

***Aggregatibacter aphrophilus* Parotid Abscess in an Immunosuppressed Patient: A Case Report**

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Abstract

Aggregatibacter aphrophilus, formerly known as *Haemophilus aphrophilus*, belongs to the HACEK organisms, a group of pathogens classically associated with infective endocarditis. *A. aphrophilus* is a rarely isolated pathogen, though abscess formation in various organs has been described, typically due to spread from an infected heart valve. Here we describe an unusual case of recurrent parotid abscesses post fine needle aspiration caused by *A. aphrophilus*. A 26-year-old lady on immunosuppressants for transplanted kidney had recurrent right parotid abscesses with persistent discharging sinus formation. Fine needle aspiration (FNA) was done for diagnosis that showed inflammatory response, but she subsequently developed abscess that grew *Aggregatibacter aphrophilus* that was treated with amoxicillin-clavulanate for 7 days initially then due to recurrence, she underwent surgical excision of the sinus. *A. aphrophilus* has been isolated from different abscesses before, but not from the Parotid area, as our patient had. It may cause abscesses through hematogenous spread from the oropharynx or secondary to infective endocarditis.

Keywords: *Aggregatibacter aphrophilus*; Abscess; Parotid Abscess; Case Report; HACEK.

Introduction

Aggregatibacter is one of the the HACEK group of bacteria. It is fastidious Gram-negative bacteria, part of the normal microbiota of oral and upper respiratory tract in humans.¹ *Aggregatibacter aphrophilus* (formerly *Haemophilus aphrophilus* and *Haemophilus paraphrophilus*) is classically associated with infective endocarditis, but other infections including brain abscess, liver abscess, superficial skin abscess, bone and joint infections, and endophthalmitis have been reported.² The low pathogenicity of this organism with slow growth resulting in it being an uncommon source of infection in immunocompetent patients.³ In this report, we will present a case of *A. aphrophilus* causing parotid abscess in a young, immunocompromised patient. This organism is an uncommon causative agent in abscesses and has not been previously implicated in parotid abscesses.

Case Report

A 29-year-old woman with background history of renal transplant in 2017, on immunosuppressants, presented with recurrent right parotid swelling that mainly appeared when she has upper respiratory tract infection. Ultrasound (US) of the swelling showed enlarged right parotid gland with multiple hypoechoic areas identified within the substance of the gland. The clinical impression of possible lymphoproliferative lesion was made. An ultrasound-guided FNA was done, which showed inflammatory response with neutrophils admixed with macrophages, with few

inflammatory cells. There were no malignant cells. Two weeks after the FNA she presented with swelling from the site of FNAC that started immediately after the procedure.

Examination, revealed a tender swelling over the parotid area. Her inflammatory markers were within normal levels. Soft tissue Ultrasound done and reported as interval development of fluid-like collection seen anterior to the right parotid gland region subcutaneously with turbid contents, measuring 1.6X1.3 cm. The collection was drained and sent for culture, and the patient was started on amoxicillin-clavulanate 875/125 mg for 7 days. Microscopy of the collection showed few white blood cells and it grew *Aggregatibacter aphrophilus* that was susceptible to amoxicillin-clavulanate, ciprofloxacin, ceftriaxone, trimethoprim-sulfamethoxazole and tetracycline. The patient was discharged, then presented three days later with pus discharging sinus at the same site. Magnetic resonance image (MRI) neck was done to rule out congenital branchial cleft anomaly which showed no evidence of such anomaly [Figure1]. Three months later, she presented again with recurrence of the swelling and discharging sinus. An US was performed and reported no change from previously described fluid-like collection measuring 1.6X1.5cm. A swab was sent from the discharging sinus and showed moderate pus cells and again grew *Aggregatibacter aphrophilus* with similar susceptibility as previous culture. Then she underwent complete excision of the swelling and sinus.

The patient was followed for six months with no evidence of recurrence to date.



Figure 1: MRI neck showing right side parotid hyperintense, multilobulated swelling.

Discussion

Aggregatibacter aphrophilus is a small, fastidious, gram-negative, capnophilic coccobacillus producing small, round and glistening colonies on chocolate agar with a negative oxidase and catalase, some strains require V factor, but all are X factor independent.⁴ It was misidentified as *Brucella mellitensis* in a patient with brain abscess, as it was agglutinating with *Brucella* anti-sera, although it was catalase and urease negative.⁴ The most studied virulence factors for *Aggregatibacter* species are leukotaxin, cytolethal distending toxin, lipopolysaccharide, extracellular polysaccharide, fimbriae, and capsular polysaccharide. *A. aphrophilus* is most commonly isolated from the normal oral flora which might point to subacute odontogenic infection as the source or could be due to anatomical abnormality at this site. Risk factors for *A. aphrophilus* infection include patient immune status, dental manipulation, arterio-venous malformation, congenital heart disease, endocarditis with other organisms.⁵ Abscesses of the head

and neck region are most commonly caused by oral flora.³ Other common organisms are anaerobic organisms include *Prevotella*, *Porphyromonas*, *Fusobacterium*, and *Peptostreptococcus species*.³ Also, the most commonly isolated aerobic organisms are *Streptococcus pyogenes* and *Staphylococcus aureus*, which frequently cause skin and soft tissue abscesses anywhere in the body including the head and neck region.³ This case is the first reported of *A. aphrophilus* as the causative agent in parotid gland abscess. This is one of few previously reported cases of this organism causing abscesses of the superficial head and neck region. Although, being immunosuppressed is a risk factor, some reported cases of *A. aphrophilus* causing abscesses were in immunocompetent young patients with likely hematogenous spread. *A. aphrophilus* is commonly sensitive to nearly all antimicrobial therapy including β -lactamase inhibitor combinations, third generation cephalosporins, meropenem, fluoroquinolones, and rifampin.³ One should suspect usual and unusual organisms causing abscesses and take cultures for diagnosis and proper management.

Conclusion

This is the first case of *A. aphrophilus* causing submandibular abscess in an immunosuppressed adult with no dental disease or infective endocarditis. This highlights the value of microbiological assessment of abscesses and keep high index of suspicion for unusual organisms in unexplained recurrent abscesses, along with prompt source control, and choosing effective antibiotics to get better clinical outcome.

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