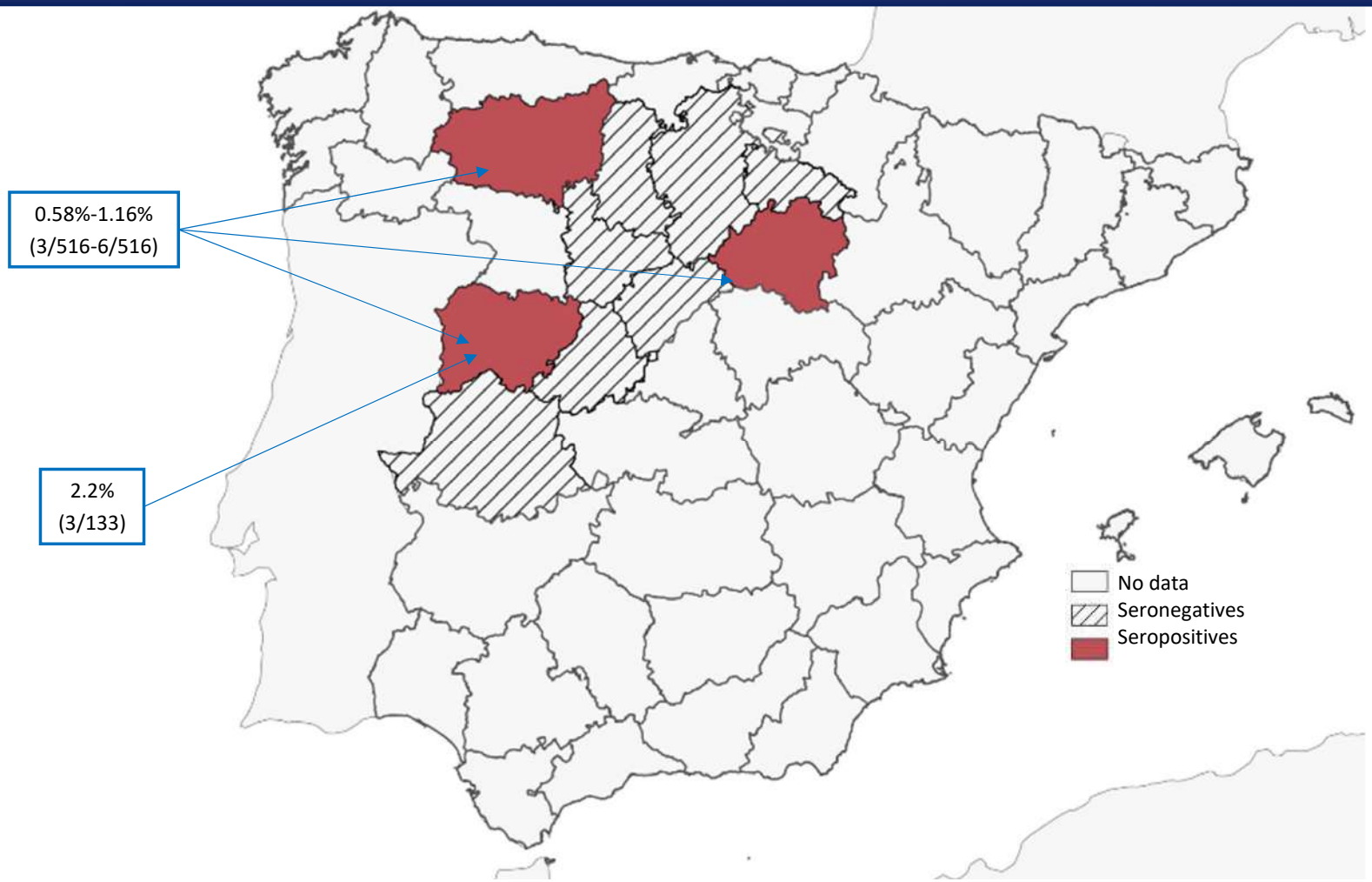
Emergencia de la fiebre hemorrágica de Crimea-Congo en España

