INTRODUCTION

The genus *Stenotrophomonas* is present across a number of microbiological environments in the clinical setting. The group contains a variety of species isolated from a variety of diverse habitats. *Stenotrophomonas maltophilia* is an opportunistic bacterium often seen in at risk populations such as immunocompromised hosts, hospitalized patients and dialyzed patients as well as patient who have undergone extensive surgical treatment with broad spectrum antibiotics. These patients are at high risk for *S. maltophilia* colonization. *S. maltophilia* is not a common organism causing infection in the general healthy population. However, the emergence of nosocomial infections in individuals who have undergone extensive surgical treatment with broad spectrum antibiotics is an emerging nosocomial pathogen that may present problematic for health care providers.

In a recent report from WHO, *S. maltophilia* is a major drug resistant pathogen worldwide in hospital inpatient settings. Alas et al suggest that *S. maltophilia* has a high affinity for acquiring adaptive traits from the hospital environment, allowing for colonization of a variety of surfaces despite antibiotic or antiseptic treatment. *S. maltophilia* is a non–organism common cause infection in the general healthy population. Statistical surveillance of the pathogen determines incidence worldwide range from 1.3 to 1.86%.

Methodology

- The patient was admitted to NYU Langone Brooklyn Hospital Center for the duration of treatment. All wound cultures and sensitivities were collected by the NYU Hospitals Center Department of Microbiology.
- The department of Podiatry performed all operative management of the diabetic wound infection. Antibiotic regimens were determined by the infectious Disease in collaboration with the department of Podiatry.
- Following discharge a review of literature was conducted to determine the prevalence of *S. maltophilia* in diabetic wound infections.
- Following literature review data and consent for publication were obtained and analyzed in accordance with NYU Langone Health and Hospitals research policy.

Tables

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Case Description

42 year old female with past medical history of HTN, HLD, uncontrolled NIDDM (HbA1c >15%), and ESRD presented to the NYU Langone Brooklyn Hospital Center complaining of bloody, fever, chills, and a chronically infected diabetic foot ulceration. The patient had history of diabetes mellitus in both feet with multiple digital amputations and a chronic amputopathic dermatomy of the right foot as well as a history of long term antibiotic therapy secondary to history of MRSA. An algometer tongue contract was noted. Upon presentation patient was transferred to hemodialysis emergently with a creatinine level of 14.5 mg/dL. Department of Podiatry was consulted for a right foot ulceration which had been present prior to hospital admission.

The patient presented diaphoretic with distinctive facial pallor. There was a Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was edematous and marked with non-viable tissue. Initial wound debridement revealed a soil filled defect of the plantar medial area demonstrating fluid filled cavity foci. This cavity demonstrated purulent discharge with no trace of any antiseptic treatment. All wound cultures and sensitivities were resulted by the NYU Hospitals Center complaining of bloody, fever, chills, and a chronically infected diabetic foot ulceration. The patient had history of diabetes mellitus in both feet with multiple digital amputations and a chronic amputopathic dermatomy of the right foot as well as a history of long term antibiotic therapy secondary to history of MRSA. An algometer tongue contract was noted. Upon presentation patient was transferred to hemodialysis emergently with a creatinine level of 14.5 mg/dL. Department of Podiatry was consulted for a right foot ulceration which had been present prior to hospital admission.

The patient demonstrated increased awareness and subjective constitutional status with decreased white blood cell count, down to 5.0 K/uL, and no growth in blood cultures. Pathology from time determined acute inflammation associated with acute osteomyelitis. However, the surgical site did show little to no improvement and continued to express consistent drainage. Antibiotic therapy was continued as the patient required temporary inpatient care due to dailly hemodialysis. Serial cultures were taken to plan for delayed primary closure. On hospital day #7 bedside cultures demonstrated growth of *S. maltophilia*. An angioplasty of the right lower extremity was performed to increase blood flow proximally to increase limb viability. A second surgical debridement was performed on hospital day #10 with cultures obtained. A singular organism, *S. maltophilia* was isolated with sensitivities. Following bedside debridement the most broad-spectrum measures a white blood cell count was observed on 23.3 K/uL. Blood cultures resulted in growth of *K. pneumoniae* with accompanying wound culture growing Beta-hemolytic Streptococcus and *S. pneumoniae*.

Optimal medical treatment for diabetic foot ulceration is surgically oriented and drainage debridement is required. Vascular and tissue loss and ulceration. The patient was subjected to multiple regimens of broad spectrum antibiotic therapy over the course of the hospitalization. The patient was noted to have Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was markedly edematous and erythematous. The right foot ulceration actively expressed gray purulent drainage upon compression and was grossly malodorous with crepitus extending through the full thickness of the foot skin involvement. The patient appeared diaphoretic with distinctive facial pallor. There was a Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was marked with non-viable tissue. Initial wound debridement revealed a soil filled defect of the plantar medial area demonstrating fluid filled cavity foci. This cavity demonstrated purulent discharge with no trace of any antiseptic treatment. All wound cultures and sensitivities were resulted by the NYU Hospitals Center.

The second debridement did not resolve clinical signs of infection nor improve abnormal laboratory markers of infection. Antibiotic therapy was adjusted for *S. maltophilia*, *K. pneumoniae*, and *S. aureus*. The patient was discharged with a peripheral intravenous central catheter for outpatient antibiotic therapy.

Results

- The patient was discharged with a peripheral intravenous central catheter for outpatient antibiotic therapy.
- The patient was critically ill and had to be transferred to hemodialysis emergently with a creatinine level of 14.5 mg/dL.
- Department of Podiatry was consulted for a right foot ulceration which had been present prior to hospital admission.
- The patient was subjected to multiple regimens of broad spectrum antibiotic therapy over the course of the hospitalization. The patient was noted to have Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was markedly edematous and erythematous. The right foot ulceration actively expressed gray purulent drainage upon compression and was grossly malodorous with crepitus extending through the full thickness of the foot skin involvement. The patient appeared diaphoretic with distinctive facial pallor. There was a Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was marked with non-viable tissue. Initial wound debridement revealed a soil filled defect of the plantar medial area demonstrating fluid filled cavity foci. This cavity demonstrated purulent discharge with no trace of any antiseptic treatment. All wound cultures and sensitivities were resulted by the NYU Hospitals Center.
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Discussion/ Literature Review

- The patient was subjected to multiple regimens of broad spectrum antibiotic therapy over the course of the hospitalization. The patient was noted to have Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was markedly edematous and erythematous. The right foot ulceration actively expressed gray purulent drainage upon compression and was grossly malodorous with crepitus extending through the full thickness of the foot skin involvement. The patient appeared diaphoretic with distinctive facial pallor. There was a Wagner grade 3 ulceration to the plantar medial aspect of the right foot. The right lower extremity was marked with non-viable tissue. Initial wound debridement revealed a soil filled defect of the plantar medial area demonstrating fluid filled cavity foci. This cavity demonstrated purulent discharge with no trace of any antiseptic treatment. All wound cultures and sensitivities were resulted by the NYU Hospitals Center.

Conclusions

- It is important to recognize and treat nosocomial infections appropriately. In this case study, a highly resilient bacterium, *S. maltophilia*, was able to thrive in a host environment in which many pathogenic bacteria were killed by systemic broad spectrum antibiotic therapy. This is consistent with the review conducted by the author who noted that even in the presence of extensive wound debridement and invasive surgical procedures, *S. maltophilia* was still able to establish infection.
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References