Closing the Brief Case: *Capnocytophaga sputigena* Bacteremia in a 94-Year-Old Male with Type 2 Diabetes Mellitus, Pancytopenia, and Bronchopneumonia

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**ANSWERS TO SELF-ASSESSMENT QUESTIONS**

1. Which body site is the habitat of *Capnocytophaga sputigena* in mammals?
   - a. Oral cavity of dogs
   - b. Oral cavity of humans
   - c. Female genital tract of dogs
   - d. Female genital tract of humans

   Answer: b. Most bacteria in the genus *Capnocytophaga* are normal but not prominent members of the oral or nasopharyngeal microbiota of animals or humans. *Capnocytophaga sputigena* inhabits the oral cavities of humans. Though not present in the female genital tract, *C. sputigena* introduced into the vaginal tract during pregnancy may result in preterm labor as well as sepsisemia and respiratory failure in newborn children.

2. Which of the following biochemical testing results can differentiate *Capnocytophaga sputigena* from *C. canimorsus*?
   - a. Catalase positive and oxidase positive
   - b. Catalase negative and oxidase negative
   - c. Catalase positive and oxidase negative
   - d. Catalase negative and oxidase positive

   Answer: b. Catalase and oxidase can be used to divide *Capnocytophaga* spp. into zoonotic and human groups. The oxidase- and catalase-positive species *C. canimorsus* and *C. cynodegmi* are considered part of oral flora of healthy dogs and cats. Conversely, *C. sputigena* is oxidase- and catalase-negative and may cause severe periodontitis and other opportunistic infections in humans.

3. Which of the following resistance mechanisms may be found in multidrug-resistant *Capnocytophaga sputigena*?
   - a. CSP-1
   - b. VanC
   - c. KPC
   - d. NDM

   Answer: a. Multidrug-resistant *C. sputigena* strains have been isolated from patients with bacteremia or lung abscess. A high percentage of *C. sputigena* isolates were recently demonstrated to be resistant to amoxicillin and most cephalosporins, in which novel β-lactamase genes *blaCZM* or *blaCSP-1* were identified.
**TAKE-HOME POINTS**

- *Capnocytophaga sputigena* is a fastidious, facultatively anaerobic, indole-negative, fusiform Gram-negative bacilli.
- *Capnocytophaga sputigena* inhabits the oral cavities of humans and may cause severe periodontitis.
- *Capnocytophaga sputigena* is an opportunistic pathogen that may cause extraoral infections in immunocompetent and immunocompromised patients, including bacteremia, community-acquired pneumonia, and empyema.
- Though not normally present in the female genital tract, *Capnocytophaga sputigena* is considered a potential risk factor for second-trimester abortion, chorioamnionitis, and neonatal infections.
- Multidrug-resistant *Capnocytophaga sputigena* strains carrying β-lactamase genes *bla_{CfxA}* or *bla_{CSP-1}* have been isolated and were considered resistant to amoxicillin and most cephalosporins.