- 2006 — ✓ Presencia del vector/reservorio y creciente número de picaduras
- 2010 — ✓ Primera detección del virus
- 2013 2016 — ✓ Primeros casos de enfermedad
- 2016 2018 — ✓ Mayor distribución y nuevas variantes del virus
- 2022 — ✓ 12 casos acumulados
- ✓ Alta prevalencia serológica en animales y puntual en humanos

Seroprevalencia en animales

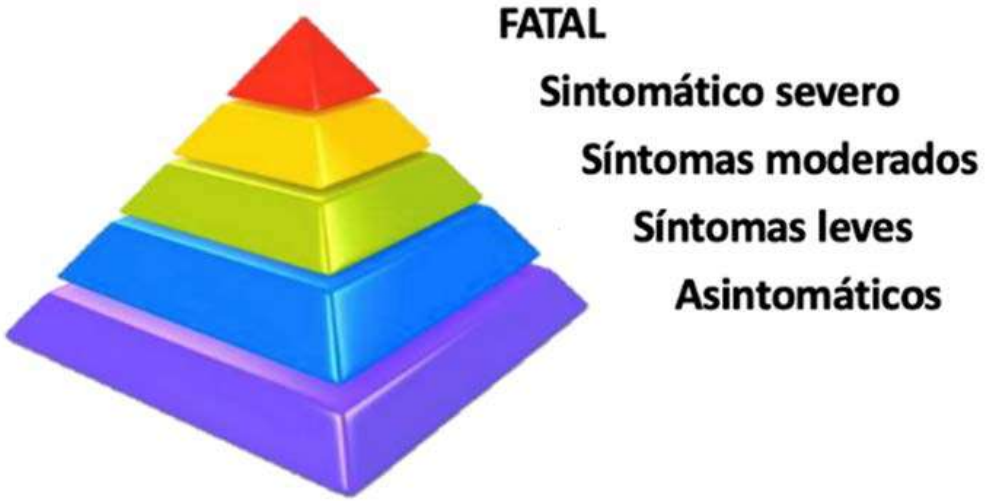


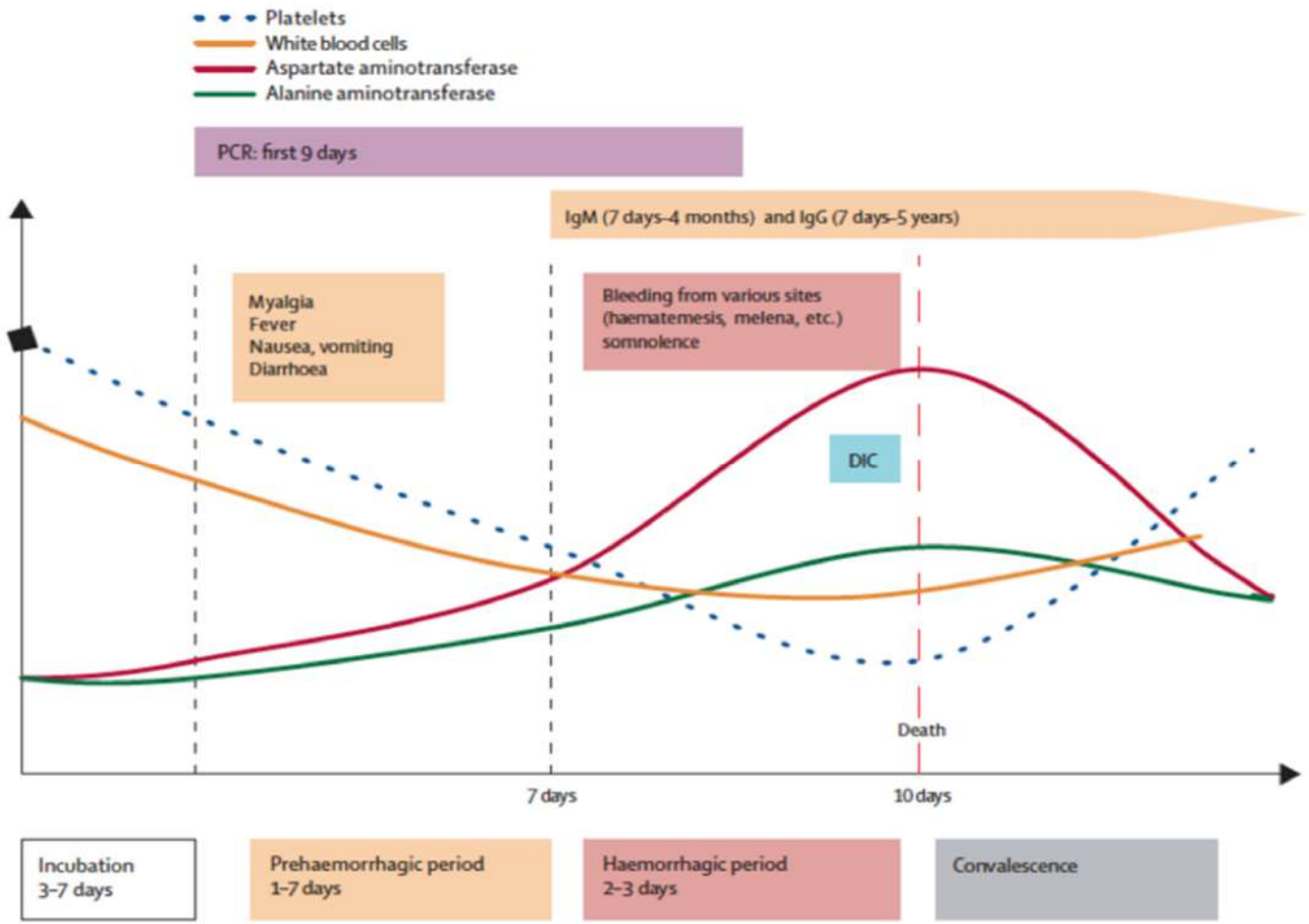
Seroprevalencia en humanos



Fiebre hemorrágica de Crimea-Congo

- El curso clínico va desde infecciones asintomáticas a formas muy severas y muerte (3-80%).
- Las infecciones asintomáticas son muy comunes.
- Solo 1 de cada 4-5 pacientes desarrolla manifestaciones clínicas.





Ergonul O, Lancet ID, 2006

¿Qué sucederá?

- **¿La situación Turca?**

  En 2002 se comunicó el primer caso

  Actualmente alrededor de 1000 casos por año

- **¿La situación de Grecia?**

  Primer caso en 1975

  Segundo caso en 2008

  Actualmente casos esporádicos

Infecciones que necesitaban ser investigadas por su potencial epidémico – OMS 2018

- **Fiebre hemorrágica de Crimea-Congo**
- Enfermedad por virus Ébola y Marburg
- Fiebre de Lassa
- MERS y SARS coronavirus
- Enfermedad por virus Nipah y Henipa
- Fiebre del Valle de Rift
- Enfermedad por virus Zika
- **Enfermedad X**

