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Mycobacterium Other Than Tuberculosis (MOTT) – A Case Report

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Abstract: Patients with chronic obstructive pulmonary disease (COPD) and bronchiectasis are considered at risk of non-tuberculous mycobacterial lung disease especially those on inhaled corticosteroids.

We described a case of a 69-year-old male, Ex. a heavy smoker with past history of pulmonary tuberculosis, COPD with diffuse centro lobular emphysema; status post left thoracotomy for hydropneumothorax, left-sided bullectomy done 8 months back.

Patient admitted in our hospital " King Fahad General Hospital, Jeddah " with a history of chronic productive cough with an increased SOB, on/ off fever, night sweats and loss of weight in the last 3 months. No hemoptysis. On examination, he was conscious, oriented, afebrile, positive clubbing. Vitally stable. Chest examination showed a scare of left thoracotomy clean with small chest wall bulge; decreased breath sounds with bilateral ronchi and dullness in the left lower chest.

Laboratory investigations showed hyperleukocytosis of 14.6 and serology for HIV was negative. CT scan chest showed left lobulated pleural effusion with empyema necessities, a diffuse emphysematous lung disease with bilateral thick wall cavities and pulmonary nodules as well as left bronchiectasis changes with underlying consolidation collapse. US-guided left pleural aspiration done showed exudative polymorph inflammation.

Pleural fluid AFB and PCR was negative and two samples of AFB sputum were positive (2+), PCR was negative, 2 Bactec cultures were positives with the rapid growth of MOTT. Mycobacterial Avium Complex has been identified (Mayoclinic lab. in USA) which is sensitive to Rifampicin*, Clarithromycin* and Ethambutol* but resistant to Moxifloxacin and to Linozelid*. Patient treated with a combination of Rifampicin + Ethambutol* +Clarithromycin* for 18 months with clinical and radiologic improvement and good tolerance.

This Study is a "case report study" aimed to report a very rare case, to report a new case of MOTT in Saudi Arabia for the purpose of statistics and for scientific benefit.

Keywords: Mycobacterium other than tuberculosis, Mycobacterium avium complex.

الجرثومة الفطرية غير الدرنية - تقرير حالة

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الملخص: المرضى الذين يعانون من مرض السدة الرئوية أو مرض توسع القصبات الهوائية يزداد لديهم خطر الإصابة بالالتهاب الرئوي بالجرثومة الفطرية غير الدرنية بالخصوص أولئك الذين يستخدمون بخاخات الستيرويدات.

نحن في هذه الدراسة نوصف حالة لمريض ذكر يبلغ من العمر 69 عاماً، مدخن سابقاً، لديه تاريخ مرضي بالإصابة بمرض الدرن الرئوي ومرض السدة الرئوية مع تكيس في أنسجة الرئة وخضع لعملية استئصال للجزء المعتل من الرئة قبل 8 أشهر.

تم تنويم المريض لدينا في مستشفى الملك فهد العام بجدة وقد كان يعاني من كحة مزمنة مصاحبة ببلغم وازدياد في ضيق التنفس مع ارتفاع في درجة حرارة الجسم في بعض الأحيان، تعرق ليلي ونقص في وزن الجسم خلال مدة 3 أشهر. لم يكن المريض يعاني من كحة مع دم. خلال الفحص السريري كان المريض في حالة وعي وإدراك طبيعية ولم يكن لديه ارتفاع في درجة حرارة الجسم. وقد كانت نسبة الأكسجين في الدم طبيعية من دون الحاجة لقناع الأكسجين. تم فحص صدر المريض وتبين وجود ندبة في الجهة اليسرى من صدر المريض مع نقص في مستوى الأصوات التنفسية وسماع صوت صفير في كلتا جهتي صدر المريض.

الفحوصات المختبرية بينت أن هناك ارتفاع في كريات الدم البيضاء وخلو المريض من فيروس نقص المناعة المكتسبة، وقد تم عمل أشعة مقطعية للصدر وأظهرت وجود تجمع للقيح في الرئة اليسرى ووجود تكيسات وتليفات في الرئة اليسرى وتم عمل سحب للقيح بواسطة ابرة تحت توجيه الموجات الصوتية وتبين وجود علامات التهاب.

