

# Researchers identify previously unknown bacterial strain

May 8 2019, by Johannes Angerer

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Clinicians at the Department of Neurology of MedUni Vienna/Vienna General Hospital identified muscle weakness and severe fatigue in a previously healthy patient, to the extent that he was soon confined to a

wheelchair. These symptoms were indicative of the autoimmune disease myasthenia gravis. However, the treating neurologist, Matthias Tomschik, found other symptoms, which were not typical of this condition: "Laboratory tests revealed raised inflammation and liver values and the patient had a fever. These results pointed to an infection, so we had to look at this case more closely." Two experts contributed, Inga Koneczny from the Institute of Neurology and Mateusz Markowicz from the Institute of Hygiene and Applied Immunology, undertaking more detailed investigations.

## **Previously unknown genotype of the bacterium *Leptospira interrogans***

The experts eventually got lucky using a Polymerase Chain Reaction (PCR) test, which examines samples on a DNA level. They were able to identify a previously unknown genotype of the bacterium *Leptospira interrogans*. A new strain has now been added to the 147 previously known *Leptospira* genotypes.

Says Mateusz Markowicz: "Nobody would think of *Leptospiras* as the cause of myasthenia. Neurological symptoms are very rare in cases of leptospirosis. This newly identified type differs from the classical symptoms of leptospirosis, such as fever, liver inflammation and jaundice."

What is also very interesting is that it is a very rare form of myasthenia gravis, since antibodies were found against the neuromuscular protein Lrp4. So far, this is the only known case of Lrp4 myasthenia gravis in Austria, identified by Inga Koneczny and Romana Höftberger at the Institute of Neurology.

The patient was successfully treated with antibiotics to combat the

infection and [acetylcholinesterase inhibitors](#) to treat the paralysis symptoms. The doctors are assuming that the infection was acquired during a holiday in Vietnam and Thailand. The patient reported coming into close contact with elephants and having swum under waterfalls.

## **Leptospiras: Bacteria of the order spirochaetales**

Leptospiras are a genus of actively moving bacteria. Species of Leptospiras occur in humans and animals (*Leptospira interrogans*), and also free-living (*Leptospira biflexa*). Hosts commonly include rodents but also dogs and pigs. Transmission to humans is often via contact with urine, blood or the tissue of infected animals and by contact with surface water contaminated with animal urine. Infection can cause so-called leptospirosis in humans.

**More information:** Matthias Tomschik et al. Severe Myasthenic Manifestation of Leptospirosis Associated with New Sequence Type of *Leptospira interrogans*, *Emerging Infectious Diseases* (2019). [DOI: 10.3201/eid2505.181591](https://doi.org/10.3201/eid2505.181591)

Provided by Medical University of Vienna

Citation: Researchers identify previously unknown bacterial strain (2019, May 8) retrieved 19 April 2024 from <https://medicalxpress.com/news/2019-05-previously-unknown-bacterial-strain.html>

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