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First Isolation of *Legionella gormanii* from Human Disease

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***Legionella gormanii*, previously isolated only from the environment, was grown from the bronchial brush specimen of a patient with pneumonia. The organism was characterized by serologic, biochemical, and DNA hybridization studies.**

Legionella gormanii was first isolated from soil samples taken from a creek bank in Atlanta, Ga., during an investigation of legionellosis at a local country club (5). Although serologic evidence suggested that it was pathogenic for humans, confirmation required obtaining an isolate from symptomatic patients (H. W. Wilkinson, Clin. Microbiol. Newsl. **8**:45–48, 1986); to our knowledge, this has not been reported previously. In this report, we describe such an isolate.

The patient was a retired 64-year-old northern California woman with systemic lupus erythematosus and adenocarcinoma who had been receiving high-dosage prednisone. Two days after the onset of progressive fatigue, shaking chills, and body pain, especially in the right side of her chest when a deep breath was taken, she was admitted to the hospital in shock with a temperature of 101.3°F (~38.5°C) and right lower lobe pneumonia. Treatment with gentamicin, clindamycin, and erythromycin was started. Blood, sputum, and throat specimens were cultured the following day. Additional specimens collected 2 days after admission included blood and sputum for routine culturing, bronchial aspirate and brush specimens for *Legionella* examination by the California State Microbial Diseases Laboratory, and serum for *Legionella* serology. Antimicrobial therapy was changed to erythromycin only. Pleural fluid collected 4 days after admission was cultured for mycobacteria. Additional serum samples for *Legionella* serology were collected 14 and 23 days after admission. Results reported from the three indirect immunofluorescence assays with *L. pneumophila* serogroup 1 antigen (titers ≤1:64) were not considered diagnostic. A *Legionella*-like organism was isolated on buffered charcoal-yeast extract agar (3) from the bronchial brush specimen. The only other potentially significant organism was a yeast, presumptively identified as *Candida albicans*, found in sputum and throat cultures. After 3 weeks of erythromycin therapy, the patient recovered. Her history of residence in Lakeport, Calif., and travel in the San Francisco Bay area provided no indication of possible sources of infection.

The organism isolated from the bronchial brush specimen showed the following reactions shared with all *Legionella* species (1): growth on buffered charcoal-yeast extract agar at 35°C but no growth on blood agar at 35 or 42°C, cut-glass appearance of young colonies seen under the dissecting microscope with oblique lighting, bubbles produced within 1 min after 48-h growth was removed from agar and placed in 3% hydrogen peroxide, lack of urease activity on Christensen urea agar (8), and lack of nitrite production after 24 h of incubation in buffered charcoal-yeast extract broth containing 0.1% KNO_3 with sulfanilic acid and 5-amino-2-naphthalene sulfonic acid (1,6-Cleve's acid) as nitrite indicators.

The isolate also gave the following reactions shared by *L. gormanii*, *L. bozemanii*, and *L. dumoffii*: blue-white autofluorescence of young colonies exposed to long-wave UV light, β-lactamase activity with cephalosporin 87/312 (Cefinase disks; BBL Microbiology Systems), lack of oxidase activity when young growth was rubbed on a filter strip moistened with 1% *N,N*-dimethyl *p*-phenylenediamine oxalate, gelatin liquefaction (gelatin strips; Key Scientific Products Co., Inc.), lack of hippurate hydrolysis (4), the presence of a-15:0 as the major cellular fatty acid (7), and ubiquinone content (6; C. W. Moss, personal communication).

Positive results were obtained in direct fluorescence antibody tests (2) only with the *L. gormanii* conjugate. Negative results were obtained with the following conjugates: *L. pneumophila* serogroups 1 through 8 and Seattle 1-like; *L. longbeachae* serogroups 1 and 2; *L. micdadei*; *L. wadsworthii*; *L. bozemanii*; and *L. dumoffii*.

Serologic identification was confirmed by slide agglutination tests (9). The isolate reacted at a level of 4+ with *L. gormanii* antiserum and did not agglutinate with any other *Legionella* antisera. DNA hybridization studies using the hydroxyapatite method (1) showed the strain to be >90% related to the *L. gormanii* type strain, LS-13, at both optimal and stringent conditions for DNA reassociation.

The isolation of this strain of *L. gormanii* from an immunocompromised patient in the absence of other significant organisms compatible with the clinical history demonstrates that it is one of the *Legionella* species involved in human infection. The strain has been deposited with the American Type Culture Collection and has been assigned accession number 43769.

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