تم عمل الفحوصات المختبرية للقيح الذي تم سحبه من الصدر وهي عبارة عن صبغة خاصة لكشف هذه الجرثومة الفطرية غير الدرنية تحت المجهر الإليكتروني وعمل مزرعتين جرثوميتين وتبين وجود هذه الجرثومة فيها وقد تم إرسال عينة لمختبر متخصص وتم تحديد نوع الجرثومة الفطرية غير الدرنية.

وقد تم عمل هذه الدراسة من نوع " تقرير حالة مرضية " بهدف توثيق حالة نادرة وطرحها بطريقة علمية وتوثيق حالة من هذا النوع في المملكة العربية السعودية لغرض الفائدة الإحصائية والعلمية.

الكلمات المفتاحية: الجرثومة الفطرية غير الدرنية، معقد المتفطرات الطيرية.

INTRODUCTION

Mycobacterium Other Than Tuberculosis (MOTT) are non motile aerobic organisms mostly, that refer to more than 150 species. MOTT are environmental organisms found in all habitats and households [1]. The infection in human by these organisms is uncommon. These organisms can cause lung infection resembling tuberculosis, skin infection, lymphadenitis or disseminated disease [2,3]. Unlike Tuberculosis (TB), MOTT have varied clinical symptoms in scope and intensity but generally less virulent than TB and commonly include chronic cough with purulent sputum. In MOTT Symptoms like shortness of breath, fever, weight loss, fatigue and malaise usually seen in advanced disease[4,5]. MOTT usually affects immunocompromised patients, such as HIV/AIDS and patients with underlying structural lung disease, such as previous tuberculosis, COPD, bronchiactasis, cystic fibrosis or chronic aspiration [6,7]. Advanced age, post-menopausal women and working in mines are considered risk factors for infection by MOTT.

Diagnosis of Mott is depending on clinical presentation and clinical suspicion is raised in susceptible risk group. Chest radiograph finding is similar to that in reactivation of pulmonary TB including cavitation in upper lung lobes. confirmation by PCR and detecting microscopically by special media of growth which is called "Lowenstein- Jensen medium " [8,9].

MOTT is a very rare disease and need a high level of clinical suspicion to diagnose. That reflects the importance of reporting and epidemiological studies of this disease. Although it is a very rare some isolated organisms were reported in Gulf Cooperation Concil countries (Table 1) [10].

We report a case of MOTT pulmonary infection (Identified: Mycobacterium avium complex) in a patient with prior relapsing pulmonary TB and COPD which had been diagnosed, followed up and treated in King Fahad General Hospital, jeddah.

Table (1) Case Studies Reported from the GCC countries [6].

	M. fortuitum	4	Pulmonary discharges, ascetic fluid, mediastinal infection, peritoneal dialysis fluid, and lipoid pneumonia.
Saudi Arabia (17)	*M. abscessus*	4	Pulmonary discharge, peritoneal biopsy, peripheral blood, and permanent catheter tip.
	M. chelonae	3	Blood & abnormal fluid, breast abscesses, and pleural fluid.
	M. marinum	1	Wound-elbow.
	M. kansasii	1	Appendiceal abscess.
	M. szulgai	1	Joint aspiration.
	M. riyadhense	3	Maxillary sinus, dural lesion, sclerotic lesions, and pulmonary infection.
Qatar (4)	*M. gordonae*	2	Liver biopsy and urine.
	M. fortuitum	2	Myocardial and abdominal abscess.
Bahrain (2)	*M. riyadhense*	1	Pulmonary discharge.
	M. marinum	1	Nasal cavity.
Kuaity (1)	*M. abscessus*	1	Peripheral blood.

Case History

A 69-year-old male patient, ex-smoker stopped 10 years back. known case of old pulmonary TB 30 years back with relapse 15 years ago treated for each episode for more than 6 months. IHD with PCI done 10 years ago. COPD on inhaled corticosteroid with past history of admission in a hospital 8 months ago for left hydropneumothorax, where left thoracotomy with bullectomy was done and patient was treated for bacterial infection with antibiotics.

