

## Striking a chord: *Fusobacterium nucleatum*'s symphony in the intricacies of biliary sepsis

Ummu Afeera Zainulabid<sup>1,2</sup>, Nur Shafiqah Mohd Fauzi<sup>2</sup>, Cheong Xiong Khee<sup>2</sup>,  
Asiyah Nordin<sup>2</sup>, Petrick Periyasamy<sup>2</sup>

<sup>1</sup> Department of Internal Medicine, Kulliyah of Medicine, International Islamic University Malaysia, Kuantan (Malaysia)

<sup>2</sup> Infectious Disease Unit, Faculty of Medicine, Hospital Canselor Tuanku Muhriz, Kuala Lumpur (Malaysia)

### BACKGROUND

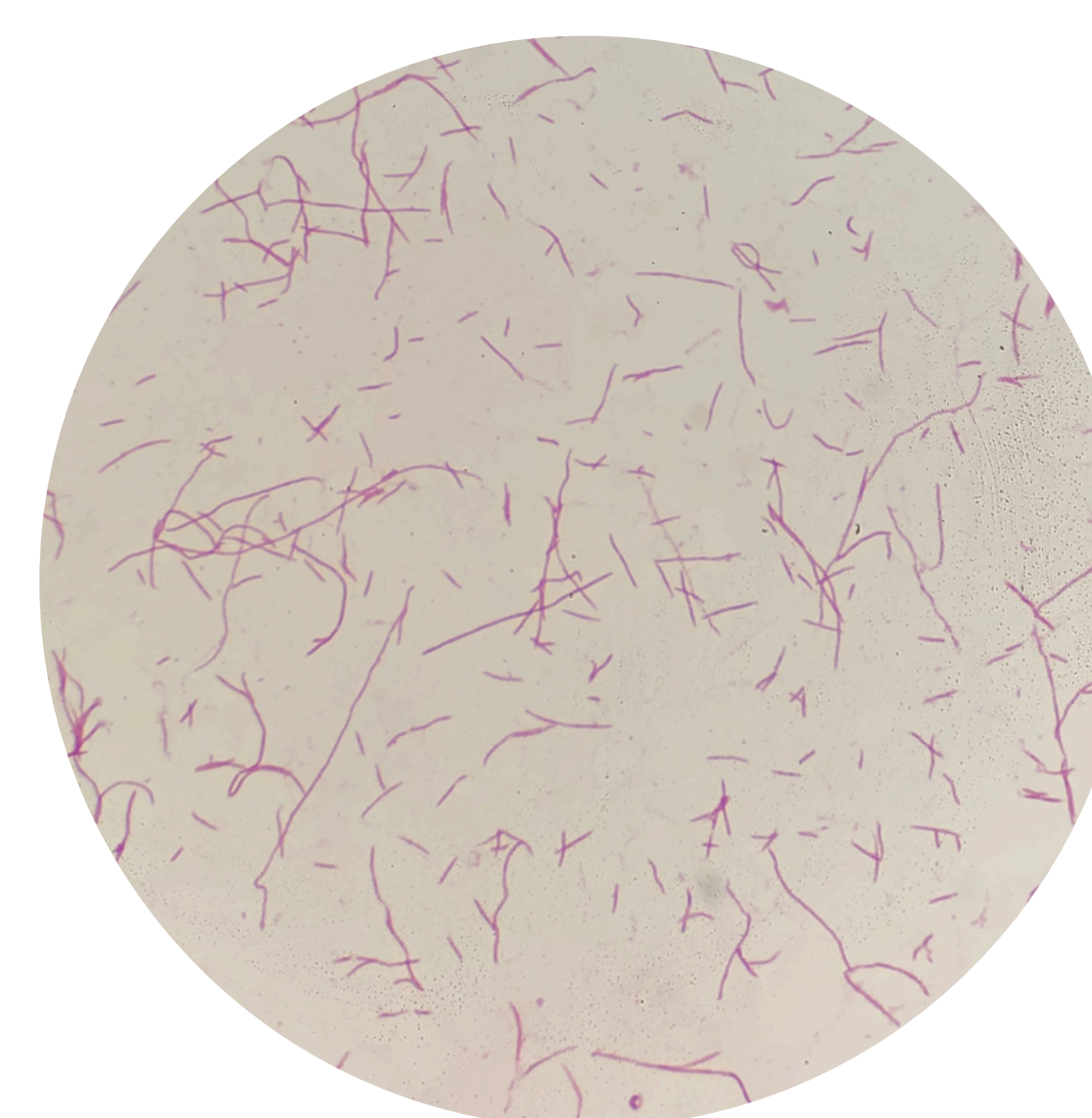
*Fusobacterium* species, typically constituents of the oral flora, can evolve into pathogenic agents in immunocompromised individuals. This case provides insights into the pathogenicity and clinical impact of *Fusobacterium nucleatum* in a complex case of biliary sepsis in a patient with a myriad of comorbidities. Here we present a compelling case of biliary sepsis caused by *Fusobacterium nucleatum* in a 36-year-old male patient burdened with diabetes mellitus, hypertensive heart disease, and end-stage renal failure.

### CASE DESCRIPTION

The patient's clinical presentation included a one-week history of fever, bilateral lower limb swelling, and cough. A physical examination uncovered signs of jaundice, facial puffiness, poor oral hygiene, and lung crepitation. Diagnostic imaging, including ultrasound, revealed features indicative of acute acalculous cholecystitis. Blood cultures incubated anaerobically identified gram-negative rods after three days, with *Fusobacterium* species successfully isolated following three days of anaerobic thioglycolate broth incubation. MALDI-TOF analysis pinpointed the specific pathogen as *Fusobacterium nucleatum*. Imaging studies corroborated the diagnosis, highlighting acute acalculous cholecystitis, hepatomegaly, and bilateral pleural effusion. Treatment comprised a judicious combination of intravenous antibiotics – Ceftriaxone and Metronidazole. Despite a comprehensive and aggressive therapeutic approach, regrettably, the patient succumbed to overwhelming sepsis, emphasizing the formidable clinical impact of *Fusobacterium nucleatum* in the setting of multiple comorbidities.



**Image 1.** Pericholecystic fluid indicating acute cholecystitis.



**Image 2.** Presence of the bacterium, *Fusobacterium nucleatum*

### DISCUSSION

This in-depth case analysis illuminates the intricate interplay between *Fusobacterium nucleatum* pathogenicity and a complex medical background. A thorough understanding of the microbiological nuances, antibiotic sensitivities, and potential pathogenicity of *Fusobacterium* spp. is imperative for the tailored precision of therapeutic interventions and the informed guidance of future diagnostic and therapeutic strategies. This case report contributes to the evolving comprehension of *Fusobacterium nucleatum*'s clinical significance and underscores the urgency of targeted management in multifaceted medical scenarios, thereby paving the way for further scientific inquiry and advancements in clinical practice.