

Case Report

A case of concomitant Hodgkin's lymphoma with tuberculosis

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ABSTRACT

Tuberculosis (TB) presenting with Hodgkin's Lymphoma is a rare and difficult clinical situation for any physician to identify and to manage because of very similar clinical presentation. Herein we report a case of 29 year old woman who presented with enlarged lymph nodes, diagnosed and initiated on therapy for TB, based on the cervical node biopsy that showed granulomatous lymphadenitis suggestive of TB. Despite being on regular isoniazid, rifampicin, pyrazinamide and ethambutol regimen, she did not improve but worsened clinically! After an extensive work up that included endobronchial ultrasound (EBUS) and mediastinoscopy, a diagnosis of Hodgkin's disease of nodular sclerosis type was made. She was treated with chemotherapy and radiotherapy along with her TB therapy. Patient showed significant improvement following therapy.

KEY WORDS: Endobronchial ultrasound, Hodgkin's lymphoma, mediastinal lymphadenopathy, mediastinoscopy, nodular sclerosis, tuberculosis

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INTRODUCTION

Hodgkin's disease is bimodal in presentation, most commonly presenting among young ages (20-30 years) and in the elderly (above 50 years) with equal male and female distribution. 20-30% of the patients are asymptomatic. Nodular Sclerosis (NS) variant is the most common histopathological type of Hodgkin's disease among those who have mediastinal involvement. It is characterized histopathologically by the presence of classic Reed-Sternberg cells and/or its variants. Mediastinal TB is also characterized by enlarged hilar and mediastinal nodes although more often it is mentioned that TB lymph nodes are unilateral and Hodgkin's is bilateral asymmetrical. It is not uncommon to find mediastinal TB with bilateral involvement of mediastinal nodes. It is often said that fine needle aspiration cytology (FNAC) is not a good method to diagnose Hodgkin's disease as the core and smears are not sufficient to make a confident

diagnosis. The yield is higher with mediastinoscopy and anterior mediastinotomy. Ann Arbor classification is used for staging this disease.^[1]

CASE REPORT

A 29 year old woman presented to the local hospital with complaints of breathlessness and cough with expectoration for duration of eight weeks. On examination she was found to have enlarged cervical lymph nodes. Excision biopsy of the nodes were done and were subjected to histopathological examination (HPE), which revealed features suggestive of tuberculosis (TB), and hence the patient was started on anti tuberculous therapy (ATT) (isoniazid, rifampicin, pyrazinamide and ethambutol). She came to our hospital as there was no alleviation in her symptoms and increase in size of her cervical nodes in spite of her strict adherence to ATT therapy. A CT scan of thorax revealed enlarged paratracheal, subcarinal and hilar lymph nodes. An endobronchial ultrasound (EBUS) guided transbronchial needle aspiration (TBNA) of the enlarged nodes was done to reconfirm the diagnosis, HPE of which revealed a granulomatous inflammation. Though the tissue was negative for acid fast bacilli (AFB) on smear's test, she was continued on ATT due to the endemicity of TB in our country. One month later, her symptoms had

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subsided while her cervical nodes did not show any signs of regression. Her EBUS TBNA samples which were sent for AFB culture turned out to be positive. As her drug sensitivity patterns were not available at that point of time she was advised to continue the same ATT regimen. Three months later she returned to our hospital with complaints of cough, right sided chest pain and hemoptysis. A CT scan of her thorax was repeated, it showed an increase in the size of mediastinal nodes compared with her previous scan [Figure 1]. She was subjected to mediastinoscopy which revealed mediastinal nodes adherent to trachea and great vessels. HPE of the nodes revealed features consistent with Hodgkin's lymphoma, nodular sclerosing variant, along with necrotising granulomatous inflammation [Figures 2 and 3]. Immunohistochemistry confirmed the diagnosis [Figure 4] and it was classified as stage 2 Hodgkin's lymphoma as per the Ann Arbor staging criteria. She was initiated on chemotherapy (adriamycin, bleomycin, vinblastine, dacarbazine) of six 6 cycles, followed by external beam radiotherapy on the linear accelerator, using 6 MV

photons, a dose of 30 Gy in 15 fractions was delivered to the mediastinal tumour bed by image-guided radiation therapy (IGRT) technique. She was advised to continue her ATT for a duration of nine months. A positron emission tomography (PET) scan was done after the completion of chemo- radiotherapy that showed no lymph nodes. As she improved clinically no further workup was done.

