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**COLLOQUIUM PAPER**

Cardiothoracic Transplant Recipient *Mycoplasma hominis*: An Uncommon Infection with Probable Donor Transmission

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**A B S T R A C T**

The role of infection with Mycoplasma hominis following cardiothoracic organ transplantation and its source of transmission have not been well-defined. Here, we identify and describe infection with M. hominis in patients following cardiothoracic organ transplantation after reviewing all cardiothoracic transplantations performed at our center between 1998 and July 2015. We found seven previously unreported cases of M. hominis culture positive infection all of whom presented with pleuritis, surgical site infection, and/or mediastinitis. PCR was used to establish the diagnosis in four cases. In two instances, paired single lung transplant recipients manifested infection, and in one of these pairs, isolates were indistinguishable by multilocus sequence typing (MLST). To investigate the prevalence of M. hominis in the lower respiratory tract, we tested 178 bronchoalveolar lavage (BAL) fluids collected from immunocompromised subjects for M. hominis by PCR; all were negative. Review of the literature revealed an additional 15 cases of M. hominis in lung transplant recipients, most with similar clinical presentations to our cases. We recommend that M. hominis should be considered in post-cardiothoracic transplant infections presenting with pleuritis, surgical site infection, or mediastinitis. M. hominis PCR may facilitate early diagnosis and prompt therapy. Evaluation for possible donor transmission should be considered.

**INTRODUCTION**

Mycoplasma hominis (M. hominis) is a mollicute that colonizes the urogenital tract and occasionally causes invasive disease. Extra-genital infections with this organism occur primarily in immunosuppressed persons. M. hominis has been linked to pregnancy-related complications and causes meningitis and pneumonia in neonates (Cassell et al., 1991; Samra et al., 2002; Waites et al., 1988). M. hominis is not visualizable by gram stain due to its lack of a cell wall, and although it may grow on standard aerobic or anaerobic bacterial culture plates, this method is insensitive and requires highly experienced laboratory personnel to recognize colonies of M. hominis. M. hominis-specific culture may be performed, but are not widely available, and even if they are available, is not rapid. The route of acquisition of M. hominis in patients who undergo cardiothoracic transplantation has not been defined. In two prior reports in Chest the authors speculated 1) the organism entered the bloodstream (though blood cultures were negative) of a lung transplant recipient who developed pleural and pulmonary infection with M. hominis. These authors speculated manipulation of the urinary tract with a Foley catheter elicited invasion of lung tissue damaged by transplantation (Lyon et al., 1997) and 2) an 18 year old women developed diffuse alveolar hemorrhage following bone marrow transplant due to unproven airway or urinary tract colonization (Kane et al., 1994). Herein, we describe seven new cases of M. hominis infection in cardiothoracic transplant recipients and XXXXXXXXXXXXXXXXXXX.

**METHODS**

Using our heart and lung transplant database and chart review (between 1998 and July 2015) we found seven (among 182 lung transplants and heart-lung performed and 453 heart transplants) previously unreported cases of culture positive M. hominis infection in cardiothoracic transplant recipients (Table 1). In each case routine cultures grew M. hominis and no other bacterial pathogens were identified. PCR for M. hominis (beginning January 2014), Ureaplasma urealyticum, and Ureaplasma parvum (beginning January 2015) were requested when suspected infection sites were gram stain negative, and early bacterial cultures were negative with the presence of white blood cells. M. hominis, Ureaplasma urealyticum, and Ureaplasma parvum PCR were specifically performed prospectively on all donor airway specimens beginning in 2015. Importantly, in each case reported herein M. hominis was the only infectious agent identified. None of these M. hominis cases developed hyperammonemia and none of these cases tested positive for Ureaplasma sp. However, we have recently identified a single XXXXXXXXXXXXXXXXX

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