

Mycobacterium Riyadhense in Children: Case Report

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Introduction

Non tuberculous Mycobacterium (NTM) have more than 125 species spread world wide, each species with a different preferable environmental type [1,2]. NTM are free living organisms that have the potential of causing infection which can affect both immunocompetent and immunocompromised patients [3]. The disease have wide range of presentations although pulmonary involvement is the most common [4]. Mycobacterium Riyadhense is newly discovered species in NTM. First case was reported with extrapulmonary manifestations in Riyadh, Saudi Arabia, where the name of the city was giving to the species [4]. Two other cases with extrapulmonary manifestations where also reported later in Riyadh, Saudi Arabia [5,4]. Mycobacterium Riyadhense are capable of causing pulmonary infection which was reported in three different cases in France, Bahrain [6] and Korea [7]. The outcome of the disease was favorable although different approaches to the treatment was used in the management of Mycobacterium Riyadhense in the previously mentioned reports⁴. Our case report is considered unique for being the first to implicate Mycobacterium Riyadhense in pediatric age group.

Case Report

7- Years old presented with one month history of left cervical painless swelling which was increasing in size with no underlying skin changes this was followed by multiple neck swelling bilaterally. He had no history of fever, cough, weight loss or decrease in appetite. He is not known to have any previous medical condition. No history of contact with sick people or patients has tuberculosis. On examination his growth parameters were appropriate for his age. Scattered firm lymph node were palpated in submandibular, submental and cervical regions without skin changes or tenderness. The largest lymph node measured 6 x 4 cm in the right cervical region. Abdominal, Respiratory and musculoskeletal examination were unremarkable. Laboratory investigation revealed normal complete blood count& peripheral blood picture. Virology & toxoplasma screen were unremarkable as well as tuberculin skin test (TST) & quantiferon. Chest x-ray showed normal lung tissue, no hilar adenopathy or pulmonary nodule. A positron emission tomography scan showed multifocal hypermetabolic abnormalities in the neck. Computed tomography of the neck showed matted cervical lymphadenopathy. Computed tomography of the chest, abdomen & pelvis showed multiple bilateral lung nodules which are demonstrated with multiple foci of tree in bud opacities indicating endobronchial process. Biopsy of cervical lymph node showed caseating granuloma inflammation suggestive of tuberculosis. Acid fast bacilli stain negative & TB PCR were negative. The tubercles bacterial culture sent to Mayo clinic which was positive for Mycobacterium Riyadhense. Patient was started on ciprofloxacin, rifampin, ethambutol, clarithromycin for two months then continued on ciprofloxacin and clarithromycin for other 4 months as per susceptibility. Patient completely recovered with no relapse.

Discussion

Mycobacterium Riyadhense, a newly discovered NTM species, have the ability to infect a spectrum of presentations including pulmonary

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and extrapulmonary manifestations. The age of affected individual ranged from (18-43 years) with female to male ratio (3:1). The incidence and epidemiology of the disease is still in need of further study.

Our case is the first to implicate Mycobacterium Riyadhense in children. Our patient presented with extrapulmonary involvement as same as those described in the reports from Riyadh, Saudi Arabia⁴. Interestingly PCR MTBC is positive in most previous reported cases which may be explained by the close resemblance of the biochemical and molecular characteristics between Mycobacterium Riyadhense and Mycobacterium Tuberculosis, although the PCR MTBC of our patient was negative. As shown in table 1, different choices of regimen and variable duration of treatment was established without standardized guidelines for the managements of Mycobacterium Riyadhense. The site of the infection was the main factor in deciding the duration of treatment, the median duration was 13.5 months.

We tried a different regimen that included the use of ethambutol and rifampin (first line regimen of anti-mycobacterium tuberculosis) for two months, in addition to ciprofloxacin and clarithromycin (first line regimen for non-mycobacterium tuberculosis) as a course of six months. Our patient showed significant improvement within 2 months from starting treatment.

Literature review of all Mycobacterium Riyadhense reports revealed peculiar involvement of extrapulmonary manifestations in Riyadh, Saudi Arabia where all reported cases of this region have this particular manifestation and all the reported cases of pulmonary manifestations were from outside Riyadh. This observation may raise a suspicion to consider geographic and environmental setting as an influential factor in the process of the disease. However such a statement should be addressed carefully since the data available is limited to point at such conclusion.

Experience in pediatric age group with Mycobacterium Riyadhense is limited. Further studies and reports will enrich our knowledge in the clinical presentation and guidelines to management.

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Case	Country	Country	Site of Infection	Initial Regimen	Modified Regimen
1	Saudi Arabia	Adult	Maxillary sinus with bone involvement	INH, RIF, EMB (2months)	INH, RIF (7months)
2	Saudi Arabia	Adult	Brain with bone involvement	INH, RIF, EMB, PZA, MOX (9months)	RIF,EMB (6months)
3	Saudi Arabia	Adult	Spine	INH,RIF,EMB,PZA (6months)	RIF,EMB (7months)
4	France	Adult	Pulmonary	INH,RIF,EMB,PZA (2months)	INH,RIF (10months)
5	Bahrain	Adult	Pulmonary	CLR,CIP (12months)	After relapsed INH,RIF,PZA,EMB,CLR,CIP (8months)
6	Korea	Adult	Pulmonary	INH,RIF,EMB,PZA (8months)	RIF,EMB.PZA (6months)
7	Saudi Arabia	Pediatrics	Cervical Lymphadenopathy	CIP,CLR,RIF,EMB (2months)	CIP,CLR (4months)

Table 1: Clinical characteristic of all Mycobacterium riyadhense cases reported in the literature.

Competing Interests

The authors declare that they have no competing interests.

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