**Mycobacterium triplex Infection in a Liver Transplant Patient**

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**Mycobacterium triplex** was first named in 1996 as an acid-fast bacillus with features that most resemble *Mycobacterium simiae* and *Mycobacterium avium-intracellulare* complex but which possesses a distinct mycolic acid pattern as well as a distinctive 16S rRNA hypervariable region. It has been isolated from lymph node, sputum, and cerebrospinal fluid specimens, but to date only rare clinical cases of this organism have been reported in the literature. The following is a case report of *M. triplex* that was isolated from the pericardial and peritoneal fluid of a 13-year-old female liver transplant patient.

**CASE REPORT**

A 13-year-old female with a history of alpha-1-antitrypsin deficiency underwent her fourth liver transplant in September 1999. At a routine follow-up exam 2 months later, she complained of increased abdominal swelling, lower extremity swelling, and facial edema for an approximately 1-week duration. She also reported 2 days of phlegm production but was otherwise without cough, shortness of breath, or any other complaint. Vascular obstruction was suspected, and she was admitted for further diagnostic work-up.

Physical examination on admission revealed a moderately cushinoid young female in no acute distress. She was afebrile (temperature was 37.1°C and blood pressure was 138/88 mm Hg). Her abdomen was markedly swollen with fluid; the anterior chest wall and both lower extremities were also edematous. Heart and lung exams were within normal limits. A computerized tomography scan of the chest, abdomen, and pelvis was performed which revealed a large pericardial effusion and a loculated peritoneal fluid collection extending from the subphrenic region to the pelvis. Vascular obstruction was not identified. Paracentesis and pericardiocentesis were performed on 19 November 1999. Pericardiocentesis yielded turbid, amber fluid with 37 white blood cells/μl (43% neutrophils, 21% lymphocytes, 21% monocytes, 3% macrophages, and 12% mesothelial cells). Protein was 2.5 g/dl, glucose was 183 mg/dl, and lactate dehydrogenase was 433 U/liter. An acid-fast bacillus was detected in the Mycobacterium Growth Indicator Tube broth media at day 11 from the pericardial and peritoneal fluid specimens. DNA probing of the pellet from the Mycobacterium Growth Indicator Tube was negative for *Mycobacterium tuberculosis* complex as well as *Mycobacterium avium* complex. Routine biochemical tests were performed with results as follows: the isolate was a slow-growing, nonpigmented *Mycobacterium* sp. with 1+ growth at 37°C, <1+ growth at 32°C, and no growth at 26 or 42°C. Photochromogenicity tests were negative at 32 and 37°C. The isolate was positive for 2-week aryl sulfatase, tellurite, and catalase; negative tests included nitrate reduction, 3-day aryl sulfatase, growth in NaCl and MacConkey’s agar, urease, and Tween. The isolate was sent to the Mayo Clinic for sequencing, and results came back with a pattern that perfectly matched that of *Mycobacterium triplex*. The sequencing analysis was performed using specific PCR primers on an ABI 373A sequencer. Data analysis was carried out with Microseq, version 1.4 (Applied Biosystems, Foster City, Calif.) and with GenBank analysis (Leslie Stockman, personal communication).

The patient’s abdominal and lower extremity swelling markedly improved after drainage of her pericardial effusion. By 10 December 1999, the pericardial effusion had completely resolved; she had received no antibiotics, except for the sulfamethoxazole-trimethoprim which she was receiving for *Pneumocystis carinii* prophylaxis. She has continued to do well clinically (follow-up available in May 2000), with no recurrence of pericardial or peritoneal fluid and no further evidence of mycobacterial infection, despite being maintained on several immunosuppressive agents.

**M. triplex** is a unique species of *Mycobacterium* whose name was first proposed in 1996 by Floyd, Guthertz, and colleagues at the Centers for Disease Control and Prevention. They reported on 10 strains with a unique genetic sequence and a unique mycolic acid pattern on high-performance liquid chromatography (3). *M. triplex* is a slowly growing nonphotochromogenic *Mycobacterium* sp. which does not react with the *M. avium* complex probe. The high-performance liquid chromatography mycolic acid pattern of *M. triplex* closely resembles that of *Mycobacterium simiae*, but unlike the latter lacks pigmentation and reacts negatively for niacin and positively in the nitrate reduction test. Our strain was negative for nitrate reduction. The 16S rRNA hypervariable region of *M. triplex* is distinct from all other species of *Mycobacterium*.

Although Floyd et al. reported the sources of their clinical isolates (sputum, cerebrospinal fluid, and lymph node), no other clinical information was provided (3). There is a recent report (1) of an unidentified *Mycobacterium* sp. causing acute lymphadenitis in an AIDS patient that has some biochemical and restriction fragment length polymorphism similarities to *M. triplex*. The isolate, however, had a sequencing pattern different from that of *M. triplex* as well as those of other similar species. Cingolani et al. reported on a 47-year-old AIDS patient with disseminated disease caused by *M. triplex* (2).
organism was isolated from synovial, tibial, and bone marrow specimens as well as from a knee abscess 5 months later. In vitro susceptibility testing demonstrated that the isolate was susceptible to clarithromycin and ethionamide but was resistant to most other mycobacterial agents that they tested. To our knowledge, ours is the first clinical case of *M. triplex* infection in a non-AIDS patient reported in the literature. She was not given any antimycobacterial agents; however, the drainage procedure may explain why her *M. triplex* infection did not progress.

Whether or not *M. triplex* was responsible for the patient’s effusion is not known; however, given her long-term immuno-compromised state, we believe the organism to be clinically significant.

REFERENCES