



## Case illustrated

## *Helicobacter cinaedi*-infected aneurysm and vertebral osteomyelitis in an immunocompetent patient



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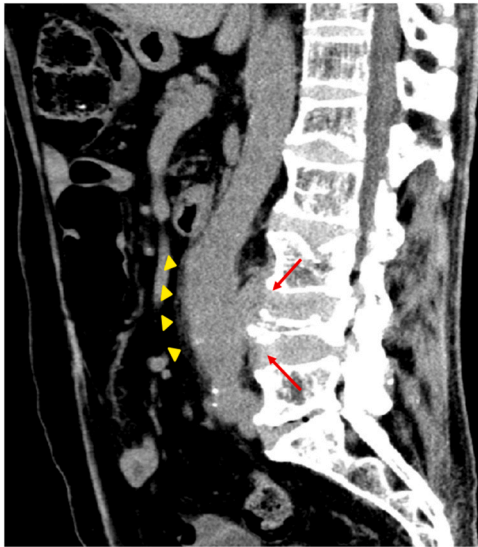
An 80-year-old immunocompetent man with hypertension and dyslipidemia was referred to our hospital with a 2-day history of loss of appetite and lower back pain. He had a history of cerebral infarction, arteriosclerosis obliterans in his left leg, and unstable angina. On physical examination, he was afebrile. Percussion worsened the lower back pain at the L4 level. Computed tomography showed an abdominal aortic aneurysm with surrounding inflammation measuring 30 × 40 mm<sup>2</sup> and consecutive swollen intervertebral disks with vertebral bone destruction at the L4 level (Fig. 1). Aerobic blood cultures (Bactec Fx system) on day 1 in the previous hospital revealed spiral-shaped gram-negative rods on day 4 (Fig. 2). 16 S rRNA gene analysis revealed the organism to be *Helicobacter cinaedi*. Three sets of blood cultures (BacT/Alert system) on day 1 at our hospital yielded negative results despite no preceding antimicrobial administration. The patient was diagnosed with *H. cinaedi*-infective endarteritis and vertebral osteomyelitis and treated with 1 g meropenem 8-hourly and 500 mg levofloxacin daily. The isolates' minimum inhibitory concentration (MIC), determined using the E-test, was >32 µg/mL for levofloxacin. The MICs were high for β-lactams, except meropenem (0.006 µg/mL). Therefore, levofloxacin was discontinued on day 12. The patient underwent extra-

anatomical reconstruction after confirming the negative conversion of blood culture (Bactec Fx system), and meropenem was continued for 7 weeks. The treatment was successful. He was referred to another hospital for rehabilitation and remained disease-free, without recurrence, during 1 year of follow-up.

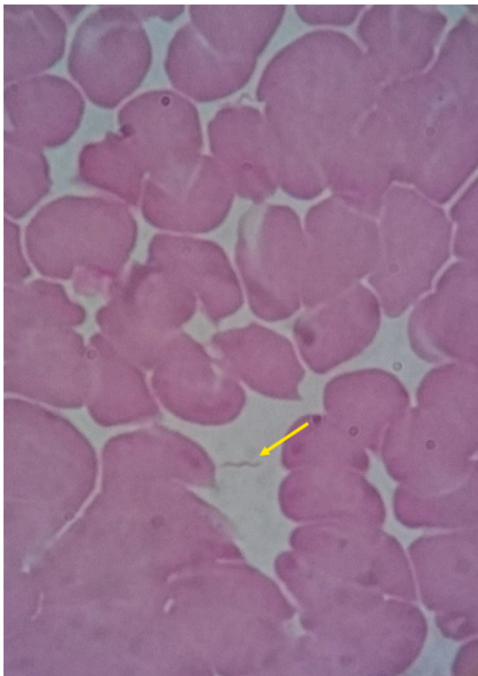
*H. cinaedi* is a microaerobic spiral-shaped gram-negative rod that grows as a characteristic swarming thin-film colony [1]. The detection rate of *H. cinaedi* is higher using the Bactec Fx system than using the BacT/Alert system [2], and the Bactec Fx system should be used if an *H. cinaedi* infection is suspected. In our case, blood culture results (BacT/Alert system) were negative, despite the prolonged 14-day incubation period. When the BacT/Alert system is used, results can be negative despite sufficient growth of *H. cinaedi* [2]. Therefore, we performed subcultivation after 1 and 2 weeks of incubation; however, no isolate was observed on blood agar under microaerobic conditions at 35 °C for 4 days. Most *H. cinaedi* infections occur in immunocompromised hosts [1]. Infected aneurysms or vertebral osteomyelitis are the most common manifestations among immunocompetent individuals with arteriosclerosis [3,4]. Clinicians should consider *H. cinaedi* if appropriate cultures reveal spiral-shaped gram-negative rods in patients with an infected aneurysm or vertebral osteomyelitis, even in immunocompetent individuals.

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**Fig. 1.** Computed tomography images showing an abdominal aortic aneurysm with surrounding inflammation (yellow arrowheads) and consecutive inflammatory intervertebral disks with vertebral bone destruction at the L4 level (red arrows). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)



**Fig. 2.** Gram staining showing curved, spiral-shaped gram-negative rods (yellow arrow). (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

## Ethical approval

This study was approved by the institutional review board and ethics committee of the Japanese Red Cross Ise Hospital (approval number: ER2020-23).

## Consent

Written informed consent was obtained from the patient for the 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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## CRedit authorship contribution statement

**Hirokazu Toyoshima:** Conceptualization, Methodology, Data curation, Writing – original draft, Writing – review & editing, Visualization. **Motoaki Tanigawa:** Supervision. **Chiaki Ishiguro:** Conceptualization, Methodology. **Hiroyuki Tanaka:** Methodology. **Yuki Nakanishi:** Methodology. **Shigetoshi Sakabe:** Supervision. All authors have reviewed the final draft of the manuscript and approved its submission.

## Declarations of interest

None.

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