DISCUSSION

Concomitant presentation of TB and lymphoma is a rare entity. Very few case reports of such a presentation are published till date [Table 1]. A primary malignancy like Hodgkin's lymphoma may cause a suppression of the cell-mediated immunity which predisposes to a concomitant TB infection.^[2,3] Misdiagnose or delay in diagnosis of both TB and Hodgkin's disease may occur because of similar signs and symptoms like cough, fever, loss of appetite, loss of weight, night sweats, hepatosplenomegaly and mediastinal adenopathy. Immunosuppression is the main cause of Mycobacterial



Figure 1: Axial cut section of CT chest with contrast showing enlarged upper mediastinal and right lower paratracheal lymph nodes

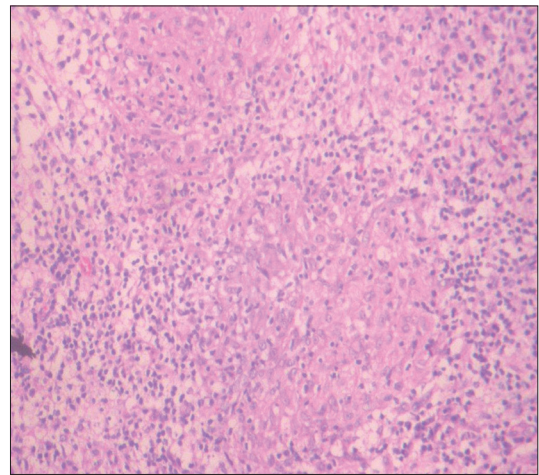


Figure 2: Photomicrograph showing under light microscopy showing Granulomas.

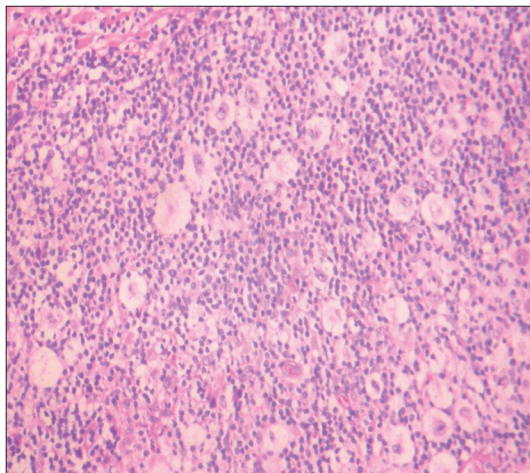


Figure 3: Photomicrograph showing with under light microscopy showing Lacunar Reed-Sternberg cells

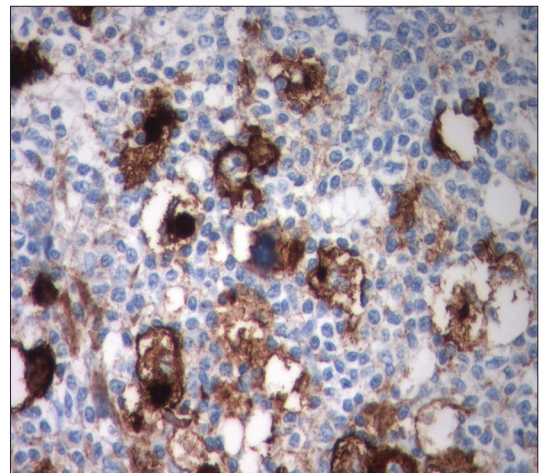


Figure 4: Photomicrograph showing with Immuno histochemical stains showing Reed-Sternberg cells showing CD15 positivity

