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Case illustrated

Veillonella parvula: A rare Gram-negative coccus causing vertebral osteomyelitis

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Case

A 72-year-old man presented with a seven-week history of low back pain. The pain had a gradual onset and was mild for seven weeks. He had no other symptoms, such as fever or chills. His previous medical history was significant only for hypertension. He smoked 30 packs of cigarettes per year and consumed 20 g of alcohol daily. On presentation, he was afebrile with normal vital signs. Physical examination revealed tenderness in the low back around L3. Dental examination revealed periodontitis and caries. Laboratory tests found elevated C-reactive protein at 2.65 (normal < 0.14) mg/dL and an erythrocyte sedimentation rate of 73 (< 10) mm/h. Four sets of blood cultures returned negative. Spine magnetic resonance imaging (MRI) revealed increased signal intensity on short TI inversion recovery (STIR) and decreased signal intensity on T1-weighted imaging in the L2 and L3 vertebral bodies and disc space (Fig. 1), which were consistent with vertebral osteomyelitis. To establish a microbiological diagnosis, a computed tomography-guided needle bone biopsy was performed, then empirical intravenous ceftriaxone and vancomycin therapy was begun. Four days after the biopsy, a bone culture grew anaerobic Gram-negative cocci (GNC) (Figs. 2A, 2B). Metronidazole was additionally administered, and vancomycin was discontinued. The organism was later identified as *Veillonella parvula*. Although the cultures were positive only for *V. parvula*, metronidazole with ceftriaxone was continued for six weeks in case of false negative results for other, common, concomitant pathogens in vertebral osteomyelitis. Upper and lower endoscopy were not performed because the patient refused.

Anaerobes are rare as causative organisms in vertebral osteomyelitis and are not routinely covered by initial empiric antimicrobials [1]; however, they should be suspected when GNC are detected. *Veillonella* spp. are anaerobic GNC inhabiting the oral cavity and gastrointestinal tract in humans and rarely cause severe infections, such as bacteremia, meningitis, endocarditis, prosthetic joint infection, pulmonary infection, and vertebral osteomyelitis [2–4]. *V. parvula* is the most common species occurring in vertebral osteomyelitis and may be associated with periodontal disease and dental impairment as well [4]. Beta-lactam antibacterials and/or metronidazole were commonly used in previous cases of *Veillonella*-related vertebral osteomyelitis [4]. Clinicians should suspect *V. parvula* as the causative organism whenever GNC are detected on Gram staining in a patient with vertebral os-

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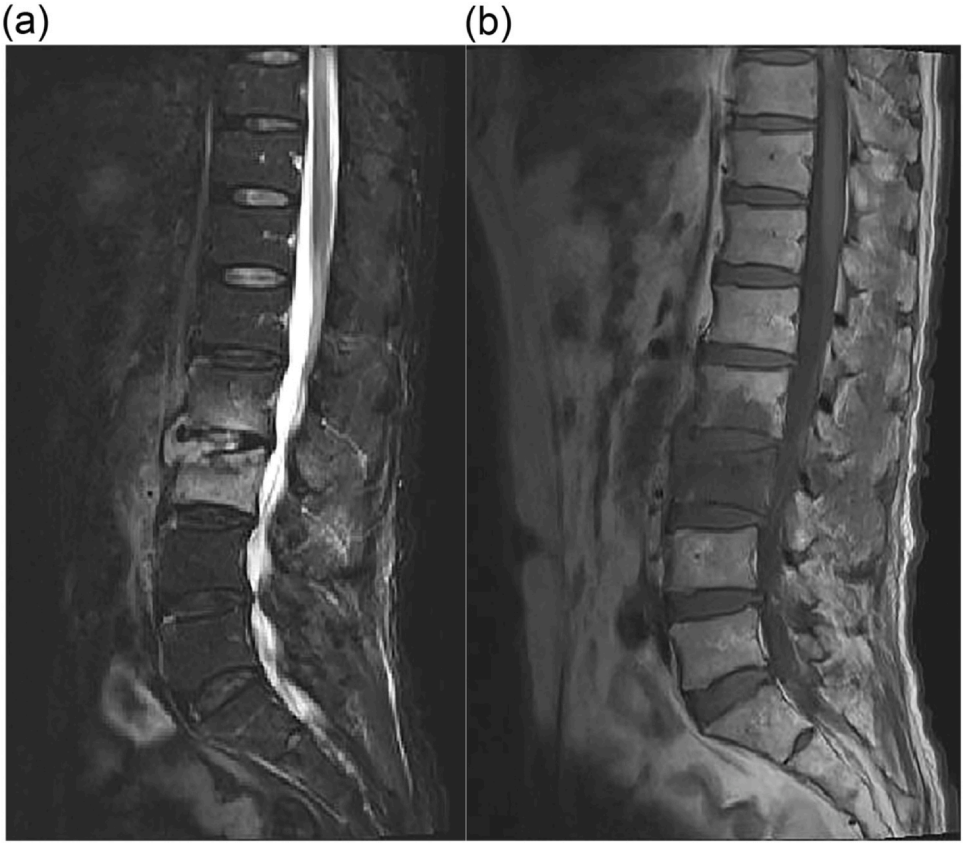

Fig. 1. MRI showing increased signal intensity in STIR (A) and decreased signal intensity on T1-weighted imaging (B) in the L2 and L3 vertebral bodies and disc space.

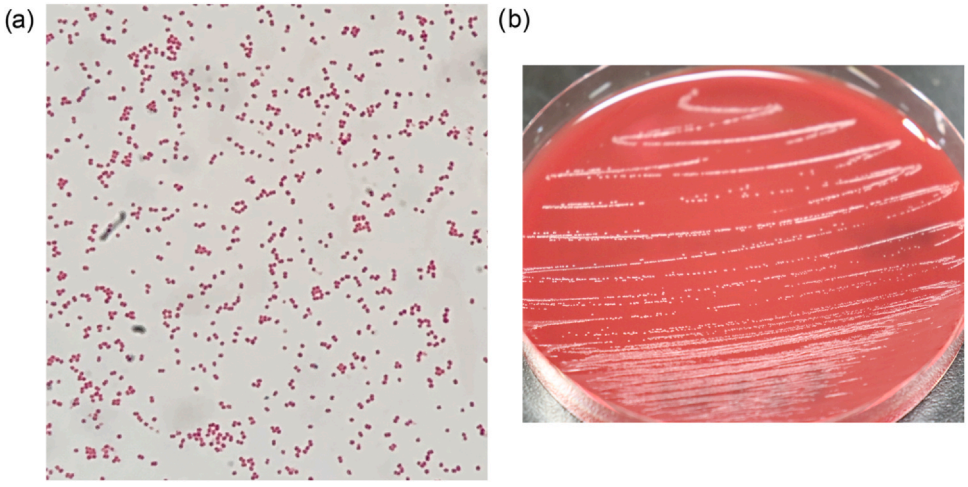

Fig. 2. (a) Gram staining of the bone biopsy specimen culture showing Gram-negative cocci. (b) *Veillonella parvula* colonies.

teomyelitis and should consider the oral cavity or gastrointestinal tract as possible portals of entry.

Declaration of interest

None.

Ethical approval

Ethical approval is not required because this is a case report.

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CRediT authorship contribution statement

Kai Umeda: Writing – original draft. **Yasuhiro Kano**: Conceptualization, Writing – review & editing, Supervision.

Conflicts of interest

The authors declare no conflicts of interest.

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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