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Multidrug Resistance In Tubercular Mediastinal Lymphadenopathy Diagnosed By Endobronchial Ultrasound – Transbronchial Needle Aspiration

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Abstract

Drug resistant tuberculosis (DR-TB) is a major public health issue. Drug resistance can be easily assessed in pulmonary samples, but it is more difficult to detect a resistance pattern in the mediastinal nodes. Multidrug resistance in tubercular mediastinal lymphadenopathy can be diagnosed by endobronchial ultrasound-transbronchial needle aspiration. Endobronchial ultrasound guided TBNA is a minimally invasive technique allowing sampling of mediastinal lymph nodes via fine needle aspiration under direct sonographic visualization for the purpose of diagnosing extrapulmonary (mediastinal lymph node) tuberculosis.

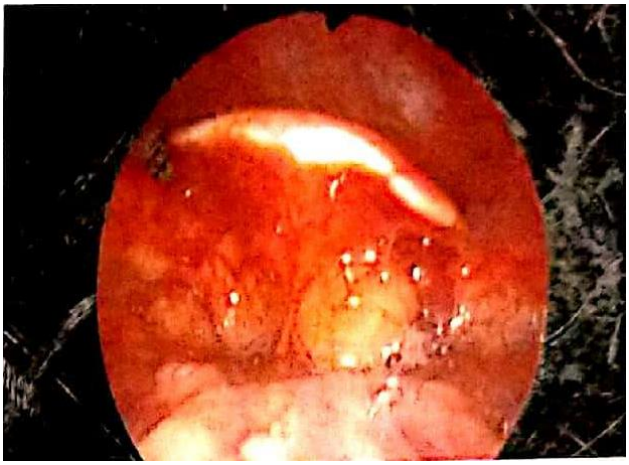
Keywords: Drug-resistant tuberculosis, endobronchial ultrasound, mediastinal lymphadenopthy, tuberculosis

Introduction

Multidrug-resistant tuberculosis (MDR-TB), defined as resistance to at least isoniazid (H) and rifampicin (R),and has emerged as a major public health concern around the world and a barrier to the successive global TB control. India is one of the high-burden countries for TB as well as drug resistance. According to global tuberculosis report 2021 incidence of 98.7 lakh tuberculosis cases, 25.9 lakh were estimated to have occurred in India, contributing to 26% of the global burden of tuberculosis in the country. As many as 5.06 lakh extrapulmonary TB cases were diagnosed in 2021 constituting nearly 20% of cases in India[1]. Estimated number of MDR/RR-TB cases in India is 124 000 (9.1/lakh population). MDR/rifampicin-resistant TB was found in 3.5% of new TB cases and 18% of previously treated patients worldwide.[2] An estimate of drug resistance is extremely important in the epidemiology and control of TB. A global assessment of the degree of treatment resistance in extrapulmonary tuberculosis is lacking and data for india is much more scarce. The emergence of drug resistant, MDR and extensively drug-resistant TB has highlighted the need of determining Mycobacterium tuberculosis (MTB) drug susceptibilities before starting antitubercular therapy (ATT).[3] The incidence of only pulmonary drug-resistant TB is estimated in the literature because sampling is comparatively easier in pulmonary samples. Since diagnostic assessment of the mediastinal lymph nodes was difficult and invasive, therefore there are no estimates available for drug resistance in TB mediastinal adenopathy . In the last decade with the emergence of a minimally invasive method called endobronchial ultrasound (EBUS), the accessibility to these nodes has increased. The role of EBUS–transbronchial needle aspiration (TBNA) in lung cancer staging[4] and sarcoidosis diagnosis[5,6] has been evaluated before. Many centres have documented the efficacy of EBUS for the diagnosis of tubercular mediastinal lymphadenopathy in the developing world over the last few years .[7,8,9]

Case Report:

A 75 year old male presented to us with complaints of hoarseness of voice and sore throat since 3 months, loss of weight and difficulty in breathing while speaking since 2 months, but appetite was normal. There is previous history of 2 vessel heart block for which heart stenting was done. There was no history of tuberculosis in past. Patient is a known case of hypertension. There was no history of type 2 DM, asthma, epilepsy. All the base line investigations were normal and viral markers were also negative for this patient. Videolaryngoscopy was done which showed "left vocal cord palsy with vallecular cyst"(Fig.1). CECT neck +chest was done which showed left side vocal cord palsy and Prominent mediastinal lymph nodes largest being 2.6x1.6 cm causing compression of left recurrent laryngeal nerve with necrosis in one of lymph nodes and mild centrilobular emphysematous changes in both lungs''(Fig.2). EBUS was planned and EBUS guided TBNA was done from subcarinal and AP window and samples were sent for A)microbiology-which showed mycobacterium tuberculosis with 'R' resistance while in bronchial aspirate acid fast bacilli was not detected. B)cytology-showed scattered lymphoid cells and pigment laden histocytes. No granulomas/giant cells/ necrosis were seen. The patient was then started on All oral longer MDR regimen comprising of bedaquilline, levofloxacin., linezolid, cycloserine and clofazimine.



