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Literature review of mosquito-borne viral infections in non-tropical European Union territories: A cause of concern?

Infecciones virales transmitidas por mosquitos en la Unión Europea: revisión de la literatura. ¿Tenemos que preocuparnos?

Increasing globalization in travel and trade, together with global expansion and the establishment of competent vectors, has enabled the introduction into European Union countries of arboviruses that are widely circulating in tropical areas. Furthermore, several European countries have a close link to highly endemic areas for arboviruses: France has important overseas colonies (Americas, Africa and Oceania), or Portuguese island of Madeira, that has strong social and commercial relations with Brazil. Many European countries, including Spain, receive a huge number of immigrants and travellers from Latin America every year. In that sense, viremic international travel returning from epidemic regions to an area where a competent vector is established can trigger outbreaks, as has happened previously.

Global warming has allowed mosquitoes, such as *Aedes o Culex*, to proliferate, adapt to environmental conditions, migrate and spread to new niche areas in Europe that have become warmer.[1] This fact can contribute both to an increased risk of outbreaks of vector-borne diseases in Europe, such as the Dengue or Chikungunya viruses, and to open the door to new arbovirus infections, such as Zika, Ross River, or Mayaro.

Every year more than 200 seasonal cases of West Nile virus are reported, and sporadic and self-limited outbreaks of Dengue (including the recent report of autochthonous cases in Spain) and Chikungunya viral infection. We conducted an electronic literature search through PubMed (keywords used: [Chikungunya] OR [dengue] or [zika] or [west Nile] or [arboviral infection] AND [European autochthonous cases]) restricted to humans, and also consulted data extracted from the European Centre for Disease Prevention and Control (ECDC), focusing on the most recent outbreaks arboviral infections in non-tropical European Union territories from 2010 to November 2018 (Table 1).

The presence of a competent vector, optimal climatic conditions and the possibility of returning patients who are viremic are prerequisites for autochthonous transmission of arboviruses, are currently being met in many countries in Europe. Health professionals should be trained to identify arboviral diseases symptoms and to introduce them into the differential diagnosis, not only among patients returning from the tropics, but also in local patients from countries and areas with the presence of suitable vectors, so

Table 1
Outbreaks of mosquito-borne viral infections in non-tropical European Union territories (2010–2018).

	Main mosquito vector	Outbreaks (year, location, confirmed cases)
Chikungunya fever	*Aedes albopictus*	*First case reported:* 2007; Ravenna, Italy (229[b])[2] 2010; Fréjus, France (2)[2] 2014; Montepellier, France (12)[3] 2017; Anzio, Italy (102)[4], Le Cannet-des-Mares, France (9)[5]
Dengue Fever	*Aedes albopictus, Aedes aegypti*[a]	*First case reported*: 2010; Nice, France (2)[2] 2010; Pejesac, Croatia (17)[2] 2012; Madeira, Portugal (2218[c])[2] 2013; Aix-en-Provence, France (1)[7] 2015; Nimes, France (6)[6] 2018; Provence-Alpes-Côte d'Azur region, France; Murcia and Cadiz, Spain (3)[10]
West Nile fever	*Culex pipiens*	*First case reported*: 1962; Camargue France (2)[8] 2010; Austria, Greece, Hungary, Italy, Romania, Spain[d,9] 2011; Greece (100); Italy (14), Romania (11), Hungary (3)[9] 2012: Greece (161), Italy (50), Hungary (17), Romania (14)[9] 2013: Italy (69), Greece (68), Hungary (31), Romania (24), Croatia (16), Czech Republic (1), Slovenia (1)[9] 2014: Italy (24), Romania (23), Greece (15) Hungary (11), Austria (1)[9] 2015; Italy (60), Romania (19), Hungary (18), Austria (7), Bulgaria (2), France (1), Portugal (1)[9] 2016; Romania (93), Italy (76); Hungary (44); Austria (5), Spain (3), Bulgari (2), Cyprus (1), Croatia (1) [9] 2017; Romania (66), Italy (57), Greece (48), Hungary (21), Austria (5), Croatia (5), France (1), Bulgari (1) [9] 2018; Italy (550), Greece (302), Romania (268), Hungary (212), Croatia (45), France (24), Austria (19), Bulgari (11), Slovenia (3) and the Czech Republic (2)[10]

[a] Aedes aegypty was the main vector un Madeira's outbreak.
[b] Some of the cases were found with active case finding or retrospective serological studies.
[c] Information about number of confirmed/probable cases were only provided at the beginning of the epidemic.
[d] Number of cases were not reported.

that possible outbreaks can be identified before they can have major consequences. Epidemiological and entomological surveillance is necessary to detect and control further outbreaks and to minimize the risk of local transmission in vector-colonized areas.

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Competing interests

None.