http://www.who.int/blueprint/priority-diseases/en/#

Cortesía de Carlos Pradera

Microorganisms **2021**, *9*, 649. https://doi.org/10.3390/ microorganisms9030649

microorganisms

MDPI

Review

Epidemiological Aspects of Crimean-Congo Hemorrhagic Fever in Western Europe: What about the Future?

Aránzazu Portillo, Ana M. Palomar, Paula Santibáñez and José A. Oteo *

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8003855/pdf/microorganisms-09-00649.pdf

¿Qué sucede con las especies invasivas?

2017

al Entomology, 55(3), 2018, 757–759
doi: 10.1093/jme/tjy006
Advance Access Publication Date: 19 February 2018
Short Communication

Short Communication

Discovery of *Haemaphysalis longicornis* (Ixodida: Ixodidae) Parasitizing a Sheep in New Jersey, United States

Tadhgh Rainey,[1] James L. Occi,[2] Richard G. Robbins,[3] and Andrea Egizi[2,4,5]

[1]Hunterdon County Division of Health, Flemington, NJ 08822-2900, [2]Center for Vector Biology, Department of Entomology, Rutgers University, New Brunswick, NJ 08901-8536, [3]Walter Reed Biosystematics Unit, Department of Entomology, Smithsonian Institution, Suitland, MD 20746-2863, [4]Tick-borne Diseases Laboratory, Monmouth County Mosquito Control Division NJ 08801-8536, and [5]Corresponding author: e-mail: andrea.egizi@co.monmouth.nj.us

