

## A Case of *Aggregatibacter aphrophilus* Multiple Abscess

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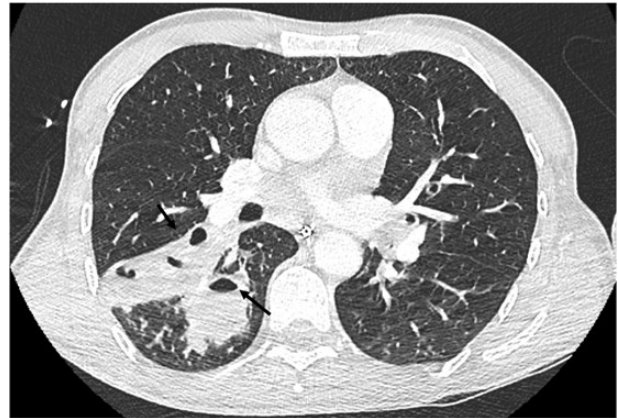
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**We report a case of brain and lung abscesses caused by *Aggregatibacter aphrophilus* in a 43-YEAR-OLD man with past history of splenectomy and drug addiction, in the absence of endocarditis. Microbiological samples remain negatives and diagnosis was made by 16S rDNA PCR performance on abscess fluid for this coccobacillus that belongs to the HACEK group. The patient's clinical symptoms resolved within 6 weeks of treatment with cefotaxim.**

**Keywords.** *Aggregatibacter aphrophilus*; brain abscess; HACEK; lung abscess; 16S rDNA.

### CASE

A 43-year-old man was admitted to our department for fever, confusion with meningitis syndrome, and rales in the right lung after 2 months of coughing. He had a history of injection drug use and a splenectomy after a car crash. Investigations demonstrated neutrophilia at  $20.02 \times 10^9/L$ . The cerebrospinal fluid (CSF) showed meningitis ( $235$  leukocytes/ $mm^3$  with 90% polynuclear neutrophils), a low glucose level, and a high protein level (1.56 g/L). He rapidly developed a coma and left-sided hemiplegia, necessitating transfer to the intensive care unit. Computed tomography (CT) of the chest showed pneumonia with cavitating lesions and enlarged hilar nodes (Figure 1). A brain nuclear magnetic resonance imaging revealed multiple abscesses and ventriculitis (Figure 2). Several transesophageal cardiac ultrasounds were normal. Blood, alveolar, and CSF samples remained sterile for standard bacterial and mycobacterial culture. Polymerase chain reaction (PCR)-amplified 16S



**Figure 1.** Images of a chest axial computed tomography revealing several cavitating lesions in an heterous consolidation in the right upper lobe with enlarge hilar nodes.

ribosomal DNA (rDNA) of the CSF was negative. Human immunodeficiency virus serology was negative.

He received empiric cefotaxime, metronidazole, and a standard 4-drug antituberculosis regimen for brain abscesses. A CT-guided brain abscess aspiration revealed *Aggregatibacter aphrophilus* by PCR-amplified 16S rDNA sequencing. Bacteriological cultures were sterile. Antituberculosis treatment and metronidazole were discontinued. Brain and pulmonary abscesses regressed and patient's clinical symptoms resolved within 6 weeks of treatment with cefotaxime.

*Aggregatibacter aphrophilus* is a gram-negative coccobacillus that belongs to the HACEK group. It is an oropharyngeal commensal bacterium [1]. Endocarditis [2] is the most common complication, but endophthalmitis, osteoarthritis, meningitis and liver, spleen, brain abscesses or recurrent empyema can also occur [3]. *Aggregatibacter aphrophilus* brain abscesses have been previously mainly described in pediatric cases, and most of them (6%–50%) had cyanotic congenital heart disease as a predisposing risk factor [4]. In adults, only a few cases have been described [1–3]. Therefore, in our patient, we considered that the infection was related to hematogenous dissemination from the oral cavity to both brain and lungs.

