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TBE VIRUS IN TICKS AND TBE ACQUIRED IN SOUTHERN ENGLAND

Background

Until recently, the UK was considered a TBE-free country. This has changed with the detection of TBE-positive sera from deer and TBE virus in ticks collected from deer or being flagged in the Thetford Forest in East England (Norfolk/Suffolk area).

Results

TBE virus found in ticks

Questing tick surveys were conducted at various sites in southern England (Hampshire/Dorset border, Wiltshire) in 2018 and 2019 and a total of 915 and 2155 *Ixodes ricinus* ticks respectively were tested for TBE virus. One pool out of 373 pools tested was TBE virus positive and the complete TBE virus coding sequence obtained revealed that this strain is phylogenetically related to a strain isolated in The Netherlands and is different from the strain recently isolated in the Thetford Forest (see <u>Newsletter November 2019</u>). Thus, the identification of two distinct TBE virus genomes in England indicate two importation events into the UK, most probably by migrating birds.

Human TBE virus infection

A case of TBE has been reported which is believed to be the first acquired in England. A German family living in the Federal State of Hesse in a TBE non-risk area spent their holidays in southern England in July 2019. They had a picnic in the New Forest National Park and one day later an unengorged tick was detected on the neck of their 3-month-old infant. The tick was incompletely removed, and the remaining tick fragments detached two days later. Eleven days later, the infant developed fever and suffered from focal seizures. The infant was hospitalized,

and meningitis and some other neurological pathological features were diagnosed. TBE diagnosis was positive for IgM and IgG (Siemens ELISA). The infant was discharged 15 days after admission with mild remaining neurological symptoms, which subsided by a check-up six weeks later. Although this may be the first TBE case acquired in England, one should consider that infection by Louping ill virus, which belongs to the TBE-serocomplex, cannot totally be excluded. However, human infection with this virus are very rare and usually did not occur in southern England. Now, Public Health England continues to promote tick awareness for those spending time outdoors. The public health risks from TBE virus in England will be dynamically reviewed as new findings come to light.

Discussion

The first case of a probable human TBE case together with the recent findings of TBE virus in ticks in at least two areas in England (discussed above and reported in the Newsletter November 2019) suggest that TBE virus is circulating in some parts of England and TBE may be acquired in these areas. Consequently, TBE should be considered in patients living in or travelling to England with aetiologically-unexplained neurological manifestations.

TBE virus can spread to new areas through mammalian hosts or migratory birds infested with ticks that are infected with TBE virus. New TBE foci can establish if local climatic conditions are favorable to the transmission cycles between ticks and rodent hosts, and this seems to be the case in England.

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Literature

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