College of Human Medicine
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Fusobacterium necrophorum Bacteremia: Subcarinal Abscess without Clear Source

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Introduction

Fusobacterium necrophorum (F. necrophorum) is an obligate anaerobe that is typically native in the oropharynx, gastrointestinal tract, and female genital tract.[1]

F. necrophorum is typically a commensal organism. However, rarely it can cause severe infections in the immunocompetent such as Lemierre's Syndrome or peritonsillar/parapharyngeal abscesses.[2]

Case Description

This case involves a 35-year-old immunocompetent male who presented to the emergency department (ED) with a 10-day history of fever and a mild non-productive cough. He denied odynophagia, dyspnea, sore throat, or recent dental work. His physical exam was unremarkable including no evidence of oral or dental disease.

Figure 2 demonstrates a 2.2 cm subcarinal phlegmon with central necrosis that was noted on chest computed tomography (CT). Blood cultures were obtained and grew fusobacterium for which he was initiated on ampicillin-sulbactam. An esophagram revealed no evidence of esophageal perforation that could account for the mediastinal collection. Transthoracic echocardiogram (TTE) showed moderate thickening of the mitral valve leaflet, with subsequent transesophageal echocardiogram (TEE) revealing no evidence of vegetation or infective endocarditis.

The patient was clinically stable and discharged home on Metronidazole for 4-6 weeks. Repeat chest CT demonstrated complete resolution of the subcarinal phlegmon, and antibiotics were discontinued.

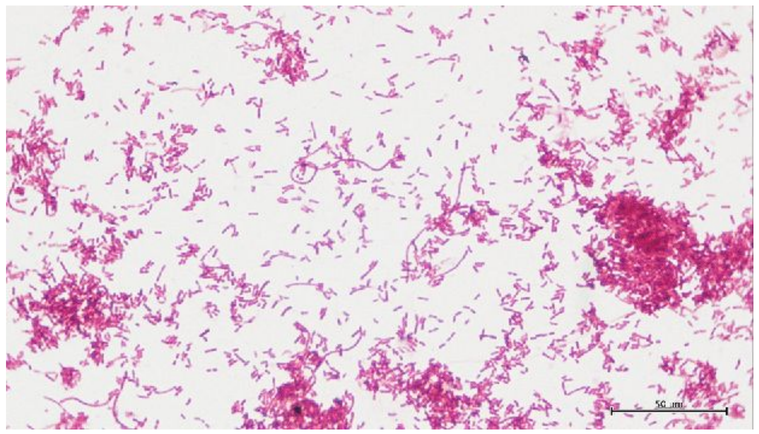

Figure 1: *Fusobacterium necrophorum* gram stain[3]

Clinical Image

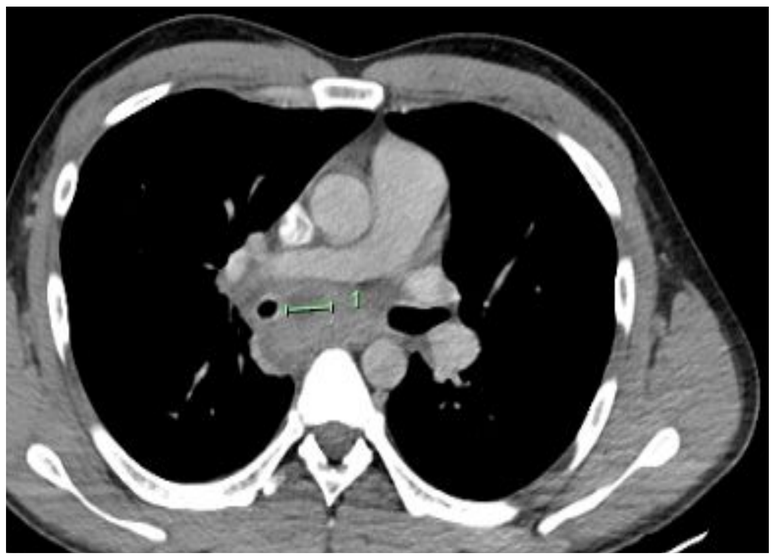

Figure 2: Axial CT of the chest demonstrating a 2.2 cm subcarinal phlegmon with central necrosis

Discussion

This case is unique for the rare presentation of F. necrophorum bacteremia with subcarinal abscess in an immunocompetent host without a clear primary source.

Possible routes of transmission include hematogenous spread from an undiagnosed source, lymphatic dissemination, or a spontaneously sealed esophageal microperforation.

Descending necrotizing mediastinitis was less likely in the absence of oropharyngeal infection and dental pathology.

This case highlights the potential for F. necrophorum to cause severe deep thoracic infections, even in the immunocompetent, without clear risk factors or identifiable sources.

Standard workup for identifying a possible source may include comprehensive history and physical exam, esophagram, panorex, CT of the head/neck, chest, or abdomen/pelvis, or TTE/TEE.[4]

References

1. Langworth BF. *Fusobacterium necrophorum*: Its characteristics and role as an animal pathogen. *Bacteriological Reviews*. 1977; 41 (2): 373-390.

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3. Ibrahim Z, Fox-Lewis S, & Correia JA. *Fusobacterium necrophorum* an underrecognized cause of petrous apicitis presenting with Gradenigo syndrome: A case report. *American Journal of Case Reports*. 2023; 25: 942652

4. Walker CM, Porter KP, Khatri G, et al. ACR appropriateness criteria sepsis. *Journal of the American College of Radiology*. 2024; 21 (6): 292-309