中文題目：導管相關快速生長型非結核分枝桿菌菌血症案例報告

英文題目：Catheter-related *Mycobacterium conceptionense* bacteremia

作　　者：黃雨婕[1] 林尚儀[1,2]

服務單位：高雄醫學大學附設中和紀念醫院 [1]內科部 [2]感染內科

Introduction

Nontuberculous mycobacteria (NTM) are opportunistic pathogens that can be widely found in the environment. NTM are classified into rapidly growing mycobacteria (RGM) and slow growers. Pulmonary infection, lymphadenitis and soft tissue infection are commonly caused by RGM. RGM-related bloodstream infections (BSIs) are increasing, especially among immunocompromised patients with intra-venous catheters.(1) The common species causing BSIs are *Mycobacterium fortuitum* complex (30.3%), *Mycobacterium mucogenicum*(27.2%) and *Mycobacterium chelonae-abscessus* (18.2%) among RGM group(2). *M. conceptionense*, as a species member of the *M. fortuitum* complex, often causes bone or soft tissue infections in hosts with a disorder of the normal structure. Herein, we presented a rare case of catheter-related BSI infected with *Mycobacterium conceptionense*.

Case presentation

This 41-year-old female patient had a medical history of hypertension and end stage renal disease with regular hemodialysis via left subclavian permcath. She was admitted to our hospital due to intermittent fever and diarrhea for one week. Associated symptoms included lower abdominal pain and poor appetite. The laboratory data showed elevated C-reactive protein level of 97 mg/L without leukocytosis. The radiography of the chest revealed no obvious pneumonia patch. Ertapenem was used for suspected infectious colitis but her fever persisted, especially during hemodialysis. Four days later, the aerobic blood culture yielded gram-positive and acid-fast stain positive bacilli (AFB)[Figure1]. The 7H11 agar showed cream pigmentation[Figure2]. *Mycobacterium conceptionense* was confirmed by 16S rRNA sequencing. Antibiotics regimen with Imipenem/cilastatin, Amikacin and clarithromycin was prescribed since that. However, persistent positive-blood culture was noted. Transthoracic echography revealed no evidence of vegetation. Left permcath was removed and a new one was created on day 17 after admission. Fever subsided gradually and bacteremia was also resolved. We finished the 4-week course of intravenous antibiotics

treatment and shifted to oral regimen with Levofloxacin plus clarithromycin. The vital signs and follow-up laboratory data were relatively stable upon outpatient clinic two weeks later.

Discussion

Based on Runyon's classification, NTM was classified into RGM and SGM. Previous studies have established that RGM BSIs most commonly occur in immunocompromised patients, with most being catheter associated *M. conceptionense*, first identified as an RGM in 2006, is a species member of the *M. fortuitum complex*(3). Among previous case reports of *M. conceptionense* infections, bone and soft tissue infections in hosts with a disorder of the normal structure (e.g., surgical sites or trauma history) were dominant. *M. conceptionense*-related bacteremia was relatively rare[Table 1].

The prevalence of RGM is increasing recently due to increased recognition of this organism and to advances in identification techniques. However, we still have limitations in distinguishing the following very closely related species even under MALDI-TOF and 16S rRNA sequence analysis[Figure 3]. As our patient, *M. farcinogenes senegalense group* was the initial result via MALDI-TOF identification; thus, empiric antibiotics were given based on this organism. However, the final 16s rRNA sequence analysis showed *M. conceptionense*, which seems more believable due to more rapidly growing characteristics. Due to the difficulty in identification, it may have a potential influence on the treatment effect because the optimal antibiotic regimens differ among species. Susceptibility tests for NTM are not routinely performed. The first *M. conceptionense* BSI report published in 2017 revealed the low minimum inhibitory concentrations level were noted among amikacin, clarithromycin, minocycline and levofloxacin(4). They also emphasized the removal of the catheter is another key role for the treatment of RGM catheter-related bloodstream infection with less recurrent rate(4,5).

The duration of antibiotic therapy for the treatment of catheter-related RGM bloodstream infections also differs among studies. Several researchers believe that at least 4 weeks of a combination of antimicrobial regimens can resolve progression and lead to better outcomes(6).

Conclusion

Early recognition of RGM catheter-related bloodstream infections is challenging, which highlights the need for rapid and accurate species identification and susceptibility testing. Appropriate antimicrobial treatment and the removal of the catheter are the major points for the final management.

References

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Figure 1. Acid-fast bacilli (AFB) was noted.

