

中文題目：臺灣首例華萊士諾卡氏菌腦膿瘍的診斷與成功治療-案例報告

英文題目：Diagnosis and successful treatment of nocardia brain abscess due to *Nocardia wallacei* infection

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Background :

Nocardiosis is typically regarded as an opportunistic infection, but approximately one-third of infected patients are immunocompetent. Two characteristics of nocardiosis are its ability to disseminate to virtually any organ, particularly the central nervous system, and its tendency to relapse or progress despite appropriate therapy. For Nocardia related brain abscess, one retrospective review reported that the most common species isolated were *Nocardia farcinica* (37.5%), *N.wallacei* (12.5%), *N.cyriaci* (12.5%), *N.abscessus* (4.1%), *N.otitidiscaviarum* (4.1%), *N.transvalensis* (4.1%), and *N.argoensis* (4.1%). Sometimes it is difficult to differentiate nocardial abscesses from intracranial metastatic malignancy on CT or MRI. Diagnostic aspiration and laboratory examination are necessary to isolate the pathogen and for selection of appropriate antimicrobial therapy. This is the first reported case of successful treatment of *N.wallacei* brain abscess in Taiwan.

Case presentation :

We reported a 42-year-old male bulldozer operator with the history of brain abscess status post craniotomy with drainage four months before this presentation. No pathogen was isolated and the patient received antibiotics treatment for months. He presented to our hospital with right hand tremor and progressive weakness for two weeks. Brain CT revealed abnormal brain tissue enhanced by contrast medium with a small ring-like lesion and peripheral white matter edema in the left frontal-parietal lobes. Biopsy and abscess aspiration were performed for three times during hospitalization course. *Nocardia wallacei* was isolated but there was limited response to trimethoprim-sulfamethoxazole plus imipenem. We then adjusted antibiotics, performed repeated abscess aspiration and successfully treated the brain abscess by regimen with intravenous form Linezolid 600mg Q12H for eight weeks and then oral form Linezolid plus Ciprofloxacin 500mg Q12H for twelve weeks. During the treatment course, the patient had improved weakness without hand tremor or other focal neurologic signs. However, progressive symmetrical neuropathy over bilateral lower limbs developed since

eighth week of treatment course. We then had tapered down Linezolid dose from 600mg Q12H to 600 mg QD since eleventh week of treatment course. There was improving but still residual neuropathy over feet despite we discontinued use of linezolid for two months during follow-up. During antibiotic-free period, he had no relapse of right side weakness and brain CT follow-up showed improved brain lesion.

Discussion :

Nocardia infection can be noted even in the immunocompetent patient. Brain abscess is the most common diagnosed nocardia CNS infection.

Images such as CT or MRI may show multifocal, ring-enhancing lesions in the brain.

However, the definitive diagnosis often required brain abscess drainage or surgical incision and further laboratory study. To our knowledge, this is the first reported case of successful treatment of *N. wallacei* brain abscess in Taiwan. Nocardia species are a complex group of organisms and has had a conflicted and confusing taxonomic history. *N. wallacei* belongs to the *Nocardia transvalensis* complex. Among *N. wallacei* isolates, the antibiotic susceptibility testing results varied between laboratories for amoxicillin-clavulanic acid, imipenem, sulfamethoxazole, and trimethoprim- sulfamethoxazole. However, they are all sensitive to Linezolid. Antibiotics are crucial for treatment of nocardiosis. Trimethoprim-sulfamethoxazole (TMP-SMX) is recommended as part of first-line therapy for nocardiosis. Nonetheless, increasing sulfonamide resistance has been reported elsewhere. Linezolid lends itself as a good empirical treatment option, including for infection due to uncommon Nocardia spp. Because of its activity and availability as an oral agent, linezolid has the potential to be the primary drug for treatment of Nocardia disease. However, the side effects of linezolid including peripheral neuropathy should also be closely monitored.

Conclusion :

Diagnosis and treatment of brain abscess due to Nocardia infection are clinical challenges.

Specimen collection via surgery intervention for microbiology culture is needed. *N. wallacei* belongs to the *Nocardia transvalensis* complex and the resistance to Trimethoprim-sulfamethoxazole (TMP-SMX), which is recommended as part of first-line therapy for nocardiosis, has been reported. Linezolid can be alternative and effective treatment option of nocardia disease but the side effects including peripheral neuropathy should be closely monitored.