

Endobronchial ultrasound transbronchial needle aspiration (EBUS TBNA) in HIV affected individuals: Is the (E)BUS ready for uncharted territories?

Real-time convex-probe endobronchial ultrasound-transbronchial needle aspiration (EBUS-TBNA) has gained important place in clinical practice in diagnosing hilar and mediastinal lymphadenopathy since its inception.^[1] It is established as a safe and minimally invasive procedure, performed under moderate sedation and local anesthesia on an outpatient basis with minimal complications.^[2,3] This procedure has brought a paradigm shift in clinical practice, considerably reducing the need of invasive procedures such as mediastinoscopy and associated morbidity with the procedure.^[4]

EBUS-TBNA was initially used in the diagnosis and staging of lung cancer, but with time has established itself in accurately diagnosing mediastinal adenopathy due to both benign and malignant causes.^[5,6] EBUS-TBNA has shown to obtain the highest yield of tumor RNA material from small biopsies in lung cancer for adequate molecular biomarker testing when compared to bronchoscopy and computed tomography-guided biopsies.^[7] EBUS-TBNA can provide a precise diagnosis of mediastinal adenopathy due to infections as well.^[8-10]

Tuberculosis (TB) remains the leading cause of mortality in HIV-infected individuals. As per the WHO 2015, a majority of TB cases in HIV-infected population were not diagnosed or treated, leading to a large number of deaths.^[11] Up to 40% of patients infected with HIV have mediastinal lymphadenopathy.^[12] TB remains one of the commonest causes for mediastinal lymph adenopathy followed by atypical mycobacterial infections, fungal infections, lymphomas, and Kaposi sarcoma in people living with HIV. Rarely, Castleman's disease and immune reconstitution inflammatory syndrome may cause mediastinal lymphadenopathy in HIV infection.^[10] The low lymphocytic state in HIV infection leads to poor granuloma formation in TB and thus poses a challenge in histological diagnosis.^[13] However, the high bacterial load in HIV-TB co-infection helps in getting microbiological evidence. Malignancies have been reported more commonly in non-TB-endemic regions as a cause for mediastinal adenopathy in HIV-infected individuals. This makes sample acquisition indispensable in the optimum management of individuals with HIV having mediastinal adenopathy.

Prasad *et al.* have reported a retrospective study analyzing the utility and safety of EBUS-TBNA in people living with

HIV in India.^[14] This is the first study from India describing the utility of EBUS-TBNA in HIV-infected individuals. It is a small study analyzing 22 patients. The most common diagnosis was TB followed by lung cancer and lymphoma. EBUS-TBNA could achieve a diagnosis in 17 out of 22 patients. The median CD4 lymphocyte count was 144 cells/mm³. There was no surgical sampling of lymph nodes done to confirm the diagnosis in patients where EBUS-TBNA was inconclusive. However, the sample adequacy though defined was not one of the analyzed parameters. It would have been intriguing to know the adequacy of samples in patients where EBUS-TBNA was inconclusive. Nevertheless, the study definitely highlights the quality of lymph node samples in a low lymphocytic condition obtained by EBUS-TBNA. The sampling of mediastinal lymph nodes in HIV-infected population serves as an uncommon indication of EBUS-TBNA.

Out of the 15 patients diagnosed with TB lymphadenitis on EBUS-TBNA, only 3 had granulomas on cytological examination. Twelve patients had necrotic inflammation and 13 had acid-fast bacilli seen on smears. As the feasibility and performance of GeneXpert for MTB/RIF on EBUS-TBNA samples have been previously reported,^[9,15] it would have been worthwhile to have TB GeneXpert data in the current study by Prasad *et al.*^[14] TB bacilli were demonstrated on EBUS-TBNA aspiration in a fair number of patients. This is an opportunity to perform line probe assay in such samples to help in the early initiation of the optimal TB regimen in HIV co-infected population.

The technical aspects to be aware of when using EBUS-TBNA in people living with HIV are the appropriate steps in disinfection of the scope to prevent transmission and handling of the EBUS-TBNA needle. There have been reports of infected bronchoscopes with HIV. The common sites of contamination include biopsy channel and insertion tube surface where HIV genetic material has been detected. Detergent cleaning prior to disinfection with glutaraldehyde has shown reduction in contamination as HIV virus is resistant to glutaraldehyde and retains its infectivity at room temperature even when dried. Hence, the potential risk of cross infection exists, and therefore precleaning should not be delayed until disinfection.^[16] Flexible bronchoscopy helps in isolating the specific organism in the huge spectrum of possible infections in patients with HIV. The utility of EBUS-TBNA in paucilymphocytic situations to pinpoint the cause of

mediastinal lymphadenopathy certainly sets the stage for unraveling the true potential of the pulmonologists weapon!

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