Early Diagnosis of Leptospira Infection in Non-Endemic Areas

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We report a case of leptospirosis in a 75-year-old female. The patient was admitted with dizziness and headache with intermittent fever for 1 week, accompanied by generalized myalgia.

Laboratory investigations revealed elevated white blood cell count, neutrophil percentage, C-reactive protein, and procalcitonin levels, along with a reduced platelet count. Urinalysis was positive for both red and white blood cells. Ultrasonography demonstrated enlarged lymph nodes in the cervical, axillary, and inguinal regions (Figure 1) . No significant abnormalities were found on cranial magnetic resonance angiography (MRA) . The diagnosis was confirmed by the results of metagenomic next-generation sequencing (mNGS) of bronchoalveolar lavage fluid (BALF) and serum immunological *Leptospira* antibody (Figure 2) .

The patient received benzylpenicillin sodium 1.6 million IU intravenously q8h for active anti-infective treatment. Meanwhile, lansoprazole was administered for gastric protection, human albumin intravenously to correct hypoalbuminemia and support vital functions, and aggressive symptomatic and supportive care. Following this comprehensive treatment, her condition improved rapidly.

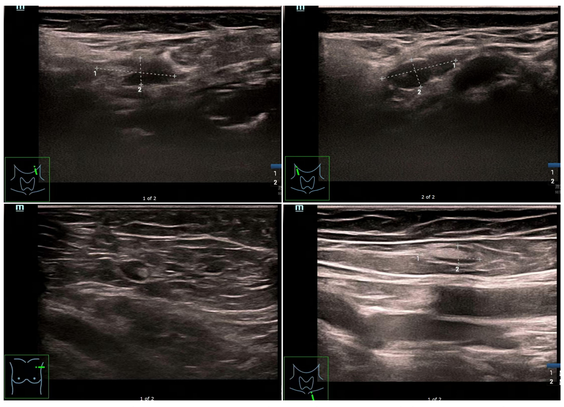

Figure 1 The representative ultrasound images of multiple enlarged lymph nodes in the cervical, axillary, and inguinal regions.

属（Genus）				种（Species）		
类型	名称	序列数	相对丰度%	名称	序列数	相对丰度%
pla	钩端螺旋体属 *Leptospira*	13	9.42%	博氏钩端螺旋体 *Leptospira borgpetersenii*	8	9.42%

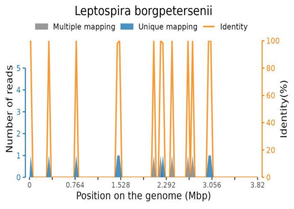

Figure 2 The result of BALF by mNGS detection.

This case highlights the importance of obtaining a detailed epidemiological history for the early diagnosis of infections caused by uncommon pathogens in non-endemic areas. The classic triad of fever, headache, and myalgia is a common presentation in infectious diseases, which can be caused by a wide range of pathogens, including viruses, bacteria, and spirochetes. The core of differential diagnosis lies in the integration of epidemiological history, characteristic physical signs, laboratory findings, and disease course features. In the present case, the prompt diagnosis was achieved through timely and accurate laboratory testing, which allowed for the initiation of appropriate treatment. Clinicians should remain vigilant for the potential occurrence of the Jarisch–Herxheimer reaction during treatment.

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