Nosocomial Infections due to *Stenotrophomonas maltophilia*

**Key words:** *Stenotrophomonas maltophilia, Xanthomonas maltophilia, nosocomial infection, nosocomial pneumonia, opportunistic pathogen*

*Stenotrophomonas* (formerly *Xanthomonas*) *maltophilia* was first described by Hugh and Ryschenkow in 1961 (1). The name *Stenotrophomonas* has been proposed by Palleroni and Bradbury (2). *S. maltophilia* is a free living, ubiquitous, motile, gram-negative, strictly aerobic bacterium that has been isolated from human, animal, and environmental sources, such as water, soil, sewage, milk, frozen fruits, and disinfectant solutions. Following *Pseudomonas aeruginosa* and *Acinetobacter calcoaceticus*, *S. maltophilia* is the third most common nonfermentative gram-negative rod isolated in clinical specimens (3).

Like *P. aeruginosa*, it is also an opportunistic pathogen. Although it lacks the virulence of *P. aeruginosa*, and its isolation often represents colonization rather than true infection, this is one of the more important nosocomial isolates (4–6). *S. maltophilia* is increasingly recognized as an opportunistic pathogen in debilitated hosts. Although Sarkar and associates reported a primary pulmonary infection caused by *S. maltophilia*, colonization with *S. maltophilia* is most common in patients with severe underlying illness, and it can be difficult to distinguish colonization from infection (7).

Risk factors for *S. maltophilia* isolation are reported to be a long stays in intensive care units, mechanical ventilation, indwelling catheters previous antimicrobial therapy, steroid therapy and malignant diseases (4, 5, 7, 8).

Amano and associates reported two cases of polymyositis (PM) complicated with nosocomial pneumonia probably by *S. maltophilia* in this issue (9). In the first case, the chest CT findings and high serum endotoxin level as well as sputum culture results were helpful for the proper diagnosis and the antimicrobial therapy was successful. However, the second patient died of lung abscess in spite of the intensive antimicrobial chemotherapy.

See also p 910.

Nosocomial pneumonia is one of the most important complications in patients with connective tissue diseases such as systemic lupus erythematosus (SLE) and polymyositis/dermatomyositis (PM/DM) who are usually treated with high-dose steroids which can adversely affected their prognosis. Clinical manifestations caused by *S. maltophilia* have been reported to be septicemia (often with intravenous catheters), respiratory tract infection, wound infection, and rarely, with other infections such as an endocarditis, meningitis, and mucocutaneous, or soft-tissue infection (4–6, 8–10).

*S. maltophilia* is resistant to essentially all β-lactam antibiotics by virtue of a combination of the low outer membrane permeability and the synchronous induction of 2 broad spectrum β-lactamases, penicillinase/carbapenemase and cephalosporinase (11–13).

The wide substrate range of these β-lactamases is the major factor for *S. maltophilia* to colonize or infect patients treated with intense antimicrobial therapy. The antecedent antimicrobial therapy undoubtedly favors an epidemiologic niche for *S. maltophilia* infection or colonization.

Despite these problems, some antibiotics are active in vitro against *S. maltophilia* (6). Minocycline and latamoxef are the most active for *S. maltophilia*. Latamoxef was also reported to be active because of poor induction of β-lactamases expression (12). Sulfamethoxazole/trimethoprim has been reported as having high activity and has been recommended as the initial empiric or standard therapy over the years (14). The evaluation of fluoroquinolones is not consistent. Aminoglycosides are reported to have a low susceptibility rate (7–40%) to *S. maltophilia* in literature, probably because of low outer membrane permeability without an aminoglycoside modifying enzyme induction.

With the increasing number of immunocompromised patients, and the prevalence of broad-spectrum antimicrobial therapies, *S. maltophilia* has become a more common isolate. However, *S. maltophilia* is thought to colonize, not infect, many organs; this organism should be viewed with special concern because of its resistance to antibiotics. In addition, attention must be paid to prevent cross-transmission of this organism.

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References
3) Rosenthal SL. Sources of *Pseudomonas* and *Acinetobacter* species found