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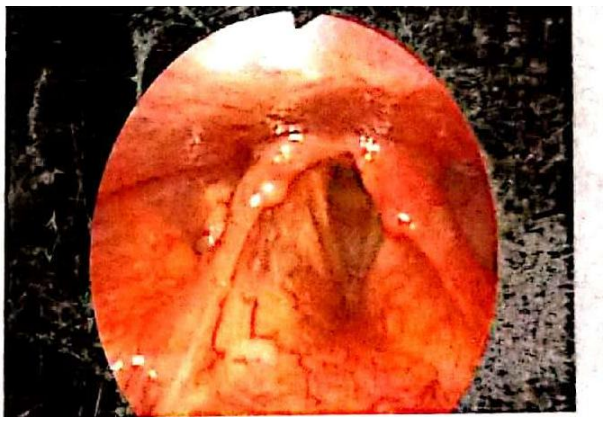

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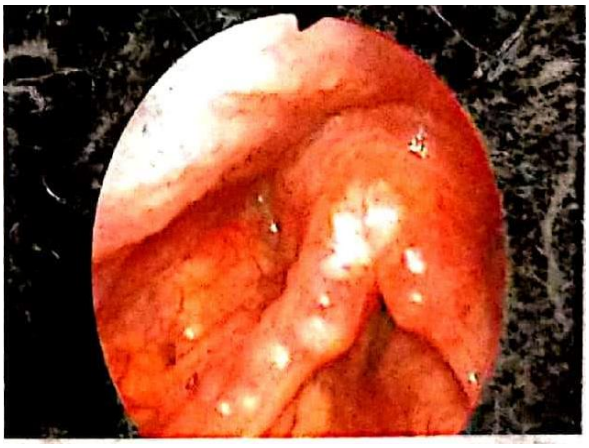

FIG: 1. VIDEO LARYNGOSCOPY SHOWS LEFT VOCAL PALSY WITH VALLECULAR CYST

Volume 5, Issue 4; July-August 2022; Page No 298-301

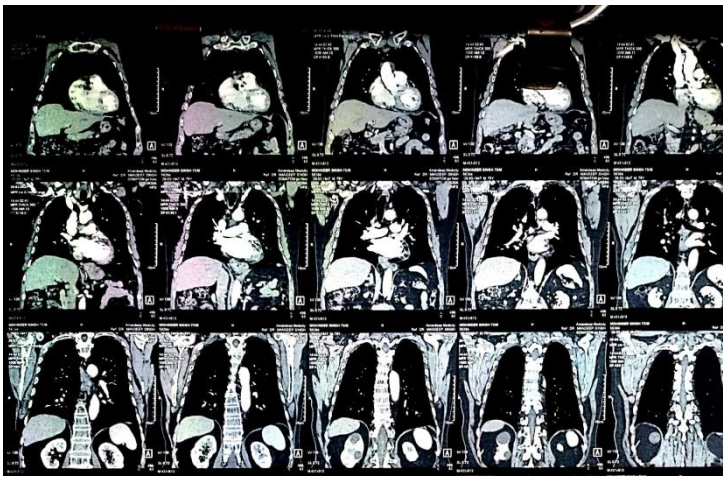

FIG: 2. CECT CHEST SHOWS PROMINENT MEDIASTINAL LYMPHADENOPATHY WITH ONE OF THE LARGEST LYMPHNODE IN LEFT AP WINDOW REGION CAUSING COMPRESSION OF LEFT RECURRENT LARYNGEAL NERVE

Discussion :

