



A Case of Multilevel Airway Obstruction Secondary to Paradoxical Reaction to Anti TB Drugs in a Non HIV Patient with Tracheobronchial and Cervical Tuberculous Lymphadenitis

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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Case Study

ABSTRACT

A case report of a young male diagnosed as cervical tuberculous lymphadenitis presenting with rapidly enlarging neck nodes causing airway obstructing secondary to paradoxical reaction to antituberculous drugs. This phenomenon is rare in HIV negative patient. He also had myriad of symptoms and multilevel obstructions. In this case report we discuss the presentation of patient to our center with the management and possible pitfalls.

Keywords: Multilevel airway obstruction; anti TB drugs; tuberculous lymphadenitis.

1. INTRODUCTION

Despite advances in health care, tuberculosis (TB) remains a major leading cause of death

worldwide [1]. In 2014, there were 9.6 million new cases of TB with 1.5 million cases of death recorded as a consequence of TB in the world [1]. Malaysia, despite not listed as a high TB

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burden country, has registered 24054 new cases of TB in 2014 [1].

Cervical lymph node tuberculosis represents upto to 40% of extrapulmonary tuberculosis and the association with the pulmonary involvement is in between 5-62%. Clinically it may present as gradually increasing painless swelling with systemic symptoms such as loss of weightn fever and night sweats [2].

Hereby we report a case of a HIV negative patient who presented with airway obstruction secondary to tracheobronchial and cervical lymph node tuberculosis due to paradoxical reaction to antituberculous drugs.

2. CASE PRESENTATION

This is a case of 23 year old Malay gentleman with no comorbidity. Patient initially presented to us with complains of multiple painless bilateral neck swelling for 1 year. Patient denied having any chronic cough or loss of weight, neither history of contact with tuberculosis patients. Upon examination, we noted patient to have multiple cervical lymphadenopathy, largest measuring 3 cm x 3 cm over left Level II with multiple other lymph nodes affecting level III and level Va bilaterally. Flexible nasopharyngolaryngoscopy (FNPLS) was done and findings were unremarkable. A fine needle aspiration cytology (FNAC) was done, however, as it failed to recover any diagnostic material, therefore an excision biospy under local anesthesia was performed which revealed multiple matted firm lymph nodes. Histopathological examination of these nodes showed tissues infiltrated with epithelioid histiocytes forming granulomas. There was also presence of multinucleated giant cells of Langhan's and also foci of central caseating necrosis. The lymph nodes also stained positive for acid fast bacillus (AFB) using the Ziehl Nielsen staining method. As such, a diagnosis of cervical lymph node tuberculosis was made. A lymph node specimen which was sent for culture also grew mycobacterium tuberculosis, and the isolate was sensitive to all TB drugs.His chest xray at this point was clear, sputum for AFB was also negative. HIV serology test was done and he tested negative for HIV co-infection.

Patient was subsequently referred to the Respiratory medicine team and he was started on tablet Akurit (combination of rifampicin, isoniazid, pyrazinamide and ethambutol). Patient

presented to the emergency department on day 19 of TB treatment with worsening bilateral neck swelling associated with difficulty breathing and dysphagia since day 12 of anti TB drugs. Upon examination, patient noted to have biphasic stridor with huge bilateral neck swelling which measured 10 cmx10 cm bilaterally. The swelling was firm, non-tender, non-fluctuant with no skin changes. FNPLS was done which showed oedematous arythenoid with medialization of lateral pharyngeal walls. An urgent computed tomography (CT) of neck was done which showed multiple large neck nodes with necrotic centre obstructing the airway at the level of hypopharynx (0.8 cm) and supraglottic region (0.7 cm).

Patient was planned for incision and release of airway obstruction under general anaesthesia, but during awake fibroptic intubation by the anaesthesia team, a intraluminal mass was seen originating from the carina and obstructing the right main bronchus.In view of the new findings, patient was kept intubated and cared for in intensive care unit. CT thorax revealed soft tissue lesion of carina extending into right bronchus measuring 1.3 x 0.8 cm. There were also multiple necrotic nodes at subcarinal and pretracheal region. There was minimal consolidation at right lower lobe of lung, however the rest of lung fields were normal. A biopsy of the mass from the carina which was taken during the intubation was sent to the histopathologist for examination. The mass was seen to be lined by reactive and inflamed respiratory epithelium with infiltration of epithelioid histiocytes, neutrophyls and foam cells. Scattered multinucleated giant cells of foreign body type were seen. Ziehl Nielsen staining failed to detect any acid fast bacillus in the tissue sent (Patient already started on anti-TB). The pathologist came to the conclusion that these specimen was due to acute on chronic granulomatous inflammation.

