Unusual presentation of more common disease/injury

Lumbar septic arthritis and psoas abscess due to *Aggregatibacter aphrophilus*

Fanny Bernard,¹ Pascal Rossi,¹ Jean Christophe Lagier,² Fabien Craighero,³ Yves Frances,¹ Brigitte Granel¹

¹Department of Internal Medicine, Public Hospital of Marseille, AP-HM, North Hospital, Chemin des bourrely, Marseilles, France;

²Department of Microbiology and Infectious Diseases, Public Hospital of Marseille, AP-HM, North Hospital, Chemin des bourrely, Marseilles, France;

³Department of Radiology, Public Hospital of Marseille, AP-HM, North Hospital, Chemin des bourrely, Marseilles, France

Correspondence to Professor Brigitte Granel MD, bgranel@ap-hm.fr

Summary

Invasive infections due to *Aggregatibacter aphrophilus* mainly include negative blood culture endocarditis and osteoarticular infections. The authors present herein a rare case of posterior septic arthritis related to *A aphrophilus* involving lumbar spine with contiguous abscesses of psoas and paravertebral muscles. The infection likely originated from oral cavity. A good outcome was observed after a prolonged and targeted antibiotherapy.

BACKGROUND

Aggregatibacter aphrophilus (also called *Haemophilus aphrophilus*) is an aerobic Gram-negative coccobacillus belonging to the HACEK (*Haemophilus aphrophilus/paraphrophilus*, *Actinobacillus actinomycetemcomitans*, *Cardiobacterium hominis*, *Eikenella corrodens* and *Kingella* spp) group and is present in the normal oropharyngeal flora.¹ Invasive infections due to *A aphrophilus* mainly include negative blood culture endocarditis and osteoarticular infections. We present a rare case of posterior lumbar septic arthritis associated with contiguous abscesses of psoas and paravertebral muscles, with a favourable outcome after a targeted antibiotherapy.

CASE PRESENTATION

A 76-year-old man was admitted for a persisting fever despite a 3-day course of antibiotherapy by ceftriaxone and azithromycin. His medical history included a chronic

alcoholic and tobacco intoxication, and a curative prostatectomy for prostatic neoplasia 10 years ago. The physical examination showed a right psoitis and an elective spinal pain localised to L3-L4 area in addition to a well-tolerated fever of 38.6°C. Neurological examination was normal. Oral examination revealed multiple abscesses involving all the teeth and no recent dental procedure was noted.

INVESTIGATIONS

Biological evaluation showed elevated inflammatory markers: white blood cell count of 11 900/mm³, with 80% polynuclear neutrophils, C-reactive protein level of 136 mg/l (N<10) and serum fibrinogen level of 8.84 g/l (N: 1.9–4.2). Six aëro and anaërobic blood cultures remained sterile. Serological tests for *Brucella*, *Coxiella*, *Bartonella*, *Legionella*, viral hepatitis and human immunodeficiency virus were negative.

Figure 1 Enhanced CT scan ((A) axial view; (B) coronal reconstruction): right joint facet infiltration with right paravertebral abscess (A) (arrow) and right psoas abscess (B) (star).

Figure 2 MRI examination. (A) Axial enhanced T1 fat sat gadolinium sequence: right paravertebral abscess (arrow). (B) Sagittal short τ inversion recovery sequence showing bone hypersignal into right joint facet of L3-L4 with paravertebral abscess (arrow). (C) Enhanced sagittal T1 fat sat gadolinium sequence showing lumbar and sacral epidural enhancement in favour of epiduritis.

A CT scan with contrast enhancement revealed abscesses of the right psoas and paravertebral muscles with a homolateral infiltration of the L3-L4 facet joint (figure 1). MRI confirmed the septic arthritis of the right facet joint L3-L4, without involvement of the disc, with contiguous epiduritis and muscle abscesses (figure 2). A purulent material was obtained by CT-guided aspiration from the right psoas abscess 7 days after withdrawal of antibiotics, from which was identified *A. aphrophilus* by 16S RNA PCR. Gram staining and culture were negative. Moreover, search for tuberculosis remained negative from the culture of the psoas abscess and multiple expectorations. The CT-guided cervical puncture of the cerebrospinal fluid remained sterile. Multiple dental alveolitis were demonstrated by jaw roentgenogram. Transoesophageal echocardiography, cerebral and sinus CT scans were normal.

TREATMENT

Ceftriaxone (2 g intravenously twice daily) was administered for 6 weeks. All dental roots were extracted in order to treat the portal of entry.

OUTCOME AND FOLLOW-UP

A dramatic clinical and biological improvement under antibiotic therapy was rapidly observed, allowing us to avoid a surgical decompression of the spinal cord with drainage of the epidural abscess. In line, a complete resolution of the MRI abnormalities was observed 1 month later.

DISCUSSION

A. aphrophilus is a commensal bacteria of the oropharyngeal cavity as a component of interdental material and dental plaque. Invasive infections are in half of the cases associated with dental disease or procedure.² Haematological dissemination from the oral cavity can lead to numerous metastatic infections, such as endocarditis, brain abscess, meningitis, endophthalmitis and liver abscess.^{3–5} In this case, such complications were absent and we ruled out an infectious endocarditis according to the modified Duke criteria.⁶ Standard microbiological cultures usually remained negative at least for two reasons: bacterial growth impairment for pathogens belonging to the HACEK group and the previous use of targeted antibiotics as reported here. Consequently, percutaneous or surgical drainage of psoas

abscess is helpful in order to identify *A aphrophilus* by PCR detection.

