



EMERGENCE OF TBE IN SOUTH-EASTERN FRANCE

Introduction:

In France, the number of reported tick-borne encephalitis (TBE) cases had previously been low (10–30 cases annually) and largely confined to the Alsace region in north-eastern France, bordering the highly TBE-endemic federal state of Baden-Württemberg, Germany. During the last decade, however, an increasing number of TBE cases has been reported in other regions across France, with the highest number of autochthonous TBE virus infections ($n = 81$) reported in 2025 (see [Snapshot Week 20/2026](#)).

In 2017, the first TBE cases were identified around Saint-Étienne, the second most populous city in the mountainous and forested western area of the Auvergne-Rhône-Alpes (AURA) region in south-eastern France. Since then, additional cases have been reported, and the AURA region is now considered a TBE hotspot.

A study was conducted to evaluate the frequency of TBE among patients presenting with acute and subacute neurological symptoms in the AURA region and to compare the occurrence of TBE virus infections with other causes of meningitis (M), meningoencephalitis (ME), and encephalitis (E).

Results:

In this retrospective study, conducted between January 2021 and December 2023, stored cerebrospinal fluid (CSF) samples and sera from 544 patients at a hospital in Saint-Étienne met the inclusion criteria. TBE virus-specific IgM and IgG antibodies were tested using commercial ELISAs, and positive results were confirmed by seroneutralization testing.

Among the 544 patients, 140 were diagnosed with M/ME/E. In 76 of these 140 cases, infectious agents were identified as the cause of M/ME/E. For 36 patients, the cause remained unknown, while 28 cases were determined to be non-infectious. Seven patients were diagnosed with acute TBE (7/544; 1.3%). Six cases presented

with ME and one case with M.

Herpes simplex virus was identified as the cause in seven E/ME cases, while varicella-zoster virus accounted for six ME/E cases.

TBE virus was among the five most frequent infectious causes of M/ME/E ($n = 76$; 9.2%). Other leading causes included enteroviruses and *Streptococcus pneumoniae*.

All seven TBE virus infections were autochthonous. The patients resided in three different rural and/or forested areas around Saint-Étienne: the Pilat Massif, Ardèche, and Haute-Loire. Infections occurred between May and November. Six patients were diagnosed during clinical management, while one patient was identified through retrospective screening. Five patients presented with a biphasic clinical course.

All patients presenting with ME (six of the seven TBE cases) were treated empirically with high-dose beta-lactams and acyclovir in accordance with French guidelines. Adverse events related to this treatment occurred in one patient whose TBE diagnosis was established after discharge.

Anecdotally, one patient informed a physician that an 11-year-old boy from his village had experienced similar symptoms. The boy had presented in June 2022 with ME and was initially suspected of having neuroborreliosis. He received specific treatment, although his intrathecal antibody index for *Borrelia burgdorferi* was below the positivity threshold. TBE was ultimately diagnosed four months after discharge.

Discussion:

This study confirmed the circulation of TBE virus in the western AURA region seven years after the first identified TBE case in the area.

TBE virus infection was among the five most frequent infectious causes of M/ME/E and among the three most frequent causes of infectious ME/E.



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The study demonstrated that only a limited number of TBE cases were diagnosed during hospitalization. Several factors likely contributed to diagnostic delays and underdiagnosis, including limited awareness of TBE among non-infectious disease physicians, even in endemic regions. In the western AURA region, TBE should therefore be systematically considered and screened for in patients presenting with compatible neurological symptoms.

Awareness of TBE vaccination remains low in France, and vaccine uptake is even lower (approximately 1%). Greater efforts are needed to increase awareness among physicians and medical students. In addition, regional TBE prevalence should be further evaluated to enable appropriate adaptation of regional TBE vaccination recommendations.

Literature:

Mayer et al.

Tick-borne encephalitis emergence as the third leading cause of encephalitis/meningoencephalitis in western Auvergne-Rhône-Alpes, France. *Infect Dis Now*. 2026;56:105281. doi:10.1016/j.idnow.105281.

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