中文題目:案例報告:罕見全身瀰漫性 *Mycobacterium fortuitium* 感染併肺部、腸胃道及骨髓侵犯

英文題目: Case report : Disseminated *Mycobacterium fortuitium* infection with pulmonary, gastrointestinal system and bone marrow in an immunocompetent patient

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Introduction : *Mycobacterium fortuitium* is a rapid growing nontuberculosis mycobacterium (NTM) which often required from environment and soil. It rarely causes disease in health person and usually leads in cutaneous soft tissue infection after intramuscular injection or other forms of surgery. Here we presented a immunocompetent patient with prolong fever who was diagnosed of disseminated *Mycobacterium fortuitium* with bone marrow, pulmonary and possible gastrointestinal involvement using an oligonucleotide-microarray based method.

Case presentation : A 65 years-old male who work at a pig farm had been in healthy status without underlying systemic disease before until this early June, intermittent high fever with chills developed. He reported dry cough, few sputum and general weakness but denied headache, vomiting, chest discomfort, abdominal pain, diarrhea, dysuria, arthralgia or skin rash. He was diagnosed of community-acquired pneumonia and received antibiotic with cefotaxime and doxycycline. However, intermittent fever persists and he had been hospitalized for several times with several course of antibiotic treatment. Bacterial blood culture and sputum culture were repeated for several times which reported no bacterial growth. Contrast abdomen CT was also conducted which revealed no abnormality. The patient had persistent lethargy, poor appetite and body weight decreased gradually in the following 2 months. Bone marrow biopsy was conducted for fever for unknown origin which mycobacterial culture grew acid-fast positive bacilli one week later and sputum mycobacterium culture also grew same pathogens. Chest CT was arranged for pulmonary lesion evaluation which reported right middle lobe bronchiectasis and mediastinal and right supraclavicular lymphoadenopathy and suspect esophageal wall thickening. Under the concern of possible esophageal malignancy, panendoscopy was performed which reported gastric and duodenal subepithelial nodular lesions and grade B reflux esophagitis. We ordered an oligonucleotide-microarray based method for testing bone marrow culture, sputum culture which both reported *M. fortuitium* one week later and biopsy tissue from

duodenum yielded weak positive of nontuberculosis mycobacterium. We checked hepatitis test, serology test about autoimmune disease, HIV screening which all revealed negative finding and no image study hint solid organ tumor. The patient did not have long-term steroid or other immunosuppressant agent exposure. The patient received antibiotic treatment with cefoxitin and amikacin for 2 weeks and maintained at afebrile status after treatment. Doxycycline and ciprofloxacin were prescribed as maintenance therapy and the patient's spirit and body weight returned to baseline gradually one month later.

Discussion : There are more than 140 species of NTM and these NTM causes various diseases clinically, especially in immunocompromised patients. Definite diagnosis of disseminated NTM infection needs culture study or tissue prove and identify species of NTM usually time consuming. We used an oligonucleotide-microarray based chip to detect signals to identify mycobacterium species within one week and final PCR sequence confirmed this result. Gastric and duodenum biopsy via endoscopy is not routinely sent for culture study which is difficult for pathogen detection. We used the same chip to check biopsy tissue from stomach and duodenum which reported weak signals of mycobacterium. It is rare in an immunocompetent host with disseminated *M. fortuitium* infection involving not only bone marrow and pulmonary system but also gastrointestinal system. Treatment regimen is not well documented and usually need combination therapy for several months or years. Some kind of adult onset immunodeficiency disorder needed to be considered in this patient and further evaluation is suggested.