TBE CASES, UNITED KINGDOM, 2015-2023

Background:

TBE virus is endemic in northeastern and eastern Asia, central and northern Europe, and parts of western Europe. Historically, TBE virus was considered absent in the UK, although Louping ill virus (LIV) is endemic and causes disease in livestock (e.g., sheep, cattle) and occasionally in humans. However, surveillance programs in ticks and deer have now identified areas in east and southern England where TBE virus is present.

Two probable human TBE cases were identified in 2019 and 2020 based on serological testing. The presence of LIV complicates serological diagnosis because of antibody cross-reactivity with viral antigens.

TBE testing in the UK is indicated when a patient presents with a compatible clinical illness and relevant exposure, typically including recent travel to an endemic area. Currently, TBE testing is performed on all referred undiagnosed encephalitis cases, even in the absence of known tick exposure or travel history. It should be noted that the UK Health Security Agency (UKHSA) Rare and Imported Pathogens Laboratory (RIPL) is the only clinical diagnostic laboratory in the UK that performs TBE diagnostic testing (both PCR and serological assays).

Results:

A retrospective analysis of possible, probable, and confirmed TBE cases diagnosed by the RIPL from 2015 to 2023 was conducted.

A total of 21 cases were identified during this period. Between January 2022 and December 2023, 12 TBE cases were diagnosed: three possible, three probable, and six confirmed. The median age of the cases was 50 years (range: 8–67 years). Nine patients reported travel within 28 days consistent with TBE virus acquisition outside the UK, with destinations including Sweden, Germany, Lithuania, and Poland.

Notably, two confirmed TBE cases had definite or highly probable domestic acquisition in June and August 2022. In one case, a 28-year-old male sustained multiple tick bites while walking near Loch Earn in Scotland; diagnosis was confirmed by a positive PCR result from cerebrospinal fluid (CSF) and a corresponding rise in TBE-IgG in serum. In the second case, a 50-year-old male was bitten by a tick while mountain biking in a forest in Yorkshire, England. His serum tested positive for the TBE virus complex (with a negative LIV PCR), and TBE IgG titers increased from 1:320 to 1:10,000 in a follow-up sample taken 10 days later.

Discussion:

This publication confirms the occurrence of domestically acquired TBE virus infections in the UK (Scotland and England). Although most TBE virus infections in humans are asymptomatic or cause only mild illness, the disease can occasionally be severe.

In addition to the headline findings of UK-acquired TBE, the case series also documents imported TBE cases in the UK, all acquired in Europe during the spring and summer. The risk of TBE virus infection should be considered before travel, particularly since none of these cases had a confirmed history of vaccination despite traveling to high-endemicity areas.

These findings underscore the need for expanded surveillance of ticks and sentinel animals across larger areas of the UK. Public health alerts have been issued, urging clinicians to consider TBE virus infections as a diagnosis in cases of unexplained encephalitis. The occurrence of domestically acquired TBE infections highlights the critical importance of ongoing surveillance programs.

TBE CASES, UNITED KINGDOM, 2015-2023

Literature:

Callaby et al. Tick-borne encephalitis: from tick surveillance to the first confirmed human cases, the United Kingdom, 2015 to 2023. *Euro Surveill.* 2025;30(5):pii=2400404. doi:10.2807/1560-7917.ES.2025.30.5.2400404.

Author: Dr. Michael Bröker

Compiled: February 2025