



## Picture of a Microorganism

Not all that glitters is gold, and not all that is sticky is *Pseudomonas aeruginosa*

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Gram staining of the sputum specimen from a 33-year-old man with cystic fibrosis (CF) showed Gram-positive cocci. At presentation, the patient's complaint was a dry cough that worsened upon his return from a camping trip in inclement weather the previous week. He was taking part in a clinical trial on a new CF medication, and was also taking azithromycin 500 mg once a day, and inhaled antibiotic therapy colistin and aztreonam.

Upon culturing on 5% sheep's blood agar (Fig. 1) and on mannitol salt agar (Fig. 2) at 35°C with 5% CO<sub>2</sub> and O<sub>2</sub> atmospheres, a colony with mucoid morphology grew and was identified as *Staphylococcus aureus* by matrix-assisted desorption ionization–time of flight mass spectrometry (MALDI-TOF MS). No other mucosity test was performed. This *S. aureus* (Fig. 3) was susceptible to flucloxacillin, gentamicin, cotrimoxazole, vancomycin and linezolid and was resistant to levofloxacin and erythromycin, as determined by VITEK 2 testing.

While the presence of mucoid *Pseudomonas aeruginosa* in CF patients is widespread, the mucoid variants of *S. aureus* are rarely



Fig. 1. Colonies on sheep's blood agar.

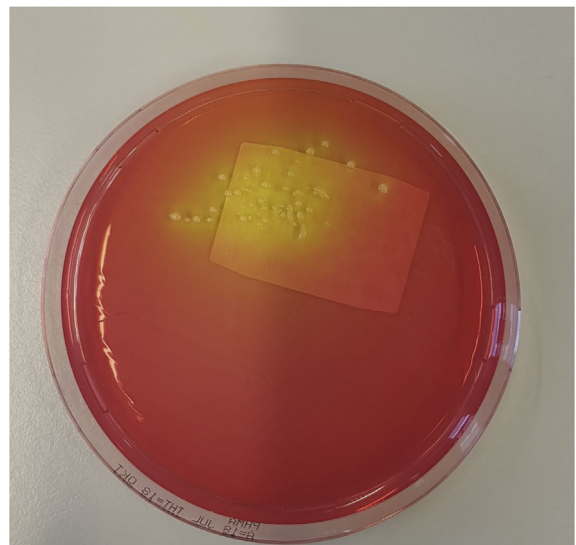
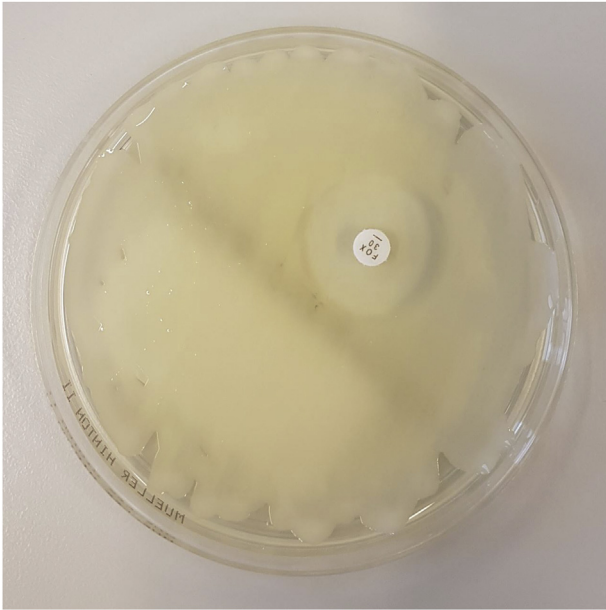


Fig. 2. Colonies on mannitol salt agar.

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**Fig. 3.** Colonies on Müller-Hinton agar with cefoxitin disc screening.

found. In a study from two CF centres, a mucoïd *S. aureus* phenotype was found in 2% of the patients [1]. Yet this number is perhaps

much lower, as determined by our experience gained in a university hospital with CF patient care. When sighting the mucoïd isolate for the first time, it was considered cross-contamination of the isolate with mucoïd *P. aeruginosa*, which was also found in the same sputum specimen.

The mucoïd nature of *S. aureus* is attributed to capsular polysaccharides. This encapsulated strain can resist phagocytosis and is more virulent than nonmucoïd strains [2]. Yet this patient did not have severe symptoms of upper or lower airway infection.

Clinical microbiologists and infectious disease specialists should be aware of the existence of mucoïd *S. aureus* in sputum samples, especially in CF patients. In this patient, *S. aureus* was only isolated twice (the previous time was 9 years ago), while *P. aeruginosa* was isolated 91 times in a period of 15 years.

### Transparency declaration

The author reports no conflicts of interest relevant to this report.

### References

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