Odontogenic Infection Secondary to *Leuconostoc* Species

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*Leuconostoc* species are gaining importance as pathogenic organisms. We present the first case of odontogenic infection caused by *Leuconostoc* spp. Isolates initially identified as streptococci were found to be vancomycin resistant. Rigorous bacteriologic investigation subsequently classified these organisms as *Leuconostoc mesenteroides*.

*Leuconostoc* species, which were previously thought to be of no importance in human or animal pathology, are now recognized as involved in human disease. *Leuconostoc* spp. are gram-positive, catalase-negative, nonmotile, nonspore-forming, facultative anaerobes generally found on plants and used in the dairy, wine, and pickling industries (3). To our knowledge, this is the first case report of odontogenic infection caused by *Leuconostoc* spp.

A previously healthy 58-year-old man with no history of diabetes mellitus developed pain in tooth 17 and was treated in the emergency room with intrarotol incision and drainage with pulpectomy. The patient was treated with penicillin VK, 500 mg orally every 6 h (q6h). Three days later the tooth was extracted and purulent drainage was noted. After 2 additional days, further incision and drainage were required. Metronidazole, 500 mg orally q6h was added to the treatment regimen. The patient experienced increased facial swelling, pain, fever, dysphagia, and trismus. He was admitted for treatment of a left buccal-masseteric-space infection. Physical examination on admission was significant for a temperature of 99°F (37.2°C); tender, edematous, and fluctuant left submandibular region; and left submandibular and cervical adenopathy. No purulent drainage was noted from the left buccal-vestibular drain. The patient was able to open his mouth only 1.5 cm.

The leukocyte count was 6,400/mm³, with 74% polymorphonuclear leukocytes, 21% lymphocytes, and 5% mononuclear cells. The hemoglobin was 14.8 g/dl, with 43% hematocrit. Chest X ray, SMA-18, and urinalysis were normal.

The patient was started on intravenous penicillin G, 2 million units q4h, and metronidazole, 500 mg q6h. Two days later, extraoral incision and drainage were performed with the insertion of a 1/4-in. (≈0.6-cm) Penrose drain. Thick grey-white purulent material (15 ml) was recovered and sent for culture. After consultation with the Infectious Diseases Service, the antibiotics were changed to clindamycin, 600 mg q6h, to extend coverage to include *Staphylococcus* spp. The facial swelling and drainage slowly resolved, and the patient was discharged on clindamycin, 300 mg orally q6h for 7 days. The culture specimens grew *Leuconostoc mesenteroides* resistant to vancomycin and susceptible to penicillin.

*L. mesenteroides* was identified by standard microbiological methods. In addition to vancomycin resistance, the major reactions which differentiate *Leuconostoc* spp. from streptococci are gas production during glucose fermentation and the inability of *Leuconostoc* spp. to hydrolyze arginine with the production of ammonia.

Until recently, the potential pathogenicity of *Leuconostoc* spp. was not appreciated (3). In 1984, Shlaes et al. (7) described a case of squamous cell carcinoma involving the right second mandibular molar which was complicated by a soft-tissue infection and bacteremia with *Streptococcus sanguis* II. This bacterium was vancomycin resistant. In studies by several other investigators (1, 2, 6), it was shown that isolates initially identified as streptococci were subsequently designated *Leuconostoc* spp., especially on the basis of vancomycin resistance. C. Thornberry and R. R. Field recommend the use of *Leuconostoc* spp. in the differential diagnosis of odontogenic infections. In 1983, Buu-Hoi et al. (1) described two cases of *Leuconostoc* spp. bacteremia in compromised patients. In 1987, Coovadia et al. (2) described a case of *Leuconostoc* spp. meningitis in a previously healthy 16-year-old woman which responded to treatment with penicillin. Horowitz et al. (4) have reported three more cases of *Leuconostoc* bacteremia in patients with serious medical problems, two of whom had indwelling intravascular devices and one of whom was on thrice-weekly hemodialysis. Rubin et al. (6) recently reported *L. mesenteroides* bacteremia in a 6-month-old male infant.

It is very likely that the difficulty in distinguishing *Leuconostoc* spp. from streptococci has resulted in the underreporting of *Leuconostoc* infection. The isolation of vancomycin-resistant streptococci should prompt further laboratory investigations to determine the identity of the isolates which may be *Leuconostoc* spp. or other nonstreptococcal bacteria in order to understand the role of these organisms in human disease. As in this case, rigorous bacteriologic investigation led to the diagnosis of odontogenic infection with *L. mesenteroides*.

**LITERATURE CITED**


