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LETTER TO THE EDITOR

Streptococcus parasanguinis Coinfection with *Escherichia coli* Bacteremia in a Patient with Complicated Urinary Tract Infection

Streptococcus parasanguinis is a common cause of bacteremia and infective endocarditis,[1] but coinfection of blood stream and urinary tract infection (UTI) is rare. Here we report a case of a 50-year-old male patient with complicated acute pyelonephritis with right side ureter–pelvic junction stone (Figure 1). He suffered from urosepsis and bacteremia due to coinfection of those two pathogens. The laboratory findings of both blood and urine culture revealed both *S. parasanguinis* and *Escherichia coli* during this hospitalization. He recovered well after receiving appropriate antibiotic therapy and removal of the ureter stone.

S. parasanguinis is a member of the sanguinis group of viridans streptococci. It is a Gram-positive coccus, nonmotile, catalase-negative microorganism, and is one of the colonizers of dental surfaces in the human oral cavity.[1] The bacterial surface has pili and fimbriae, allowing adherence to dental surfaces and stones.[2] Once *S. parasanguinis* colonizes the stones or heart valve, it can easily form a biofilm. If patients have dental caries, valvular heart disease, or urinary tract stone, the biofilm formation is the pathogenesis for infective endocarditis or infected stone of complicated UTI.

Figure 1 The abdominal plain radiograph reveals a stone at the right side ureter–pelvic junction (white arrow).

Many studies have shown a trend in viridans streptococci developing increased antibiotic resistance to β-lactam group.[3–5] Therefore, the choice of therapeutic antibiotic becomes a clinical challenge, especially in patients who have previously received antimicrobial agent therapy.[1,3,4] In our patient, the susceptibility test of *S. parasanguinis* was sensitive to penicillin (MIC: 0.03 μg/mL), levofloxacin, cefotaxime, vancomycin, daptomycin, and linezolid. The test of *E. coli* was sensitive to all cephalosporins, aminoglycoside, carbapenems, and levofloxacin. Thus our patient received penicillin and levofloxacin combination therapy for both bacteremia and urosepsis. The follow-up blood cultures and urine cultures after a 7-day complete therapy all showed sterile in laboratory findings.

Wu et al[3] reported that, among 136 adult patients with community-acquired UTI, *E. coli* (111, 81.6%) is the most common pathogen, followed by *Klebsiella pneumoniae* (11, 8.1%) and *Proteus mirabilis* (7, 5.1%). Nine (8.0%) *E. coli* isolates had extended-spectrum β-lactamase (ESBL) production and 35 (28.7%) had non-ESBL producing *E .coli*; they are all resistant to levofloxacin and cefazolin. Although our patient had community-complicated UTI with infected stone, the *E. coli* isolates were all sensitive to levofloxacin and cefazolin. However, community-acquired *E. coli* has increased antibiotic resistance in recent years.[3]

In summary, *S. parasanguinis* is a rare cause of complicated UTI. To our knowledge, this is the first case of coinfection of *S. parasanguinis* and *E. coli* bacteremia and bacteriuria reported in Taiwan. Because *S. parasanguinis* can induce biofilm formation of infected stone surface, relief of stone obstruction plays an important role for successful treatment.

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