

Report of the first *Vagococcus lutrae* human infection, Marseille, France

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Abstract

Vagococcus lutrae is a Gram-positive coccus initially isolated from the common otter (*Lutra lutra*) but that has never been reported as a human pathogen. We describe the first case of human infection due to *Vagococcus lutrae* in Marseille, France.

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Introduction

Vagococcus lutrae is a Gram-positive, catalase-negative, facultatively anaerobic, motile coccus initially isolated and identified in 1999 from blood, liver, lungs and spleen samples from a common otter (*Lutra lutra*) killed by a road traffic accident on the Isle of Mull in the United Kingdom [1]. Since then the bacterium has been isolated from the intestine of a largemouth bass (*Micropterus salmoides*) caught in the wilds of Maine, USA [2]. However, this bacterial species has never been isolated from humans. We herein report the first human case of *V. lutrae* infection ever reported in the world from a patient hospitalized in Marseille, France.

Case report

A 58-year-old man was admitted to the intensive care unit of Conception Hospital, Marseille, on 7 January 2015 for extensive skin lesions after 4 months' bed rest. The patient was morbidly obese, with a body mass index of 41 kg/m² (1 m 80 cm tall, weight 135 kg) and had experienced chronic depressive syndrome for 5

years. At admission, the patient presented with skin lesions located on the right side of his abdomen and on the right upper and lower limbs. Skin lesions were erythematous, superficial and covered 50% of his body surface (Fig. 1A). Skin lesions were probably maceration lesions from prolonged bed rest and carelessness with issuance of faeces and urine directly into the bed. At admission, the patient was dehydrated, and his white blood cell count was high (19.62 × 10⁹/L). Blood cultures and skin biopsy samples were collected while his lesions were being cleaned. After growth, *Vagococcus* spp. was the only bacterium identified from the skin biopsy samples by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF). 16S RNA standard PCR (99.9% sequence homology) indicated that the strains belonged to the species *V. lutrae*. Antibiotic susceptibility testing was undertaken and indicated that *V. lutrae* was susceptible to all antibiotics tested, including amoxicillin, ceftriaxone, gentamicin, erythromycin, rifampicin, clindamycin, doxycycline and vancomycin. Dehydration was treated with insulin drip and glucose solution. Skin lesions were cleaned and treated with dressings containing sulfadiazine (Fig. 1B). *V. lutrae* infection was treated by amoxicillin. After 15 days, the patient was considered cured.

Discussion

V. lutrae is rarely isolated worldwide, which may be the result of the ineffectiveness of conventional identification methods. In our setting, we routinely use MALDI-TOF technology for the identification of bacterial species isolated from clinical samples



FIG. 1. Infected skin lesions due to *Vagococcus lutrae*. (A) Erythematous and infected skin lesions caused by *V. lutrae*. (B) Skin lesions healing after 10 days of treatment.

[3]. As previously noted [4], this strategy allows us to considerably increase our capacity to detect rare bacterial species, including emerging pathogens. We accurately identified the genus *Vagococcus* by MALDI-TOF, and the species was identified by 16S RNA PCR.

In our case, we speculate that the infection originated from a food-mediated acquisition of the pathogen, particularly through fish and other seafood. Then, as a result of the patient's poor hygiene, the bacterium was excreted *via* the feces released directly into his bed, leading to the patient's skin infections, facilitated by the maceration lesions resulting from his prolonged bed rest.

All together, our observations allowed us to correctly identify *V. lutrae* as a pathogenic bacterial species in humans.

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Conflict of interest

None declared.

References

- [1] Lawson PA, Foster G, Falsen E, Ohlén M, Collins MD. *Vagococcus lutrae* sp. nov., isolated from the common otter (*Lutra lutra*). *Int J Syst Bacteriol* 1999;49(pt 3):1251–4.
- [2] Lebreton F, Valentino MD, Duncan LB, Zeng Q, Manson McGuire A, Earl AM, et al. High-quality draft genome sequence of *Vagococcus lutrae* strain LBD1, isolated from the largemouth bass *Micropterus salmoides*. *Genome Announc* 2013;1(6).
- [3] Seng P, Rolain JM, Fournier PE, La Scola B, Drancourt M, Raoult D. MALDI-TOF–mass spectrometry applications in clinical microbiology. *Future Microbiol* 2010;5:1733–54.
- [4] Seng P, Abat C, Rolain JM, Colson P, Lagier JC, Gouriet F, et al. Identification of rare pathogenic bacteria in a clinical microbiology laboratory: impact of matrix-assisted laser desorption ionization–time of flight mass spectrometry. *J Clin Microbiol* 2013;51:2182–94.