The HACEK group's key clinical characteristic is slow growth on chocolate blood agar or an extended incubation of standard culture (7 days), which requires 5% carbon dioxide for primary isolation [1]. These characteristics explain why standard microbiological cultures usually remain negative. Consequently,

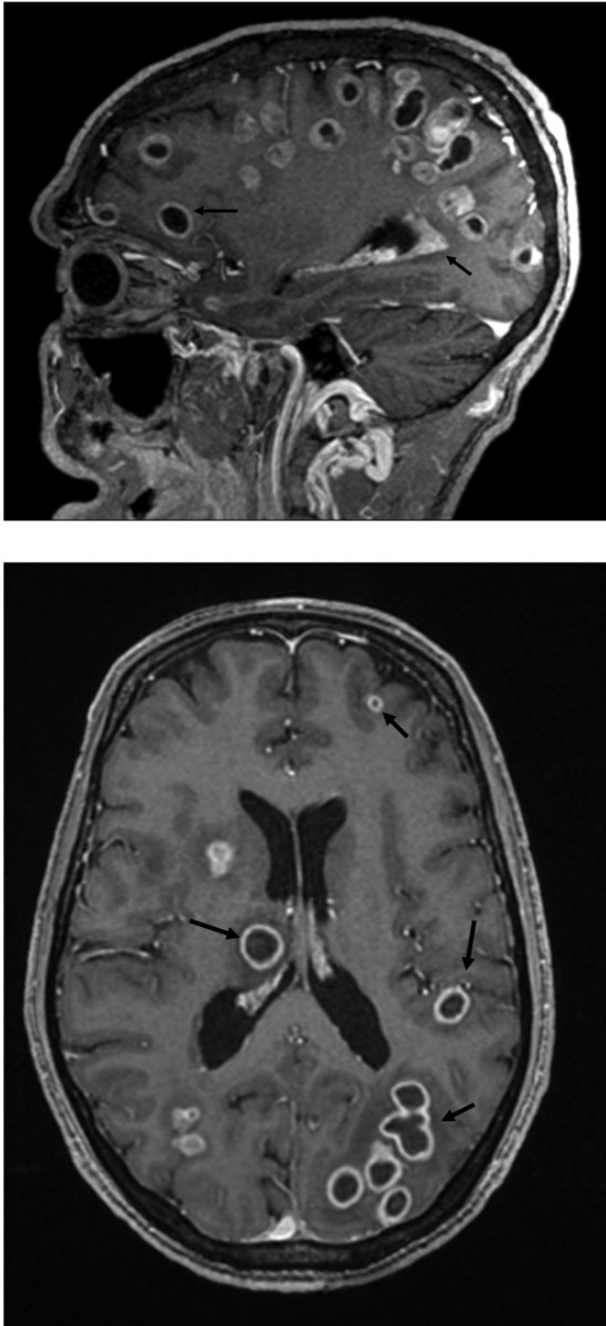
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**Figure 2.** Magnetic resonance imaging axial and sagittal T1-weighted contrast-enhancing image of multiple brain abscesses associated with ventricular hemorrhage.

abscess drainage is helpful for microbiological diagnosis by PCR-amplified 16S rDNA sequencing, especially for detection of the fastidious organism [4].

The optimal antibiotic treatment and duration for brain and lung abscesses due to *A. aphrophilus* are not well established. *Aggregatibacter aphrophilus* resistance to ampicillin with beta-lactamase production has been reported but does not seem to be very frequent [2]. Third-generation cephalosporins and fluoroquinolones have been successfully used for treatment of infections due to *A. aphrophilus*, and dual therapy has often been used for endocarditis and osteoarticular infections [2, 5]. Meropenem can also be used in case of endophthalmitis or brain abscess, given its excellent penetration into the central nervous system.

In conclusion, *A. aphrophilus* can cause multiple organ abscesses, even in the absence of endocarditis, and should be considered when microbiological samples remain negative, especially in people with poor dental care. 16S rDNA PCR performance directly on abscess fluid can be useful when cultures are negatives.

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