

# Pulmonary empyema in a patient with schizophrenia and poor dentition

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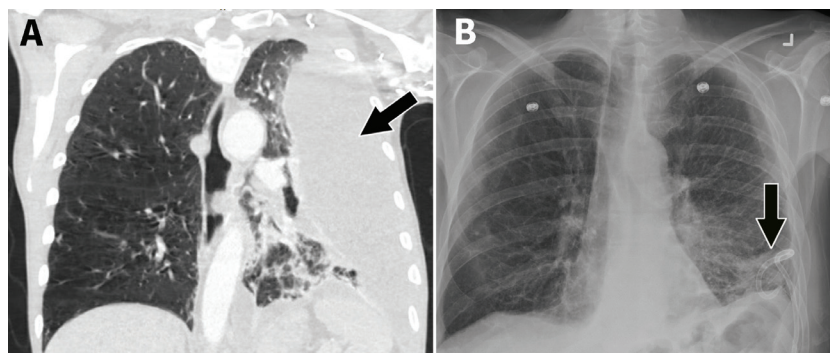
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**A** 55-year-old man with a medical history of schizophrenia and a seizure disorder presented to our hospital with subacute onset of cough, weight loss and confusion. When we examined him, he appeared cachectic, and was disoriented and afebrile but hemodynamically stable. We noted multiple dental caries. Chest radiography and computed tomography showed that he had left lower lobe consolidation with a loculated pleural effusion (Figure 1A). Pleural fluid analysis was consistent with the diagnosis of empyema (turbid colour, protein 42 g/L, pleural fluid to serum protein ratio 0.8, lactate dehydrogenase 958 U/L, pleural fluid to serum lactate dehydrogenase ratio 5.5).

Gram stain of a pleural fluid sample obtained after 3 days of antimicrobial therapy revealed Gram-negative bacilli. No pathogens were grown on aerobic culture of the pleural fluid, but *Slackia exigua* (a Gram-positive bacillus) was isolated on anaerobic culture (Appendix 1, available at [www.cmaj.ca/lookup/doi/10.1503/cmaj.202556/tab-related-content](http://www.cmaj.ca/lookup/doi/10.1503/cmaj.202556/tab-related-content)). Given the different results on Gram stain and culture of the pleural fluid, we diagnosed a polymicrobial infection likely caused by aspiration.

We administered intrapleural fibrinolytic therapy via pigtail catheter to facilitate drainage of the empyema (Figure 1B). The patient completed a 3-week course of oral amoxicillin–clavulanate, recovered and went on to receive definitive dental treatment after concerted advocacy work over many months by our team, in collaboration with his social worker, group home, public guardian and trustee, and outpatient dentistry services.

Empyema may occur after aspiration. Risk factors for aspiration and subsequent empyema in our patient included poor dentition, antipsychotic medication use, and a history of seizures. *S. exigua* is a non-spore-forming, anaerobic bacillus that is part of the human oral microbiota.<sup>1</sup> It is most commonly associated with dental infections, but has occasionally been isolated on culture from patients with extraoral infections such as empyema and lung abscess, meningitis, cavernous sinus thrombosis and intra-abdominal abscess.<sup>2</sup> Infections with *S. exigua* tend to be polymicrobial, as we speculate was the case in our patient. Our patient's mental illness and socioeconomic situation were barriers to obtaining preventive dental treatment. This case underscores the importance of poor dental health and aspiration in the pathogenesis of lung infections.



**Figure 1:** A) Contrast-enhanced computed tomography scan showing a left-sided loculated empyema (arrow) in coronal view. B) Chest radiograph posterior/anterior showing complete resolution of empyema after pigtail catheter insertion (arrow) and administration of 3 doses of intrapleural tissue plasminogen activator and dornase alfa, as well as ongoing intravenous antibiotics.

## References

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2. Kawasuji H, Kaya H, Kawamura T, et al. Bacteremia caused by *Slackia exigua*: a report of two cases and literature review. *J Infect Chemother* 2020;26:119-23.

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