

Stenotrophomonas. Maltophilia - A Rare Cause of Bacteremia in a Patient of End Stage Renal Disease on Maintenance Hemodialysis

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Abstract : We report a case of bacteremia due to *Stenotrophomonas.maltophilia* in 60 yrs. old male patient who presented with high fever to hospital. He was on maintainace hemodialysis (HD) suffering from end stage renal disease. Blood culture from central line was sent from which *Stenotrophomonas.maltophilia* was isolated which was resistance to most of antibiotic tested. Central line was removed & peripheral line was established for maintainace HD. Patient was started on levofloxacin to which it was sensitive for two weeks, the fever subsided thereafter & repeat blood culture was negative. *Stenotrophomonas.maltophilia* is resistance to most of routinely used antibiotic so this case highlights the importance of early detection and antibiotic sensitivity workup.

Keywords: Bacteremia, Hemodialysis, *Stenotrophomonas. maltophilia*

I. Introduction

Stenotrophomonas. maltophilia is a ubiquitous, nonfermentative gram-negative bacterium (Figure 1), usually of low virulence, predominantly resulting in colonization. However, it has become a focus of interest lately because of the increased frequency of its isolation from hospitalized patients, the ever-expanding spectrum of diseases it causes, especially in patients with immunocompromised states, and its broad- spectrum antimicrobial resistance.¹ *S. maltophilia* infection has been reported in end-stage renal disease (ESRD) patients receiving peritoneal dialysis,² but to our knowledge very few cases of *S. maltophilia* infection have been reported in patients receiving maintenance hemodialysis (HD). We report a case of *S. maltophilia* infection occurring in patients receiving maintenance HD.

II. Case History

A 60yrs old man had been receiving maintainace HD via right internal jugular tunneled catheter having ESRD secondary to hypertension and diabetes mellitus. He presented to hospital with high grade fever and chills. On examination tunneled catheter site was without any signs of inflammation, there is no clinical evidence of tunnel infection. Patient was admitted to hospital and all related investigations were done. Total leucocyte count was high (13,600/cumm). Other haematological and nonhematological reports were within normal limit. Patient was started on empirical antibiotic to which he didn't responded. Blood for culture was drawn from tunneled catheter on third day of hospitalization. In laboratory, BACTEC BD 9120 indicated growth after 48hr of incubation. Bacteriological work up of it was done. Smear from bottle showed gram negative bacilli. Subculture was made on 5% sheep blood agar(SBA)(Figure 2) & MaConkey .After 24hr of incubation pure growth of smooth, pigmented, glistening with entire margin colonies were seen. Growth was catalase positive& oxidase negative, nonfermenter suggesting *S. maltophilia* .Identification was confirmed by phoenix ver.6.01.The isolate was resistant to B-lactam antibiotic and most of other antibiotic tested and only sensitive to levofloxacin and trimethoprim-sulfamethoxazole .Patient was then started on levofloxacin ,central line was removed & peripheral line was established .Patient recovered in 2 weeks of levofloxacin therapy.

III. Discussion

S. maltophilia was first identified in 1943 in the United Kingdom and was named *Bacterium bookeri*. It was previously considered a pseudomonad and was grouped under the genus *Xanthomonas* in 1983, but a decade later it was reclassified as the single species of the new genus *Stenotrophomonas*.³ *S. maltophilia* is a low-virulence organism but can become pathogenic in patients in immunocompromised states such as those with hematologic and nonhematological malignancies, receiving corticosteroid therapy, with prior antibiotic therapy, having neutropenia, or receiving cytotoxic chemotherapy.⁴ *S. maltophilia* is known to cause infection via invasive medical devices such as central venous catheters,⁵ chronic indwelling urinary catheters, endotracheal or tracheostomy tubes,⁶ and peritoneal catheters,² by which the organism bypasses normal host defenses and causes nosocomial outbreaks of infection. Persons often come in contact with *S.*

maltophilia through environmental water sources, including hospital tap water or faucets, dialysis machines, nebulizers, showerheads, deionized water dispensers, and ice machines.^{7,8}

Besides peritonitis,² *S. maltophilia* has been reported to cause a variety of infections. Although *S. maltophilia* infection is rare in patients receiving peritoneal dialysis, approximately 23 cases have been reported so far. To our knowledge, very few cases has been reported in patients receiving maintenance HD. Isaiarasi Gnanasekaran et al. in 2009 reported series of three cases who were on maintainace HD suffered from *S. maltophilia* bacteremia presented with different clinical features.⁹ With the increasing prevalence of ESRD patients receiving dialysis via tunneled catheters, *S. maltophilia* may be encountered more frequently and should be considered a true pathogen. The source of infection should be identified, and invasive medical devices should be removed/changed, if feasible, along with antibiotic therapy, as in our cases. Although trimethoprim-sulfamethoxazole (TMP-SMX) and ticarcillin/clavulanate appear to be the most effective antimicrobial agents and TMP-SMX is considered the first drug of choice¹⁰ However, TMP-SMX has various side effects in renal disease patient.

Catheter-related bacteremia frequently occurs in outpatients undergoing hemodialysis. The incidence of bacteremia in outpatients undergoing hemodialysis with dual-lumen, tunneled, cuffed catheters has been reported to be 3.9 episodes per 1,000 catheter-days, although catheter-related bacteremia is thought to occur less frequently in patients with tunneled, cuffed catheters.¹¹ Organisms causing catheter related bacteremia generally enter the bloodstream from the skin insertion site or through the hub of the catheter device. Hub contamination is more common in long-term catheters that are left in place for more than ten days, because such catheters often have to be intercepted and manipulated.¹² Elting and Bodey,¹³ together with other investigators,^{14,15} have also shown that most patients with *S. maltophilia* infections had received broad-spectrum antibiotics, and a large percentage of these patients had indwelling catheters. Moreover, antibiotic therapy alone does not generally cure catheter related bacteremia and removal of the catheter is recommended.¹⁶

IV. Figures

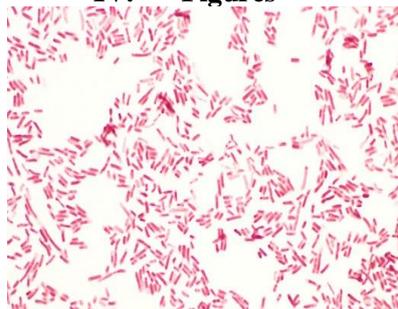


FIG 1- Gram staining from Blood agar colony

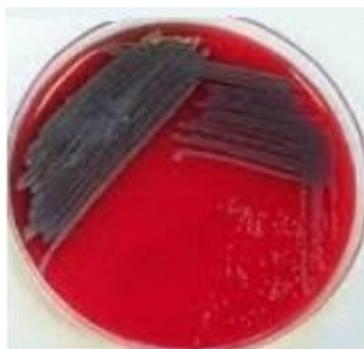


Fig 2 – Colonies of *Stenotrophomonas.maltophilia* on blood agar

V. Conclusion

The treatment of catheter-related infections caused by *S. maltophilia* must include early and accurate diagnosis, use of effective preventive strategies, and appropriate therapeutic clinical decisions about catheter removal.

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