# Jugular Venous Catheter related *Stenotrophomonas maltophilia* Bacteremia

Dear Sir,

*Stenotrophomonas maltophilia* is a non-fermentative, gram negative aerobic microorganism with low virulence, which is observed to be a globally emerging environmental multi drug resistant organism (MDRO).[1] The organism is considered as the third most frequent nosocomial pathogen among non-fermentative bacteria, following *Pseudomonas aeruginosa* and *Acinetobacter* species. Jugular Venous Catheters are an important source of non-fermentative Gram-negative bacteremia, with *S. maltophilia* being one of the ubiquitous organisms isolated commonly from hematology and oncology patients.[2] Mostly patients receiving dialysis via jugular catheters with the prevalence of tumor, may encounter *S. maltophilia* more frequently and should be treated with effective antibiotic therapy.[3] Catheter-related *S. maltophilia* serves to be a main source of mortality and removal of the infected catheter accompanied with initiation of antibiotics should always be considered to reduce the mortality associated with bacteremia.[4]

A 54-year-old female patient with end stage renal disease (ESRD), multiple myeloma, anemia, hypertension, diabetes, and primary amyloidosis presented with fever after her last dialysis through the left jugular venous catheter. During this period, she was on clopidogrel 75 mg, atorvastatin 10 mg, apixaban 2.5 mg, calcium 667 mg, sevelamer 400 mg, calcitriol 0.25 mcg, twice weekly injection of erythropoietin 4000 U, vitamin supplements, and amoxicillin 500 mg. She was also receiving Pomalidomide for multiple myeloma. She was on regular hemodialysis through right arteriovenous graft, but due to recurrent thrombosis leading to vascular access failure, left jugular perm catheter was placed to continue the dialysis. 6 days later, she presented with fever after her dialysis. Patient was suspected of having catheter related blood stream infection and was administered one dose of IV Vancomycin. Routine blood examination and culture was done along with reactivity test for HIV, HBsAg, and HCV.

Blood culture report was positive for *S. maltophilia* and it was susceptible to ceftazidime, chloramphenicol, cotrimoxazole, minocycline, and levofloxacin. Based on these evidences, the patient was diagnosed to have Catheter related blood stream infection with *S. maltophilia*. Blood test also revealed that that the patient was anemic (Hb- 7.4 g), total count of 6740/cumm, basophil-0%, eosinophil-6%, lymphocyte-28%, monocyte- 1% and was non-reactive for HIV, HBsAg, and HCV. Patient was shifted for left jugular catheter removal. This was followed by administration of IV 1 g ceftazidime. The patient was then inserted with a fresh right jugular catheter followed by successful hemodialysis and ceftzidime catheter lock were given post hemodialysis. Fever subsided after initiation of IV ceftazidime. Antibiotic was continued for a total of 10 days. Patient recovered from the infection and was advised to create a new AV graft for future dialysis.

*S. maltophilia* is a gram negative, non-fermenting, multidrug resistant microorganism found distributed in a wide variety of environments and geographical locations.[5] Majority of *S. maltophilia* strains are resistant to the commonly used broad spectrum antimicrobial agents including carbapenems and beta lactams.[6] Malignancy, particularly hematologic malignancies, Human Immunodeficiency Virus, Indwelling vascular and urinary catheters, prior treatment with broad spectrum antibiotics and ICU hospitalizations are some of the common risk factors leading to the development of *S. maltophilia* infections. The common manifestations of *S. maltophilia* infections include endocarditis, respiratory tract infection, bacteremia, meningitis, peritonitis, bone and joint infections, biliary sepsis and most prevalent among them is the central venous catheter related infections.[7] *S. maltophilia* associated infections have been reported among both peritoneal and hemodialysis patients. Isaiarasi *et al*. reported three cases of S. maltophilia associated bacteremia in ESRD patients on maintenance hemodialysis.[8]

*S. maltophilia* strains being capable of producing biofilms, acquire the potentiality to adhere on hospital surfaces and settings which aids in its transmission. For time being, usually endorsed antibiotics can be preferred to treat *S. maltophilia-biofilm* infections. *S. maltophilia* being a water borne bacteria, exposure to it could occur in and out the hospital realms.[9] Multi-drug resistant *S. maltophilia* isolates have been identified from dialysate samples, hemodialysis water, treated water samples and tap water. *S. maltophilia* transmission can occur when susceptible individuals comes in contact with the source. Presence of bacterium in samples can be identified using membrane filter technique.[10]

The standard protocol for the management of dialysis catheter related infections involves the early replacement of catheter and initiation of antibiotics as in our case. Poole CV *et al*. successfully established that use of antibiotic catheter lock in dialysis patients serves to reduce catheter related bacteremia.[11] Treatment of *S. maltophilia* is a challenging situation since the organism can develop resistance against many antimicrobials. Only limited antimicrobial agents are preferred for the successful elimination of the infection. Trimethoprime-sulphomethoxazole is considered the empirical treatment choice for suspected cases and treatment choice for culture positive cases, but it requires dosage adjustment in ESRD patients. Among

cephalosporins only cefoperazone, ceftazidime, and cefipime exhibits superior activity against *S. maltophilia*, but multiple randomized trials have shown high rates of development of resistance. Fluroquinolones like clinafloxacin, levofloxacin, gatifloxacin, moxifloxacin, and sitafloxacin exhibits high *in vitro* activity against *S. maltophilia*. Chloramphenicol, minocycline, tigecycline, and polymixins also are effective against *S. maltophilia*, but the main concern with polymixins are their high level of toxicity.[12] More studies have to the initiated to prove the efficacy of each combination or monotherapy to be used in *S. maltophilia* infections.[13]

Multiple myeloma along with the presence of jugular venous catheter for hemodialysis served to be an opportunity for *S. maltophilia* infection. Early diagnosis followed by removal of the catheter and initiation of antibiotics contributed towards successful patient cure.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understand that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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### Conflicts of interest

There are no conflicts of interest.

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