Patient came with hx of chronic productive cough for 5 months associated with increased shortness of breath, left pleuritic chest pain, subjective fever, night sweats and subjective weight loss with no hemoptysis.

Examination

Patient was Conscious, oriented and looks underweight. He was Hemodynamicly stable, afebrile and maintaining oxygen saturation on room air.

On general Examination patient had Positive clubbing, no peripheral cyanosis or palpable lymph nodes.

Chest Examination showed a scar of left thoracotomy (figure1), decreased breath sound with dullness in left lower zone.

Figure (1) showing image of patient's left thoracotomy scar.

Investigation

Blood tests was done for the patient and showed, CBC: WBC=15.4, Hgb= 11.8, platelet=495. Serology showed results of HIV: negative, HBV&HCV: negative.

Patient underwent U/S guided left pleural aspiration and showed: exudative polymorphic inflammation (cell count=1810, neutrophil=56%). Chest x-rays showed left lung fibrocystic changes with septations and locution of lung tissue (Figure2,3).

Regarding special tests AFB was done, 1st and 2nd samples were negatives, 3rd sample were positive +3. Then TB-PCR (direct & indirect) was negative. Tow " Bactec" culture and sensitivity were positive with rapid growth of MOTT resistant to moxifloxacin and linazolid.

Identification of MOTT showed Mycobacterium Avium Vomplex (MAC).

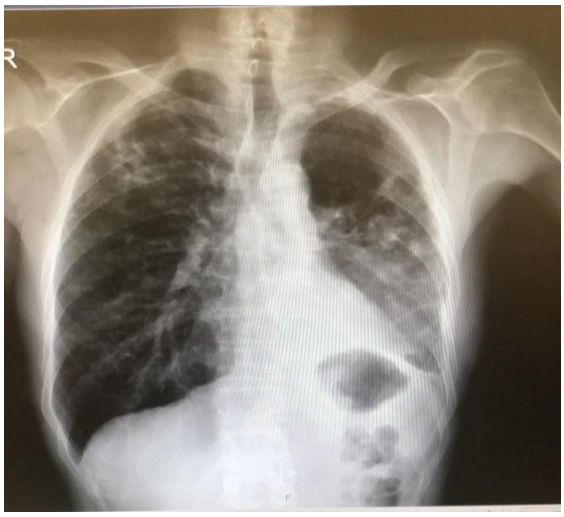

Figure (2) Anterior posterior chest x-ray of the patient showing left lung fibrocystic changes.

Figure (3) latral chest x-ray of the patient showing Loculation/Septation of left lung tissue.

Treatment

Patient was Treated for 18 months with Rifambicin 600 mg po od, Ethambutol 1200 mg po od and Clarithromycin 500 mg po BID.

Patient had been improved clinically and repeated "Acid Fast Bacilli" test and "BACTEC" culture and sensitivity were negative.

Discussion:

The importance of this study is to introduce a rare, emerging infectious disease in our region to people of interest in a form of real case which had been followed up from diagnosis to treatment by the researchers. Our case reflects the importance of high clinical suspicion in people at risk for a rare disease such as MOTT. Risk factors of our patient were previous history of TB infection, COPD on inhaled corticosteroid and previous lung surgery. The importance of follow up of treatment as this disease need a long duration of antibiotics. Our study my help other researchers in statistics and clinical practice in our Arab World and others.

Conclusion

- The presented case report is a case of MOTT: MAC pulmonary infection in COPD patient with prior relapsing pulmonary TB.
- Diagnosis based on Clinical (pulmonary symptoms, chest radiograph and exclusion of other diagnosis), and positive culture from 2 separate sputum samples.
- Treated for 18 months with rifambicin, ethambutol and clarithromycin resulted in clinical improvement and negative AFB and bactec c/s.
- Clinicians should be aware about this diagnosis in susceptible risk group of patients and properly guide preventable measures.

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