



Closing the Brief Case: Retropharyngeal Abscess in a 14-Year-Old Caused by *Fusobacterium necrophorum*

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ANSWERS TO SELF-ASSESSMENT QUESTIONS

- Which of the following etiologies of bacterial pharyngitis is not detected by routine aerobic throat culture?
 - Fusobacterium necrophorum*
 - Group C and G streptococci
 - Streptococcus pyogenes*
 - Arcanobacterium haemolyticum*

Answer: A. All of the choices have been implicated in bacterial pharyngitis; however, *F. necrophorum* is an obligate anaerobe whose detection requires a special request for anaerobic culture if the detection of *F. necrophorum* is not routinely performed in an institution's microbiology laboratory. Group C and G streptococci, *S. pyogenes*, and *A. haemolyticum* can be isolated from aerobic throat culture.

- Which antimicrobial agent is most likely to be ineffective against *F. necrophorum*?
 - Penicillin
 - imipenem
 - Metronidazole
 - Erythromycin

Answer: D. Penicillin resistance among *Fusobacterium* spp. is relatively rare. Studies have also shown that *F. necrophorum* is susceptible to imipenem and metronidazole. Erythromycin resistance or reduced susceptibility, however, has been documented.

- Under which conditions can *F. necrophorum* be isolated?
 - Blood agar incubated at 35°C and 5% CO₂
 - Chocolate agar incubated at 35°C in ambient air
 - Brucella agar incubated at 35°C and 5% CO₂
 - Brucella agar incubated at 35°C under anaerobic conditions

Answer: D. *F. necrophorum* is an obligate anaerobic Gram-negative bacterium that will not grow under aerobic conditions. Under the appropriate anaerobic conditions, *F. necrophorum* has been shown to be detectable after 24 h of

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incubation. In many cases, growth is not visible until at least 48 h of incubation.

TAKE-HOME POINTS

- Microbiology laboratories should routinely attempt to resolve discrepancies between Gram stain and culture results. A high suspicion of an anaerobic pathogen warrants consultation with a laboratory expert and communication with the clinician immediately to maximize the recovery of anaerobes.
- Anaerobic infections are underdiagnosed. Continuing education and communication with clinicians are warranted to increase awareness and the likelihood that the appropriate specimen is submitted to the microbiology laboratory for anaerobic culture.
- *F. necrophorum* infection should be considered in adolescents and young adults presenting with pharyngitis who test negative for beta-hemolytic streptococci.
- There are no standard treatment guidelines for *F. necrophorum*.