

Letter to the Editor

Comment on “Intravitreal Ampicillin Sodium for Antibiotic-Resistant Endophthalmitis: *Streptococcus uberis* First Human Intraocular Infection Report”

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Received 7 May 2014; Accepted 17 July 2014; Published 22 July 2014

Academic Editor: Majid M. Moshirfar

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In the paper by Velez-Montoya et al. [1], the authors reported the first description of a case of intraocular infection in humans caused by an antibiotic-resistant strain of *Streptococcus uberis*.

We would like to point out that the absence of any description of the method used for bacteria identification in this paper raises some concerns related to the possibility of a misidentification of this bacterium as a pathogen affecting the human eye.

S. uberis is an environmental pathogen responsible for a high proportion of cases of clinical and subclinical mastitis in ruminant and nonruminant species [2]. The nutritional flexibility associated with an assortment of metabolic options allows *S. uberis* to occupy a discrete ecological niche [3]. Some studies have hypothesized that the flexibility of this bacterium under various environments and conditions might possibly favour infection also in humans [4, 5]. However, the evidence and putative role of *S. uberis* as a human pathogen are very limited and the methods used for the identification are frequently questionable [6].

In fact, phenotypic bacterial identification by commonly used systems such as Vitek, Facklam scheme, and similar conventional methods has been generally employed. However, in most cases of supposed human infections by *S. uberis* these

techniques showed a low level of accuracy [6, 7]. Facklam described a case of human infection where all the isolates, previously classified as *S. uberis*, have been subsequently identified as *Globicatella sanguinis* [7] and a consistent body of evidence supports the notion that one of the most recurrent mistakes in the identification of gram-positive cocci, using phenotypic bacterial identification methods, is represented by the lack of distinction between *S. uberis* and *Enterococcus* spp. [8, 9].

A conventional scheme for the identification of *S. uberis* strains isolated from bovine milk samples and based on 11 biochemical tests also showed 6% frequency of misidentifications between *S. uberis* and *Enterococcus faecalis* [10]. On the other hand, infections caused by *E. faecalis* are largely described in the literature [11–17]. *E. faecalis* is known to represent a virulent pathogen frequently associated with endophthalmitis with very poor clinical prognosis [14, 18]. Endophthalmitis caused by *E. faecalis* has been described in a diabetic patient after biliary surgery [19], while other reports described ocular infections after cataract extractions [20–22]. Recently Bains et al. and Tang et al. also reported the emergence of endophthalmitis caused by *E. faecium* vancomycin-resistant strains [23, 24]. Indeed, the intraocular infections caused by *E. faecium* previously described in the

literature are not in contrast with the image reported in Figure 1(b) of the paper by Velez-Montoya et al. [1].

In conclusion the phenotypic bacterial identification systems have been repeatedly found to fail the classification of *E. faecalis* on behalf of *S. uberis*. Thus, in our opinion the absence of any detailed description of the technique used for the bacterium identification in the paper by Velez-Montoya et al. [1] raises some concern since the method of identification may affect the validity and reliability of the diagnosis.

Therefore we consider some information from the authors necessary regarding the description of the methods used for the identification, particularly considering that this might represent the first case of human intraocular infection caused by *S. uberis* and also in consideration that the pathogenic potential of this bacterium in humans is still under debate.

Conflict of Interests

The authors declare that there is no conflict of interests.

Authors' Contribution

Luigi Toma and Enea Gino Di Domenico contributed equally to the work.

Acknowledgment

Enea Gino Di Domenico has a grant from Istituto Pasteur-Fondazione Cenci Bolognetti, Sapienza University of Rome.