Bibliografía

1. Wu X, Lu Y, Zhou Sen, Chen L, Xu B. Impact of climate change on human infectious diseases: empirical evidence and human adaptation. Environ Int. 2016 Jan;86:14–23, http://dx.doi.org/10.1016/j.envint.2015.09.007.
2. Tomasello D, Schlagenhauf P. Chikungunya and dengue autochthonous cases in Europe, 2007–2012. Travel Med Infect Dis. 2013;11:274–84, http://dx.doi.org/10.1016/j.tmaid.2013.07.006.
3. Delisle E, Rousseau C, Broche B, Leparc-Goffart I, L'Ambert G, Cochet A, et al. Chikungunya outbreak in Montpellier, France September to October 2014. Euro Surveill. 2015;20, pii:21108.
4. Venturi G, Di Luca M, Fortuna C, Remoli ME, Riccardo F, Severini F, et al. Detection of a chikungunya outbreak in Central Italy August to September 2017. Euro Surveill. 2017;22:13, http://dx.doi.org/10.2807/1560-7917.ES.39.17-00646201722.
5. Calba C, Guerbois-Galla M, Franke F, Jeannin C, Auzet-Caillaud M, Grard G, et al. Preliminary report of an autochthonous chikungunya outbreak in France July to September 2017. Euro Surveill. 2017;22:514, http://dx.doi.org/10.2807/1560-7917.ES.39.17-00647201722.
6. Succo T, Leparc-Goffart I, Ferré J-B, Roiz D, Broche B, Maquart M, et al. Autochthonous dengue outbreak in Nîmes, South of France July to September 2015. Euro Surveill. 2016;21:3, http://dx.doi.org/10.2807/1560-7917.
7. Marchand E, Prat C, Jeannin C, Lafont E, Bergmann T, Flusin O, et al. Autochthonous case of dengue in France October 2013. Euro Surveill. 2013;18:20661.
8. Panthier R, Hannoun C, Beytout D, Mouchet J. Epidemiologie du virus West Nile: (etude d'un foyer en Camargue, 3—Les maladies humaines. Ann Institut Pasteur. 1968;115:435–45.
9. ECDC. Historical data by year – West Nile fever seasonal surveillance. https://ecdc.europa.eu/en/west-nile-fever/surveillance-and-disease-data/historical [accessed 02.11.18].
10. ECDC. Communicable Disease Threats Report (14–20 October, week 42). https://www.ecdc.europa.eu/sites/portal/files/documents/communicable-disease-threats-report-20-oct-2018_0.pdf [accessed Nov 02.11.18].

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Tularemia: diagnosis of an unexpected oculoglandular case in a non-endemic area by universal PCR

Tularemia: diagnóstico de un caso oculoglandular inesperado en un área no endémica mediante PCR universal

Dear Editor,

Tularemia is a zoonotic disease caused by *Francisella tularensis*, a Gram-negative facultative intracellular coccobacillus[1] with four recognized subspecies[2]: *tularensis* (type A), *holarctica* (type B), *mediasiatica* and *novicida*. Type A is found in North America, while type B is located, but not exclusively, in the northern hemisphere.[3] In Spain, it was an uncommon disease until 1997, when the first tularemia outbreak occurred in Castilla y León.[4] Until now, all cases reported in Spain were caused by *F. tularensis* subsp. *holarctica.* Clinical manifestations of tularemia fall into two main forms: ulceroglandular (>90% of cases in Europe)[2] and typhoidal. However, there are three more clinical forms: oculoglandular, oropharyngeal/gastrointestinal and pneumonic.

We have previously published the first case of ulceroglandular tularemia in a non-endemic area (Asturias, Spain).[5] Here, we present the first reported case of oculoglandular tularemia occurred in the same region which worried us.

An 88-year-old male presented to the emergency department of our hospital in April 2017 for diagnosis and management of pain in his right eye and the presence of conjunctival discharge. He did not have other symptoms, history of trauma, drug intake, or any recently local or systemic infection. His laboratory workup only showed a high value of C-reactive protein (5.5 mg/dL) and his medical and surgical histories were noncontributory. A diagnostic of viral conjunctivitis was done and he was treated with lubricant and anti-inflammatory drops.

Two months later, he was brought to the Department of Oral and Maxillofacial Surgery with a painful cervical mass (Fig. 1), weight loss and discomfort. He did not declared a recent travel, contact to ill people or animals although he lives in a rural area. Clinical examination revealed the presence of a right neck mass measuring 30 mm × 20 mm, with gummy consistency, painful on palpation and without other appreciable alterations.

A CT scan was performed and three neck lymph nodes together with an intraparotid lymph node were seen as pathological, showing necrotic areas.

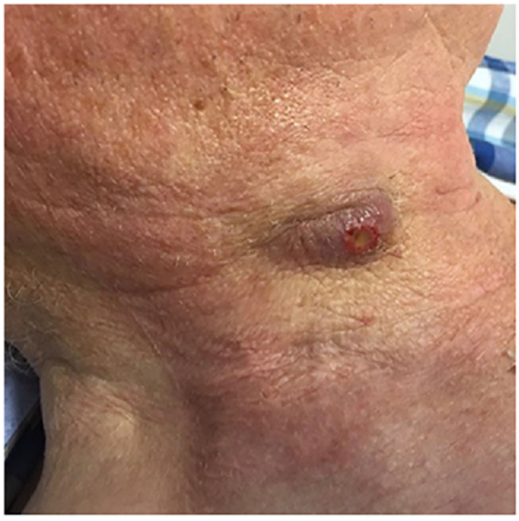

Fig. 1. Cervical mass observed in physical examination one month after conjunctivitis.