Mediastinal lymphadenopathy is a common finding in pulmonary tuberculosis and may by itself account for upto 40% extrapulmonary TB cases.[10] For the past 10 years EBUS has been available in the country and has proven to be quite useful in the diagnosis of tubercular mediastinal lymphadenopathy. According to WHO's "Global TB Report, 2018," 10 million people developed TB in 2017, and India accounted for 27% of these cases. Out of around 500,000 new MDR-TB cases, India was responsible for 24% of new MDR-TB cases. MDR/rifampicin-resistant TB was found in 3.5% of new TB cases and 18% of previously treated patients worldwide. Tuberculosis can affect any lymph node in the mediastinum. With EBUS majority of the mediastinal nodes involved are easily accessible. It has a low rate of morbidity and has utility in the diagnosis of mediastinal lymphadenopathy. Diagnosis of mycobacterium lymphadenopathy by EBUS-TBNA was first reported in 2009.[11] However, since the subcarinal and the right paratracheal are the most commonly nodes implicated, they can be easily sampled by conventional TBNA too. Since single and polydrug resistance is a major concern for any form of tuberculosis and it could be the reason for the failure of standard first-line therapy in many patients, therefore, even in centres where EBUS is still not available, conventional TBNA must be done to take a sample for culture and drug sensitivity before starting therapy. Dhasmana et al reported three MDR-TB (Multi drug resistant tuberculosis) out of 88 cases with microbiologically confirmed mediastinal TB lymphadenopathy.[12] Two were identified by Xpert MTB/RIF and one by LPA(Line Probe Assay)

Conclusion :

Drug resistance is a major issue in tubercular mediastinal lymphadenopathy, just as it is in the pulmonary tuberculosis. Due to restricted means to sample these nodes, drug resistance in mediastinal nodes often goes unnoticed and MDR patients are often treated by prolonged duration of first-line drugs and various combinations of second-line drugs in the absence of drug sensitivity pattern. Hence EBUS-TBNA specimen is a useful modality in the diagnosis of drug resistant tuberculosis. None of the national and international tuberculosis programs have focused on this problem because these cases are not contagious and do not pose a public health risk . However, all efforts should be taken to sample these nodes and to determine the drug sensitivity pattern prior to starting antitubercular treatment because resistance rates are very high in these nodes as well.

Bibliography:

1. World Health Organization. Global Tuberculosis Report. 2021. Available from: file:///C:/Users/Admin/Downloads/global%20report%202021.pdf
2. World Health Organization. Global Tuberculosis Report 2018. Geneva, Switzerland: World Health Organization; 2018.
3. World Health Organization. Multidrug and Extensively drug-Resistant TB (M/XDR-TB) 2010 Global Report on Surveillance and Response. World Health Organization. 2010
4. Wallace MB, Pascual JM, Raimondo M, Woodward TA, McComb BL, Crook JE, et al. Minimally invasive endoscopic staging of suspected lung cancer. JAMA. 2008;299:540–46.
5. Garwood S, Judson MA, Silvestri G, Hoda R, Fraig M, Doelken P. Endobronchial ultrasound for the diagnosis of pulmonary sarcoidosis. Chest. 2007;132:1298–304.
6. Wong M, Yasufuku K, Nakajima T, Herth FJ, Sekine Y, Shibuya K, et al. Endobronchial

Volume 5, Issue 4; July-August 2022; Page No 298-301

ultrasound: New insight for the diagnosis of sarcoidosis. Eur Respir J. 2007;29:1182–86.
7. Dhamija A, Basu A, Sharma V, Bakshi P, Verma K. Mediastinal Adenopathy in India: Through the Eyes of Endobranchial Ultrasound. J Assoc Physicians India. 2015;63:15–8.
8. Madan K, Mohan A, Ayub II, Jain D, Hadda V, Khilnani GC, et al. Initial experience with endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) from a tuberculosis endemic population. J Bronchology Interv Pulmonol. 2014;21:208–14.
9. Dhamija A, Ganga VB, Guliani A, Raveendran R, Verma K, Basu AK. Endobronchial ultrasound for tubercular mediastinal adenopathy and its comparison with traditional tools. Int J Tuberc Lung Dis. 2019;23:907–12.
10. Gupta PR. Difficulties in managing lymph node tuberculosis. Lung India. 2004 Oct 1;21(4):50-3.
11. Steinfort DP, Johnson DF, Connell TG, et al.Endobronchial ultrasound-guided biopsy in the evaluation of intrathoracic lymphadenopathy in suspected tuberculosis: a minimally invasive technique with a high diagnostic yield. J Infect 2009;58:309-11.
12. Dhasmana DJ, Ross C, Bradley CJ, Connell DW, George PM, Singanayagam A, Jepson A, Craig C, Wright C, Molyneaux PL, Wickremasinghe M. Performance of Xpert MTB/RIF in the diagnosis of tuberculous mediastinal lymphadenopathy by endobronchial ultrasound. Annals of the American Thoracic Society. 2014 Mar;11(3):392-6.

Volume 5, Issue 4; July-August 2022; Page No 298-301