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## LETTER TO THE EDITOR

# *Streptococcus pneumoniae* serotype 19A bacteremia in a child fully immunized with 10-valent pneumococcal conjugate vaccine

Dear Editor,

The effectiveness of the 10-valent pneumococcal conjugate vaccine (PCV10, which contains serotype 19F but not serotype 19A) in providing cross-protection against serotype 19A disease remains debatable.<sup>1–3</sup> In 2011, an 18-month-old toddler presented to our hospital with fever, cough, and shortness of breath for 2 days. Her past health was good, and she had been fully vaccinated with four doses of PCV10 (SYNFLORIX, GlaxoSmithKline; primary series given at 2, 4, and 6 months of age and booster dose given at the age of 12 months). Upon admission, the rectal temperature was 40.6°C, and oxygenation saturation was 97%. Physical examination was significant for diffuse chest wheeze and inflamed tympanic membranes bilaterally. A chest radiograph showed some perihilar haziness and no other abnormality was detected. The white blood cell count was  $21.1 \times 10^9/L$  (neutrophils 73.8%), hemoglobin was 11.4 g/dL, and platelets were  $456 \times 10^9/L$ .

The child was treated empirically with oral amoxicillin–clavulanate (45 mg/kg/day). Blood culture taken at admission grew *Streptococcus pneumoniae* after 27 hours of incubation. Following the positive blood culture, treatment was switched to intravenous ceftriaxone (50 mg/kg/day). Susceptibility testing showed that the isolate was sensitive to all tested antibiotics [penicillin (minimum inhibitory concentration 0.012 µg/mL), cefotaxime (<0.016 µg/mL), chloramphenicol, cotrimoxazole, erythromycin, clindamycin, and levofloxacin]. The child became afebrile 1 day after antibiotic treatment—3 days of ceftriaxone and 7 days of oral amoxicillin–clavulanate. The *S. pneumoniae* isolate from the patient was identified as serotype 19A.<sup>3</sup> Multilocus sequence typing showed that the bacterium belonged to ST1201.<sup>3</sup>

In our locality, invasive disease caused by serotype 19A has been found to increase shortly after the availability of PCV7 and was associated with expansion of the multidrug-resistant ST320 clone.<sup>3</sup> Until now, the ST1201 serotype 19A clone has mainly been detected in Europe and none has been found in Asia (Multi Locus Sequence Typing database at <http://www.mlst.net>, access on July 27, 2013). In Spain, it is one of the circulating antibiotic-susceptible clones.<sup>4</sup> Immunological studies have shown that after a booster dose in the 2<sup>nd</sup> year of life, the proportions of PCV7- and PCV10-immunized children with opsonization assay (OPA)  $\geq 8$  against 19A were 30% and 50%, respectively.<sup>2</sup> By contrast, 98–100% of children immunized with the PCV13 vaccine had OPA titers  $\geq 8$  after receiving the booster.<sup>5</sup> The present report demonstrates that bacteremic serotype 19A infection can occur in children fully immunized with PCV10. Clinicians should bear this possibility in mind when managing febrile children suspected to be suffering from bacteremia.

## Conflicts of interest

The authors declare that they have no conflicts of interest related to the material discussed in this article.

## Acknowledgments

This work was supported by a block grant from the Research Fund for the Control of Infectious Diseases of the Health and Food Bureau of the Hong Kong SAR Government. We thank the parents for giving written consent to publication.

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14 September 2013