K. kingae Complicates Osteomyelitis Diagnosis

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CHICAGO — Consider *Kingella kingae* as a cause of infection when diagnosing and treating children with suspected acute osteomyelitis, an infectious disease specialist advised.

The incidence of acute osteoarticular infections in young children has risen dramatically in recent years, with methicillin-resistant *Staphylococcus aureus* (MRSA) accounting for the lion's share of osteomyelitis cases in the United States, said Dr. Sheldon L. Kaplan, chief of the infectious disease service at Texas Children's Hospital, Houston.

But in some parts of the world, *K. kingae* is the most common cause of acute osteomyelitis and septic arthritis in infants and young children, Dr. Kaplan said at a meeting sponsored by the American Academy of Pediatrics. This global mismatch could be because a lot of children with suspected osteomyelitis are culture negative—up to 50% in some case series—and because *K. kingae* bacteria are hard to identify without sophisticated laboratory tests not routinely used in the United States.

"It could be that if we were using PCR [polymerase chain reaction] rather than cultures, we'd be seeing a lot more," he said.

Recovery of *K. kingae* is difficult because the gram-negative coccobacillus is hard to grow on culture, requires an enhanced isolation methodology, and takes a little longer than normal to grow, which may require laboratories to hold on to culture plates for up to 7 days.

Researchers in France have developed a specific real-time PCR method to detect *K. kingae* DNA, and prospectively applied it to the diagnosis of all pediatric admissions for osteoarticular infection between January 2004 and December 2005. With culture alone, a pathogen was identified in 45% of the 131 specimens, including *S. aureus* in 25, *K. kingae* in 17, and other organisms in 18 (Pediatr. Infect. Dis. J. 2007;26:377-81).

The combination of culture, plus 16S ribosomal DNA sequence PCR, improved documentation, identifying 16 additional *K. kingae* cases. The use of the *K. kingae*–specific PCR confirmed those 16 cases and identified a further 6 cases. Based on these results, *K. kingae* was the leading cause of osteoarticular infection (39 cases), followed by *S. aureus* (25 cases).

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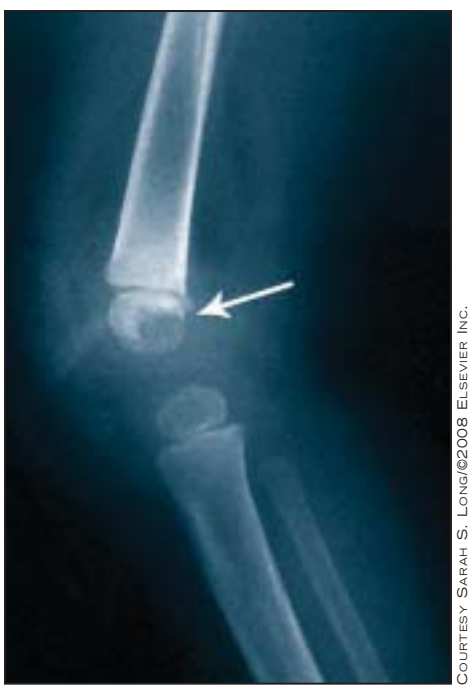
DR. KAPLAN

Treatment of culture-negative osteomyelitis is equally challenging in the current era of rising community-associated MRSA infections and clindamycin resistance, said Dr. Kaplan, also professor of pediatrics at Baylor College of Medicine, Houston. *K. kingae* bacteria are resistant to clindamycin, vancomycin, and trimethoprim/sulfamethoxazole, drugs that are currently active against most community-associated MRSA isolates.

If a patient does not respond to initial therapy directed against *S. aureus*, including community-associated MRSA, renew efforts to obtain specimens for culture and consider expanding therapy to include *K. kingae*, clindamycin-resistant *S. aureus*, as well as other organisms based on the patient's exposure history, he said. ■



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An x-ray shows a lytic lesion (arrow) of the distal epiphysis of the femur.