Case report

Haemophilus aphrophilus: a rare pathogen in vertebral osteomyelitis

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SUMMARY A case of vertebral osteomyelitis due to Haemophilus aphrophilus is presented. We review the clinical and bacteriological findings and emphasise the need for careful bacteriological investigation. To the best of our knowledge this is the second reported case of vertebral osteomyelitis caused by this rarely recognised pathogen.

Haemophilus aphrophilus is a Gram negative, capnophilic, slow growing bacillus, first described by Khairat.1 This rarely recognised pathogen is reported as an uncommon cause of bacterial endocarditis.2–7 Other infections, including brain abscess, pneumonitis, peritonitis, sinusitis, surgical and traumatic wound, or soft tissue infection, can occur.7–9 H aphrophilus is rarely responsible for bone or joint infection.6–10 To the best of our knowledge this is the second reported case of vertebral osteomyelitis and the fifth described patient with osteoarticular infection caused by this pathogen.

Case report

One month before admission a 59 year old male patient living in Argentina complained of acute lower back pain associated with fever. Symptoms quickly disappeared with analgesic and antipyretic drugs. During the following month he regained his normal activities, including horse riding. A few days before admission his lower back pain recurred with fever and rigors. The patient was admitted to the rheumatology unit. There was no history of previous infectious disease, nor recent urinary, digestive, or pulmonary symptoms. He denied any dental treatment. Physical examination was normal except for severe lumbar stiffness. Laboratory data displayed inflammatory changes (erythrocyte sedimentation rate (ESR) 72 mm/h; C reactive protein (CRP) 9.4 mg% (94 mg/l)). Radiographic examination of the lumbar spine disclosed an osteolytic lesion of the anteroinferior region of L2 (Fig. 1) with a slight reduction of the L2–L3 disc space. Computed tomography (CT) showed swelling of the perivertebral soft tissue and confirmed the lytic lesions of L2 (Fig. 2). Two dimensional echocardiography was normal. Oxacillin (2 g, intravenously, every 6 h) was administered after blood cultures and

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Fig. 1 An x ray of the lumbar spine, lateral view: an osteolytic lesion of the anteroinferior region of L2 is observed.
a needle biopsy of the vertebra was performed. Both specimens yielded *H. aphrophilus*, sensitive to all commonly used antibiotics, including ampicillin which was prescribed (2 g, intravenously, every 6 h). The patient improved clinically, and the ESR and CRP returned to normal. He was discharged after three weeks of parenteral antibiotic therapy with ampicillin, which was continued orally afterwards. The evolution remains uneventful after three months of follow up.

**Discussion**

Infectious bone and joint disease remains a diagnostic and therapeutic problem. *Staphylococcus aureus* is still the most frequently encountered pathogen implicated in bacterial arthritis, and vertebral osteomyelitis in our institution and elsewhere. In rare instances culture yields an uncommon micro-organism such as *Streptococcus pneumoniae*, some Gram negative bacilli, or enterococci.

*H. aphrophilus* and *H. paraphrophilus* belong to the so called CO2 requiring species of the *Haemophilus* genus. *H. aphrophilus* also requires X factor (haematin) but not V factor (nicotinamide adenine dinucleotide) for growth. Selective media are necessary to permit detection of the small, slow growing colonies, which otherwise would be overgrown by other organisms. Since this bacillus grows with difficulty, the results of cultures may remain negative for as long as 10 days. This was the case in our patient, thus prompting a needle biopsy of the vertebra.

*H. aphrophilus* probably originates from endogenous oral flora. Kraut *et al.*, using a selective medium, showed that *H. aphrophilus* is a component of the normal oral flora in one third of the healthy adult population. These authors and others proposed that the mouth is the normal habitat of this organism (interdental material and dental plaque). As with *Streptococcus viridans*, another buccal bacterium, any dental treatment could lead to bloodstream invasion and hence endocarditis. Although previously reported, this source of infection was not detected in our patient. Possible transmission from dog to man has been suggested since this bacterium has been isolated from the mouths of dogs. Equine contact has not been incriminated, and we were unable to check this eventuality.

In a brief review of the literature we found only four reported cases of osteoarticular infection induced by *H. aphrophilus*. Page and King reported three patients; two had septic arthritis (acromioclavicular joint with endocarditis; glenohumeral joint) and the third had chronic osteomyelitis from which *H. aphrophilus* was isolated together with *Actinomyces israelii*.

Until the organism was identified, empirical therapy with oxacillin was started but later changed to ampicillin when isolation was achieved. *H. aphrophilus* is usually sensitive to penicillin, streptomycin, gentamycin, kanamycin, ampicillin, chloramphenicol, rifamycin, cephalothin, and tetracycline but resistant to vancomycin, lincomycin, and bacitracin.

The aim of this report is to stress the need for careful bacteriological study in cases of vertebral
osteomyelitis since culture may yield some unexpected findings.

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