Subject Editor: Howard Ginsberg

Received 6 December 2017; Editorial decision 3 January 2018

2018

Morbidity and Mortality Weekly Report

Multistate Infestation with the Exotic Disease–Vector Tick *Haemaphysalis longicornis* — United States, August 2017–September 2018

C. Ben Beard, PhD[1]; James Occi, MA, MS[2]; Denise L. Bonilla, MS[3]; Andrea M. Egizi, PhD[4]; Dina M. Fonseca, PhD[2]; James W. Mertins, PhD[3]; Bryon P. Backenson, MS[5]; Waheed I. Bajwa, PhD[6]; Alexis M. Barbarin, PhD[7]; Matthew A. Bertone, PhD[8]; Justin Brown, DVM, PhD[9]; Neeta P. Connally, PhD[10]; Nancy D. Connell, PhD[11]; Rebecca J. Eisen, PhD[1]; Richard C. Falco, PhD[5]; Angela M. James, PhD[3]; Rayda K. Krell, PhD[10]; Kevin Lahmers, DVM, PhD[12]; Nicole Lewis, DVM[13]; Susan E. Little, DVM, PhD[14]; Michael Neault, DVM[15]; Adalberto A. Pérez de León, DVM, PhD[16]; Adam R. Randall, PhD[17]; Mark G. Ruder, DVM, PhD[18]; Meriam N. Saleh, PhD[14]; Brittany L. Schappach[10]; Betsy A. Schroeder, DVM[19]; Leslie L. Seraphin, DVM[3]; Morgan Wehtje, PhD[3]; Gary P. Wormser, MD[20]; Michael J. Yabsley, PhD[21]; William Halperin, MD, DrPH[22]

MMWR / November 30, 2018 / Vol. 67 / No. 47 US Department of Health and Human Services/Centers for Disease Control and Prevention

pathogens MDPI

Article

Pathogen Spillover to an Invasive Tick Species: First Detection of Bourbon Virus in *Haemaphysalis longicornis* in the United States

2022

Alexandra N. Cumbie [1,*], Rebecca N. Trimble [2] and Gillian Eastwood [1,3,4,*]

Infecciones que necesitaban ser investigadas por su potencial epidémico – OMS 2018

- Otras fiebres hemorrágicas por Arenavirus
- Chikungunya

- Otros coronavirus diferentes que MERS y SARS
- Enterovirus no poliomielíticos (EV71, D68)
- **Síndrome de trombocitopenia severa febril**

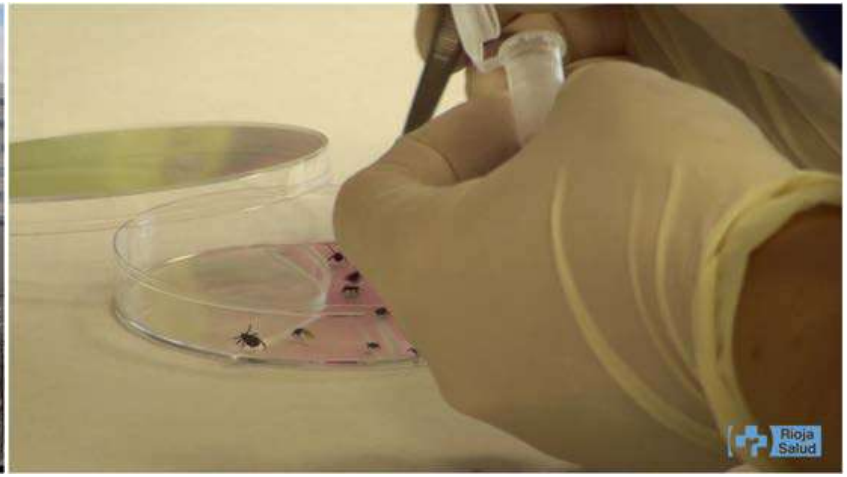
...

Año 2018 - OMS

http://www.who.int/blueprint/priority-diseases/en/#

Hospital San Pedro

PATOGENOS ESPECIALES CIBIR



Centro de Rickettsiosis y Enfermedades Transmitidas por Artrópodos Vectores