



Should Endobronchial Ultrasound be Performed in All Patients with Suspected Sarcoidosis?

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Keywords

Endobronchial ultrasound, Sarcoidosis, Conventional Bronchoscopy

Introduction

Sarcoidosis is a multisystem inflammatory disease of unknown etiology that is characterized by noncaseating granuloma. Its incidence is 11 cases per 100,000 population in whites and 34 cases per 100,000 population in African Americans [1]. Sarcoidosis most often involves the lung and intrathoracic lymph nodes but can occur in any other organ system. The most common respiratory complaints are dyspnea, shortness of breath and wheezing. However, many patients are asymptomatic and have incidental enlarged mediastinal or hilar lymphadenopathy on routine chest imaging.

Although clinical suspicion as well as radiographic findings might suggest sarcoidosis, pathological evidence is often required to exclude similar presenting diseases such as lymphoma, tuberculosis and lung cancer [2]. Since pulmonary sarcoidosis is the most common form, endoscopy remains essential in establishing the diagnosis.

Blind transbronchial needle aspiration (TBNA), endobronchial and transbronchial lung biopsy are common standard bronchoscopic techniques used for tissue biopsy. Recently, endobronchial ultrasonography (EBUS) - TBNA has been increasing used to establish diagnosis in patients with enlarged hilar and mediastinal lymphadenopathy.

Advantages of EBUS-TBNA Compared to Conventional Bronchoscopy

The diagnostic yield of EBUS-TBNA in sarcoidosis has been reported in several studies recently. The GRANULOMA trial is a randomized multicenter international study where endoscopy was compared to conventional bronchoscopy in patients with stages I and II sarcoidosis [3]. Endosonography had a statistically higher diagnostic performance (80 %) as compared to conventional

techniques (53%). However, diagnostic yield was significantly higher for stage I sarcoidosis (84% vs. 38%, $P < 0.001$) as compared to stage II sarcoidosis (66% vs. 77%, $P = 0.18$). Another randomized trial showed that EBUS-TBNA had higher yield (74.5%) compared to conventional TBNA (48.4%), $p = 0.004$ [4].

Moreover, Tremblay et al [5] showed a significant diagnostic yield of 83.3% in patients who underwent EBUS-TBNA as compared to blind TBNA group 53.8%. Sensitivity and specificity were 60.9% and 100%, in the standard TBNA group vs. 83.3% and 100%, in the EBUS- TBNA group.

In patients with suspected stage I and II sarcoidosis who underwent EBUS-TBNA, 10% had an alternative diagnosis [6]. This is important since delaying diagnosis such as lymphoma, cancer or tuberculosis could harm patients.

Furthermore, EBUS-TBNA has been shown to be safe. In a recent systematic review for patients undergoing EBUS-TBNA for suspected sarcoidosis , only 5 patients out of 532 had minor complications [7].

Although mediastinoscopy has been considered to be the gold standard mediastinal sampling, it is an invasive technique requiring general anesthesia and carries a complication risk between 1.4 to 2.3 % [8]. Successful diagnoses with EBUS-TBNA may obviate the need for such an invasive procedure.

Disadvantages of EBUS-TBNA Compared to Conventional Bronchoscopy

EBUS-TBNA can be performed by pulmonologists. However, it requires proper training to reach high diagnostic yield. Clinicians should be trained on conventional TBNA technique as well as interpretation of lymph node ultrasound images. The American College of Chest Physicians (ACCP) recommends 50 supervised procedures to obtain competence [9]. In addition, learning curve to obtain optimal yield might continue to improve up to 120 procedures [10].

Also, setting up EBUS-TBNA service is expensive due to equipments, additional staff and use of on-site cytology [11]. EBUS-

Citation: Assasa O (2014) Should Endobronchial Ultrasound be Performed in All Patients with Suspected Sarcoidosis?. Int J Respir Pulm Med 1:001

Received: August 01, 2014: **Accepted:** August 04, 2014: **Published:** August 06, 2014

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TBNA has a longer procedure time compared with conventional bronchoscopy [12].

Conclusion

EBUS-TBNA has many advantages and relatively few disadvantages and fewer complications when compared to other modalities. The use of such a minimally invasive technique to obtain a higher diagnostic yield and exclude other serious diseases is appealing albeit those physicians should be adequately trained.

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