Table 1: Case reports of occurrence of TB and Hodgkin's disease

Author	Title	Age (years)	Sex	Journal	Place	Year
Nasim V <i>et al.</i>	Pulmonary Hodgkins lymphoma misdiagnosed as TB	28	M	IJHOSCR	Iran	2012
AI Maghrabi <i>et al.</i>	Hodgkins lymphoma with exuberant granulomatous reaction	36	F	Saudi Med J	Saudi arabia	2006
Qasim <i>et al.</i>	Treatment failure of TB due to concomitant pathology	19	M	J Pak Med Assoc	Karachi	2003
Qasim <i>et al.</i>	Treatment failure of TB due to concomitant pathology	62	M	J Pak Med Assoc	Karachi	2003
Langley <i>et al.</i>	Primary multifocal osseous Hodgkins lymphoma	7	M	World J Surg Oncol	UK	2008
Fauzi <i>et al.</i>	Recurrent lung cavities and endobronchial nodules in adolescent male	NA	M	Med J Malaysia	Malaysia	2007
Luciano JM Coasta <i>et al.</i>	Simultaneous occurrence of Hodgkins disease with TB	41	M	Southern Medical Journal	Brazil	2004
Luciano JM Coasta <i>et al.</i>	Simultaneous occurrence of Hodgkins disease with TB	40	F	Southern Medical Journal	Brazil	2004
Luciano JM Coasta <i>et al.</i>	Simultaneous occurrence of Hodgkins disease with TB	49	M	Southern Medical Journal	Brazil	2004
Fanoungiakos P <i>et al.</i>	Non-Hodgkin's I lymphoma and tuberculosis coexistence in the same organs: a report of two cases	70	F	Post Grad Med J	Greece	2008
Codrich D <i>et al.</i>	Primary Pulmonary Hodgkins disease and Tuberculosis in an 11 year old boy	11	M	Pediatr Pulmonol	Italy	2006
Centkowski <i>et al.</i>	Hodgkins lymphoma and Tuberculosis coexistence in Cervical lymphnodes	47	M	Leuk Lymphoma	Poland	2005
Garciamocale S <i>et al.</i>	Zosteriform cutaneous metastases from Hodgkins lymphoma in a patient with Scrofuloderma and Nodal tuberculosis	33	M	Br J Dermatol	Spain	2004

TB: Tuberculosis

infection in Hodgkin's disease and TB is the main cause of mortality in such cases.

Some of the largest case series published by Kaplan *et al.* have reported 201 cases of malignancies complicated by TB of which there were higher chances of reactivation among patients with Hodgkin's disease.^[4]

The pathogenesis hypothesised is that, Mycobacterial tuberculous infection causes direct DNA damage^[5-7] and apoptosis inhibition, which increase mutagenesis of progeny cells, combined with angiogenesis favoring tumorigenesis. Specifically, various mycobacterial cell wall components are hypothesized to induce the production of nitric oxide^[8,9] and reactive oxygen species^[10] which are involved in mutagenesis. It should also be noted that both nitrative-DNA damage as well as oxidative-DNA damage have been implicated in inflammation-related carcinogenesis.^[11]

There are no definite investigative modalities other than histopathological examination to establish the diagnosis. Because of the underlying immune suppression, diagnostic utility of tuberculin skin test is very low in the background of a malignancy.^[12] Also modern imaging modalities such as FDG PET, FDG PET/CT fusion, whole body MRI (WB MRI) and multidetector CT (MDCT) shown promise in staging of lymphoma.^[13] but not in arriving at the diagnosis.^[14] Thus the treatment of this condition is invariably targeted at treating TB simultaneously with Hodgkin's disease. EBUS-guided TBNA is not considered to be an excellent tool for diagnosis of lymphoma unless one has facilities for Fluorescent *In Situ* Hybridization (FISH) technology.^[15] In one of the studies by Chrissian *et al.*, EBUS did not give any results in four of the cases. In contrast when they used the micro forceps biopsy (MFB) in the same patient their yield went up to 100%.^[16] Hence it has to be kept in mind if lymphoma is one of the diagnostic

considerations EBUS has to be used only when one has an access to MFB. Otherwise mediastinoscopy has to be used as one gets better and larger samples for HPE and cultures as happened in our case.

CONCLUSION

Whenever a patient has been diagnosed with TB based on HPE and culture results and does not respond despite regular treatment, one has to think of atypical mycobacteria, drug-resistant TB, co-existing non-mycobacterial infection and malignancies. High index of suspicion would yield rich dividends as it happened in our case as both TB and Hodgkin's are eminently treatable and in many cases curable illnesses as well.

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