Osteoarticular infections caused by *A aphrophilus* are rare, and only 50 cases were reported in the literature to our knowledge.²⁻⁸ Whereas they included osteomyelitis, spondylodiscitis and septic arthritis, lumbar spine is the most frequent location.²⁻⁷ Since *A aphrophilus* infection from vertebral spine frequently disseminates to the epidural space, psoas muscle is exceptionally involved,³⁻⁹ as we observed in this case. The optimal therapeutic regimen and duration of treatment for vertebral infection due to *A aphrophilus* are not well established. *A aphrophilus* is usually sensitive to penicillin, ampicillin, third-generation cephalosporins and fluoroquinolone although resistance to these antibiotics has been described in few cases.⁷⁻¹⁰ A combination of two or three of these antibiotics has also been proposed for treatment.²⁻⁷ Mean duration of treatment of vertebral infection varies from 6 to 10 weeks.²⁻⁷

To conclude, physicians must consider *A aphrophilus* in case of vertebral infection with negative standard cultures. Moreover, our case emphasises the importance of oral cavity examination in such infection, even if teeth pain is absent.

Learning points

- ▶ Epidural and psoas abscess must be considered as a cause of back pain and fever.
- ▶ *A aphrophilus* must be considered by physicians as a possible cause of vertebral infection with or without psoas abscess.
- ▶ Although psoas abscess is mostly caused by *Staphylococcus aureus* and enteric pathogens, *A aphrophilus* should be carefully sought in case of negative standard cultures as commonly observed with bacteria belonging to the HACEK group.
- ▶ An oral cavity examination must be performed systematically in case of disseminated *A aphrophilus* infection.

Competing interests None.

Patient consent Obtained.

REFERENCES

1. **Norskov-Lauritsen N**, Kilian M. Reclassification of *Actinobacillus actinomycetecomitans*, *Haemophilus aphrophilus*, *Haemophilus paraphrophilus* and *Haemophilus segnis* as *Aggregatibacter actinomycetecomitans* gen. nov., comb. nov. and *Aggregatibacter aphrophilus* comb. nov. and *Aggregatibacter segnis* comb. nov., and emended description of *Aggregatibacter aphrophilus* to include V factor-dependent and V factor-independent isolates. *Int J Syst Evol Microbiol* 2006;**56**:2135–46.
2. **Shao-Tsung H**, Hsin-Chun L, Nan-Yao L, *et al.* Clinical characteristics of invasive *Haemophilus aphrophilus* infections. *J Microbiol Immunol Infect* 2005;**38**:271–6.
3. **Petty BG**, Burrow CR, Robinson RA, *et al.* *Haemophilus aphrophilus* meningitis followed by vertebral osteomyelitis and suppurative psoas abscess. *Am J Med* 1985;**78**:159–62.
4. **Darras-Joly C**, Lortholary O, Mainardi JL, *et al.* *Haemophilus* endocarditis: report of 42 cases in adults and review. *Haemophilus Endocarditis Study Group. Clin Infect Dis* 1997;**24**:1087–94.
5. **Papasian CJ**, Reintjes S, Rengachary SS, *et al.* *Haemophilus paraphrophilus* brain abscess. *Diagn Microbiol Infect Dis* 1987;**7**:205–9.
6. **Li JS**, Sexton DJ, Mick N, *et al.* Proposed modifications to the Duke criteria for the diagnosis of infective endocarditis. *Clin Infect Dis* 2000;**30**:633–8.
7. **Colson P**, La Scola B, Champsaur P. Vertebral infections caused by *Haemophilus aphrophilus*: case report and review. *Clin Microbiol Infect* 2001;**7**:107–13.
8. **Merino D**, Saavedra J, Pujol E, *et al.* *Haemophilus aphrophilus* as a rare cause of arthritis. *Clin Infect Dis* 1994;**19**:320–2.
9. **Farrington M**, Eykyn SJ, Walker M, *et al.* Vertebral osteomyelitis due to coccobacilli of the HB group. *Br Med J* 1983;**287**:1658–60.
10. **Nahass RG**, Cook S, Weinstein MP. Vertebral osteomyelitis due to *Haemophilus aphrophilus*: treatment with ceftriaxone. *J Infect Dis* 1989;**159**:811–12.

This pdf has been created automatically from the final edited text and images.

Copyright 2011 BMJ Publishing Group. All rights reserved. For permission to reuse any of this content visit

<http://group.bmj.com/group/rights-licensing/permissions>.

BMJ Case Report Fellows may re-use this article for personal use and teaching without any further permission.

Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Bernard F, Rossi P, Lagier JC, Craighero F, Frances Y, Granel B. Lumbar septic arthritis and psoas abscess due to *Aggregatibacter aphrophilus*.

BMJ Case Reports 2011;**10**:1136/bcr.08.2010.3215, date of publication

Become a Fellow of BMJ Case Reports today and you can:

- ▶ Submit as many cases as you like
- ▶ Enjoy fast sympathetic peer review and rapid publication of accepted articles
- ▶ Access all the published articles
- ▶ Re-use any of the published material for personal use and teaching without further permission

For information on Institutional Fellowships contact consortiasales@bmjgroup.com

Visit casereports.bmj.com for more articles like this and to become a Fellow