During his second day of ICU admission, patient developed a drop in level of consciousness and had multiple episodes of generalized tonic clonic seizures. His electrolytes, plasma glucose, renal profile, coagulation and liver function test were not deranged. Patient was planned for CT brain to rule out central nervous system involvement however his clinical condition worsened. Patient developed hypotension and also bradycardia which was refractive to treatment. He succumbed to his illness despite aggressive resuscitation attempts.



Fig. 1. Patient having huge bilateral neck swelling

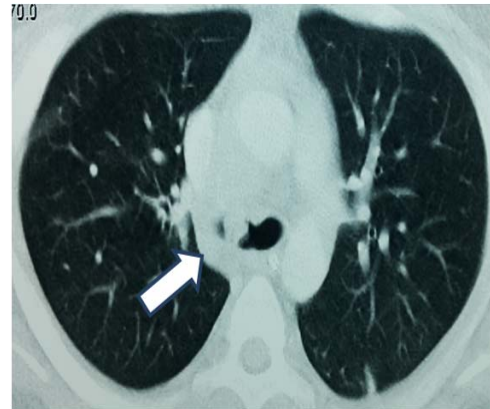


Fig. 3. Contrast CT scan of the thorax showing an enhancing mass arising from the lumen of the right main bronchus



Fig. 2. Contrast axial CT scan of patient showing multiple bilateral lymph nodes with necrotic centers compressing the airway

3. DISCUSSION

Tracheobronchial TB is part of the spectrum of TB infection and can be seen in 10-40% of patients who has pulmonary TB and is rarely seen in patient without lung involvement of TB [3]. Patients with tracheobronchial TB usually have non-specific presentations and can be mistaken to have other pulmonary pathologies such as malignancies, foreign body aspiration, asthma or pneumonia. It is more commonly seen in patients who are positive for HIV infection [3]. 10 to 20% of patients with tracheobronchial TB may have normal chest xray upon presentation. Therefore bronchoscopy and CT scan should be used method of diagnosing tracheobronchial TB. Complications of Tracheobronchial TB include, bronchial stenosis, bronchiectasis and airway obstruction [3].

A paradoxical response to anti TB drugs is defined as clinical or radiological deterioration of TB lesions in a patient who has initially responded to TB treatment [4]. Other possibilities for the deterioration such as drug resistance or poor compliance should have been ruled out prior to diagnosing paradoxical reaction [4]. Paradoxical reaction occur upto 28% of HIV positive patients receiving anti TB drugs while only 10% of HIV negative patients experience it as reported by Breem, et al. [5]. The median time taken for paradoxical reaction to occur from the time of initiation of TB drugs is 60 days (Ranging 14-270 days in HIV negative patient). Central nervous system (CNS) involvement represents the most common site for manifestation of paradoxical reaction (75%). This includes both new lesions of TB or worsening of existing lesions⁶. Symptoms of CNS involvement includes headaches, confusions, seizures, hemiparesis and cranial nerve palsies [5]. The mechanism of paradoxical reaction remains unclear however, immunorestitution or hypersensitivity reaction to antigens released by dying tuberculous bacilli has been suggested as a possible cause [4,5,6]. The management of paradoxical reaction should be tailored to each patient according to the presentation and clinical assessment. The anti-tuberculous treatment should be continued if the tuberculous bacteria is sensitive to the drugs used. Patients may need surgical intervention such as incision and release of abscess if condition did not resolve with conservative management. Steroid can be used as immunomodulator in management of paradoxical reaction. Reasons for steroid usage should include severe manifestation or prolonged duration of paradoxical reaction [5].

In regards to our case, the pitfall in management was the failure to recognize paradoxical reaction as a systemic manifestation. As the chief complaint was rapidly enlarging neck swelling with biphasic stridor, initial assessment was limited to the imaging of the neck and plain chest xray. The deceiving aspect of his history was the fact that patient was in early phase of TB treatment (day 12) and he was HIV negative. The tracheobronchial obstruction was detected later during intubation and possibility of CNS involvement was considered when patient developed decrease in consciousness and seizures. Therefore, it is vital that diagnosis of paradoxical reaction to be recognized early in its onset. These patients should have been evaluated for systemic manifestation of tuberculosis using CT scans and also bronchoscopy. Steroids as adjunct to symptomatic and surgical intervention should be considered in patients suspected to have paradoxical reaction.

4. CONCLUSION

Paradoxical response to anti-TB is an rare but life-threatening entity especially more in case of tracheobronchial tuberculosis. Rapid diagnosis and multi disciplinary team approach should be undertaken to prevent morbidity and mortality.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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