References

- [1] R. Velez-Montoya, D. Rascon-Vargas, W. F. Mieler, J. Fromow-Guerra, and V. Morales-Canton, "Intravitreal ampicillin sodium for antibiotic-resistant endophthalmitis: streptococcus uberis first human intraocular infection report," *Journal of Ophthalmology*, vol. 2010, Article ID 169739, 4 pages, 2010.
- [2] I. U. Khan, A. A. Hassan, A. Abdulmajood, C. Lämmler, W. Wolter, and M. Zschöck, "Identification and epidemiological characterization of Streptococcus uberis isolated from bovine mastitis using conventional and molecular methods," *Journal of Veterinary Science*, vol. 4, no. 3, pp. 213–224, 2003.
- [3] P. N. Ward, M. T. G. Holden, J. A. Leigh et al., "Evidence for niche adaptation in the genome of the bovine pathogen Streptococcus uberis," *BMC Genomics*, vol. 10, article 54, 2009.
- [4] E. A. Rasolofoa, D. St-Gelais, G. LaPointe, and D. Roy, "Molecular analysis of bacterial population structure and dynamics during cold storage of untreated and treated milk," *International Journal of Food Microbiology*, vol. 138, no. 1-2, pp. 108–118, 2010.
- [5] M. Haenni, L. Galofaro, M. Ythier et al., "Penicillin-binding protein gene alterations in Streptococcus uberis isolates presenting decreased susceptibility to penicillin," *Antimicrobial Agents and Chemotherapy*, vol. 54, no. 3, pp. 1140–1145, 2010.
- [6] R. N. Zadoks, "Sources and epidemiology of Streptococcus uberis, with special emphasis on mastitis in dairy cattle," *Perspectives in Agriculture, Veterinary Science, Nutrition and Natural Resources*, vol. 2, no. 30, 15 pages, 2007.
- [7] R. Facklam, "What happened to the streptococci: overview of taxonomic and nomenclature changes," *Clinical Microbiology Reviews*, vol. 15, no. 4, pp. 613–630, 2002.
- [8] J. L. Watts, "Evaluation of the Minitex gram-positive set for identification of streptococci isolated from bovine mammary glands," *Journal of Clinical Microbiology*, vol. 27, no. 5, pp. 1008–1010, 1989.
- [9] M. Fortin, S. Messier, J. Paré, and R. Higgins, "Identification of catalase-negative, non-beta-hemolytic, gram-positive cocci isolated from milk samples," *Journal of Clinical Microbiology*, vol. 41, no. 1, pp. 106–109, 2003.
- [10] L. Odierno, L. Calvino, P. Traversa, M. Lasagno, C. Bogno, and E. Reinoso, "Conventional identification of Streptococcus uberis isolated from bovine mastitis in Argentinean dairy herds," *Journal of Dairy Science*, vol. 89, no. 10, pp. 3886–3890, 2006.
- [11] B. D. Jett, M. M. Huycke, and M. S. Gilmore, "Virulence of enterococci," *Clinical Microbiology Reviews*, vol. 7, no. 4, pp. 462–478, 1994.
- [12] S. G. Fraser and S. G. Ohri, "Endophthalmitis caused by Enterococcus faecalis," *Eye*, vol. 9, no. 4, pp. 535–536, 1995.
- [13] M. C. Booth, K. L. Hatter, D. Miller et al., "Molecular epidemiology of Staphylococcus aureus and Enterococcus faecalis in endophthalmitis," *Infection and Immunity*, vol. 66, no. 1, pp. 356–360, 1998.
- [14] I. U. Scott, R. H. Loo, H. W. Flynn Jr., and D. Miller, "Endophthalmitis caused by Enterococcus faecalis: antibiotic selection and treatment outcomes," *Ophthalmology*, vol. 110, no. 8, pp. 1573–1577, 2003.
- [15] S. M. Lee and J. H. Lee, "A case of Enterococcus faecalis endophthalmitis with corneal ulcer," *Korean Journal of Ophthalmology*, vol. 18, no. 2, pp. 175–179, 2004.
- [16] E. Rishi, P. Rishi, K. Nandi, D. Shroff, and K. L. Therese, "Endophthalmitis caused by Enterococcus faecalis," *Retina*, vol. 29, no. 2, pp. 214–217, 2009.
- [17] H. W. Kim, S. Y. Kim, I. Y. Chung et al., "Emergence of Enterococcus species in the infectious microorganisms cultured from patients with endophthalmitis in South Korea," *Infection*, vol. 42, no. 1, pp. 113–118, 2014.
- [18] S. Barge, R. Rothwell, R. Varandas, and L. Agrelos, "Enterococcus faecalis endogenous endophthalmitis from valvular endocarditis," *Case Reports in Ophthalmological Medicine*, vol. 2013, Article ID 174869, 4 pages, 2013.
- [19] E. Uchio, M. Inamura, K. Okada, H. Hatano, K. Saeki, and S. Ohno, "A case of endogenous Enterococcus faecalis endophthalmitis," *Japanese Journal of Ophthalmology*, vol. 36, no. 2, pp. 215–221, 1992.
- [20] B. Ejdervik-Lindblad, M. Lindberg, and E. B. Hakansson, "Enterococcal endophthalmitis following cataract extraction, treated with ampicillin intravitreally," *Acta Ophthalmologica*, vol. 70, no. 6, pp. 842–843, 1992.
- [21] W. T. Driebe Jr., S. Mandelbaum, R. K. Forster, L. K. Schwartz, and W. W. Culbertson, "Pseudophakic endophthalmitis: diagnosis and management," *Ophthalmology*, vol. 93, no. 4, pp. 442–448, 1986.
- [22] K. J. Chen, C. C. Lai, M. H. Sun et al., "Postcataract endophthalmitis caused by enterococcus faecalis Enterococcus faecalis," *Ocular Immunology and Inflammation*, vol. 17, no. 5, pp. 364–369, 2009.

- [23] H. S. Bains, D. V. Weinberg, R. S. Feder, and G. A. Noskin, "Post-operative vancomycin-resistant *Enterococcus faecium* endophthalmitis," *Archives of Ophthalmology*, vol. 125, no. 9, pp. 1292–1293, 2007.
- [24] C. W. Tang, C. K. Cheng, and T. S. Lee, "Community-acquired bleb-related endophthalmitis caused by vancomycin-resistant enterococci," *Canadian Journal of Ophthalmology*, vol. 42, no. 3, pp. 477–478, 2007.



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