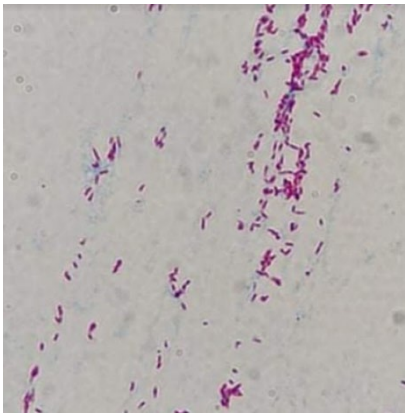

Figure 2. The 7H11 agar showed cream pigmentation.

Figure 3. MALDI–TOF MS fingerprint patterns between *M. conceptionense* and *M. farcinogenes* & *senegalense group.*

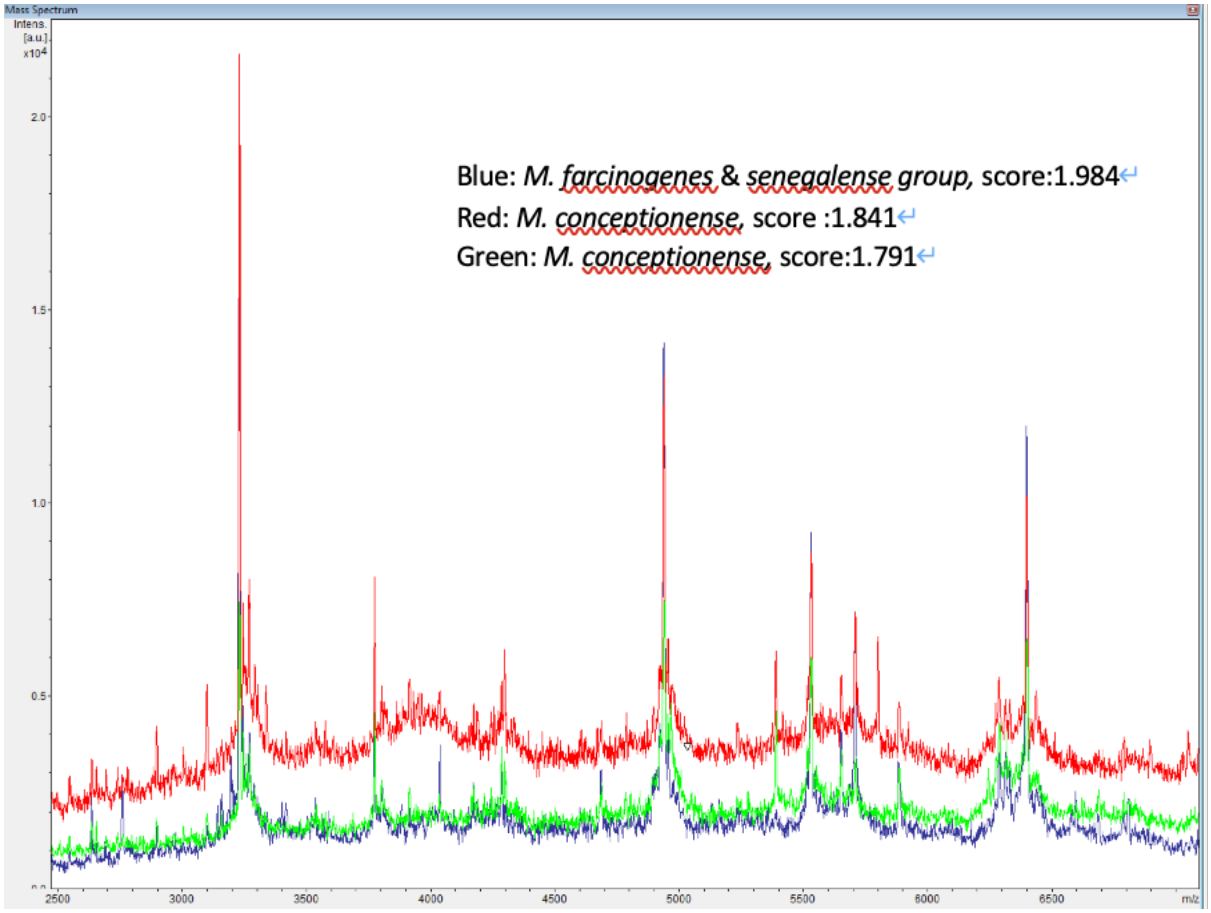

Table 1. Clinical profiles of the previous cases with M. conceptionense bacteremia

Case No.	**Age**	**Underlying disease**	**source**	**Antibiotics**	**Treatment Duration**	**outcome**	**reference**
Case 1	38	HIV, IVDU	Bacteremia	AMK	3 weeks	Recovered	7
Case 2	65	Gastric carcinoma	Catheter-related BSI	LVX, CLR, EMB,	6 months	Recovered	4

AMK: amikacin, LVX: Levofloxacin, CLR: Clarithromycin, EMB: Ethambutol