ISSN 0325-7541
Revista Argentina de Microbiología (2011) 43: 312-313

Aerococci: hard to find and classify

Dear Editor,

I read with interest the case report entitled "*Aerococcus viridans* urinary tract infection in a pediatric patient with secondary pseudohypoaldosteronism" by Leite and coworkers in Revista Argentina de Microbiología, volume 42, number 4. This report is important since it shows that aerococci can also cause disease in pediatric patients. Previous reports indicate that aerococci mostly infect elderly people (3, 7), causing invasive disease mainly in older males (6). Since aerococci are often mistaken for streptococci, enterococci or staphylococci in clinical practice, an increased awareness of aerococci is needed and thus, the report by Leite *et al.* is indeed relevant.

A. viridans was described in 1953 (8) and additional aerococcal species, including *Aerococcus urinae* (1) and *Aerococcus sanguinicola* (5), have now been defined. *A. viridans* and *A. sanguinicola* have similar biochemical properties (4) but *A. sanguinicola* seems to be more commonly isolated from infected patients than *A. viridans* (2, Senneby *et al.* in preparation). Importantly, the GPI-Vitek2 system used by Leite *et al.* fails to recognize *A. sanguinicola* and misclassifies this species as *A. viridans* (2). Thus, it is possible that the organism that had caused the urinary tract infection described by Leite *et al.* was not *A. viridans* but *A. sanguinicola.* This potential misidentification may have occurred in several published cases where *A. viridans* was identified only on the basis of the API or Vitek2 systems. Since biochemical typing of aerococci is difficult, 16S rRNA gene PCR and sequencing would be helpful to clarify which aerococcal species had caused the infection in this interesting case.

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Sincerely yours
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Reply to Dr. Rasmussen

Dear Editor,

We were pleased with the compliments made by Rasmussen in his article entitled "Aerococci: hard to find and classify" with reference to our work, "*Aerococcus viridans* urinary tract infection in a pediatric patient with secondary pseudohypoaldosteronism", which was published in Revista Argentina de Microbiología, volume 42, number 4. However, we would like to clarify some aspects.

The genus Aerococcus was first described in 1953 by Williams *et al*. to accommodate some gram-positive, microaerophilic, catalase-negative organisms that were visibly distinguishable from streptococci (6). At first, *Aerococcus viridans* was the only species known, but in recent years, four additional members have been described: *Aerococcus urinae* [1], *Aerococcus christensenii* [2], *Aerococcus sanguinicola* [5] and *Aerococcus urinaehominis* [4].

Even though there are clear similarities between their morphological and biochemical characteristics, there are some reactions in each of these species that allow their own identification without having to resort to gene amplification techniques and PCR identification [5]. Particularly, in differentiating *Aerococcus sanguinicola* from other

Aerococci species, which, as suggested by Rasmussen may be difficult, it is important to know that these organisms fail to produce acid from lactose (while the majority of *A. viridans* strains ferment this substrate) and produce arginine dihydrolase [5].

Unfortunately, the commercially available products distributed for the identification of gram-positive cocci do not have this new species in their data banks. Therefore, unlike *Aerococcus viridans*, the correct identification of these other species would be "unacceptable profile (or identification)," "unidentified", or "no match" [3].

In the previously reported case of an *Aerococcus viridans* urinary tract infection in a child, the automatic method was used by applying both GPI-Vitek 2 (bioMérieux SA, France) and PosID-Walkaway (Dade-Behring, Germany). The concordance of results, with the clear identification of *A. viridans* after using both systems, makes a mismatch most improbable. However, genetic testing based on the uniqueness of these bacteria 16S rRNA gene sequences would be definitely the most accurate technique [3, 5].

As the clinical case described involved a child that was already under antibiotic treatment and clinically improving when the urine culture was known, the PCR identification of the strain was not performed, since it would no longer be cost-effective. In fact, some authors even question whether it is clinically relevant to differentiate between the *Aerococcus* species or not [3].

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Best regards,

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