

## *Mycobacterium abscessus* Urinary Infection in Hypertensive Patient: A Case Report

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### Abstract

*Mycobacterium abscessus* is a common non tuberculous mycobacterium associated with diseases in patients with underlying conditions. The diagnosis is often missed in resource limited settings. We reported a case of *M. abscessus* in a patient with renal failure. A young female patient admitted at the hospital for kidney failure was diagnosed with malignant hypertension based on clinical and laboratory findings. Over the course of hospitalization, the patient presented hematuria and leukocyturia and the urine culture was positive for acid-fast bacilli. Empirically antituberculous treatment given to the patient was changed to clarithromycin after confirmation of *M. abscessus* by probe line hybridization assay. Favorable outcome was achieved with regression of symptoms and the decrease of the serum creatinine level. In patients with underlying conditions, differential diagnosis should be considered particularly in resource limited settings.

### Introduction

*Mycobacterium abscessus* (*M. abscessus*) is a common rapid growing mycobacterium associated with pulmonary infection in patients with chronic lung disease. Skin, soft tissue and disseminated infections are rare, occurring mostly in patients with underlying conditions [1]. We reported a case of urinary tract infection with *M. abscessus* in a young hypertensive female patient and discussed the therapeutic option for this case.

### Methods

#### Patient

The case patient is a 22 years old female secretary hospitalized on April first 2014 for kidney failure discovered during a blood pressure assessment in a context of headache, nausea, vomiting, and tinnitus. At the time of admission, the blood pressure was 240/130 mmHg, tachycardia 113 beats/minute. There was no history of previous major illness. The clinical picture evoked malignant hypertension. The diagnosis was confirmed by the presence of exudates and hemorrhages in the eye fundus examination, and a concentric hypertrophic cardiomyopathy with kidney of normal size at ultrasounds exam.

#### Initial laboratory findings on hospital admission

Laboratory tests showed serum creatinine at 2397 µmol/l, urea 60.6 mmol/l, the hemoglobin level at 7.6 g/dl with normal platelet count, dyslipidemia with total cholesterol and triglycerides respectively at 266 mg/dl and 185 mg/dl. The urine sample showed hematuria (667000/ml), leukocyturia (260000/ml). The culture was sterile for other bacteria but showed the presence of numerous acid-fast bacilli on Lowenstein Jensen solid medium and the BacTAlert 3D liquid medium after Ziehl- Nielsen staining. The patient was then treated for malignant hypertension and urogenital tuberculosis with angiotensin-

converting enzyme inhibitors and calcium channel blockers. The anti-tubercular therapy adapted to renal function with rifampicin, isoniazid, pyrazinamide, and ethambutol was established. With the regression of symptoms, the patient was discharged on April 28<sup>th</sup> 2014 after four weeks of hospitalization.

#### Clinical course

On May 5<sup>th</sup> 2014, she was readmitted in emergency with fever, vomiting, abdominal pain, diarrhea, and tachycardia 100/min, arterial blood pressure 130/95 mmHg. Laboratory test was positive for *Plasmodium falciparum*. No bacteria were recovered from stool and blood cultures. On May 9<sup>th</sup>, 2014, *M. abscessus* was identified by a reverse line probe hybridization assay (GenoType *Mycobacterium CM*; Hain Lifescience GmbH, Nehren, Germany). The antituberculous treatment is stopped and replaced with clarithromycin at the dose of 1 g/day. Treatment with clarithromycin was continued successfully with a favorable outcome and improvement in renal function (creatinine 398 µmol/l, hemoglobin 9.5 g/dl). The patient was discharged after four weeks of treatment. The urine sample collected on June 16<sup>th</sup> 2014 was sterile for bacteria and acid fast bacilli.

#### Discussion

Tuberculosis (TB) is caused by *Mycobacterium tuberculosis* complex; however, other mycobacteria species are involved in human infections [2]. *M. abscessus* complex is one of the main nontuberculous mycobacteria (NTM) for humans. The localization is mainly pulmonary but disseminated infection can occur. Nosocomial transmissions related to medical procedures occur and can cause outbreak [3]. The risk of infection with *M. abscessus* in hospitals especially in our setting remains high because of the lack of individual and collective hygiene. These infections occur mainly in immunocompromised individuals. Our patient had a kidney failure but was tested negative to Human Immunodeficiency Virus (HIV).

Urogenital TB is the second localization accounting for 27% of extra pulmonary cases. However, genitourinary infections caused by NTM are rarely reported [4]. CT Huang et al. [4] reported 15 cases of genitourinary infections caused by nontuberculous mycobacteria among which *Mycobacterium avium* complex was the most common (n=5, 33%), followed by *M. abscessus* and *Mycobacterium fortuitum* (n=2; 13% each). The clinical picture, usually a fever, abdominal pain, diarrhea was present in our case. The complex is differentiated into 3 subspecies: *M. abscessus subsp. abscessus*, *M. abscessus subsp. massiliense*, and *M. abscessus subsp. bolletii*. These subspecies are differentiated by the presence of erm (41) gene which confers inducible macrolide resistance [5]. In resource limited setting, the diagnosis of TB and other NTM is based on the direct microscopic examination of specimens after ziehl Neelsen or fluorescent staining. But the primary specimen is usually negative. Misdiagnosis of TB due to the presence of NTM led to inappropriate treatment of patients [6]. In our case the patient was empirically treated with antituberculous drugs based on the acid fast staining before the identification. New macrolides particularly azithromycin and clarithromycin dramatically changed the treatment outcome of many NTM. Clarithromycin have shown success in treatment against *M. xenopi*, *M. marinum*, *M. haemophilum*, *M. genavense*, *M. chelonae*, and *M. abscessus* [7]. However, resistance to clarithromycin are reported ranging from <15% to >70% depending on the subspecies involved. In case of resistance azithromycin can be associated to amikacin and one of the following: fluoroquinolone, imipenem, doxycycline, or linezolid [8]. The treatment of complicated *M. abscessus* complex infections usually involves initial combination of macrolides (clarithromycin or azithromycin) plus intravenous agents for at least 2 weeks to several months [5]. Unfortunately we could not differentiate this strain at subspecies level because *M. abscessus subsp. massiliense* was describe to have a better prognosis and improved treatment outcomes than *M. abscessus subsp. abscessus* [9].

## Conclusion

NTM urinary tract infections are under reported. Clinician's attention should be drawn to consider differential diagnosis particularly in patients with underlying conditions. This is to our knowledge the first observation of urinary infection with *M. abscessus* in Mali successfully treated with clarithromycin with correct tolerance. Despite the severity of the clinical picture in our case, the evolution was favorable with a dramatic improvement in renal function, as the

serum creatinine decreased from 2397  $\mu\text{mol/l}$  the 398  $\mu\text{mol/l}$  without dialysis and the disappearance of macroscopic hematuria.

## Disclosure Statements

No conflict of interest declared.

Informed consent obtained for publication of the case report.

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