



The Egyptian Society of Chest Diseases and Tuberculosis
Egyptian Journal of Chest Diseases and Tuberculosis

www.elsevier.com/locate/ejcdt
www.sciencedirect.com



ORIGINAL ARTICLE

Ultrasound-guided forceps for pleural biopsy

Gamal Agmy^a, Yousef Ahmed^a, Lamiaa H. shaaban^{a,*}, Nermen Kamal^b

^a Chest Department, Assiut University, Assiut, Egypt

^b Pathology Department, Assiut University, Assiut, Egypt

Received 5 December 2013; accepted 19 December 2013

Available online 10 January 2014

KEYWORDS

Pleura;
Ultrasound;
Pleural biopsy

Abstract *Purpose:* Ultrasound guided forceps for pleural biopsy is a technique that can cover the diagnostic yield gap between the needle biopsy of the pleura and thoracoscopy or thoracotomy. This technique enables operator to take biopsy from multiple pleural sites. Study objectives were: (1) to describe the ultrasound guided forceps for pleural biopsy as a technique not in common use in our practice to obtain pleural biopsy. (2) To evaluate the diagnostic yield of this technique in undiagnosed exudative pleural effusion.

Methods: This study included 96 patients admitted to Chest Department – Assiut University Hospital during the period from March 2010 to January 2012. All patients had exudative pleural effusion with the first pleural tapping being undiagnostic. Patients with bleeding tendency or blood coagulation defects were excluded from the study. Each one was submitted for the procedure once. The equipment used were ultrasound apparatus (ALOKA – Prosound – SSD – 3500SV), biopsy forceps (KARL – STORZ – Germany 10329L – BS), trocar and cannula of Cope's needle and rubber inlet seal. The procedure was performed under local anesthesia (Xylocaine 2%) and aseptic condition. The patients were premedicated by analgesic (Ketorolac tromethamine 20 mg). Three to five biopsy fragments were obtained from each case and sent in 10% formaldehyde to the pathology laboratory. All patients were submitted for thoracoscopy under local anesthesia and thoracoscopic forceps biopsies of pleura were taken.

Results: Compared to thoracoscopy the sensitivity of ultrasound guided forceps pleural biopsy in the diagnosis of malignant and tuberculous lesions was 85% and 88% respectively. The technique was absolutely specific in the diagnosis of malignant and tuberculous lesions.

* Corresponding author. Tel.: +20 1002681478.

E-mail address: lamiashaban@yahoo.com (L.H. shaaban).

Peer review under responsibility of The Egyptian Society of Chest Diseases and Tuberculosis.



Production and hosting by Elsevier

Conclusions: Ultrasound-guided forceps for pleural biopsy is a simple, efficient, and safe procedure. It can be carried out easily and safely even in sick and obese patients. On the other hand, the procedure appears similar to the thoracoscopy in obtaining adequate pleural tissue specimens. Yet, it is simpler and less traumatic.

Clinical implications: Ultrasound-guided forceps for pleural biopsy can overcome many of the limitations of the conventional needle biopsy procedures, provides multiple biopsy specimens of the parietal pleura that are inaccessible to the biopsy needle, and can be carried out easily and safely even in sick and obese patients. The diagnostic yield is nearly similar to thoracoscopy.

© 2014 The Egyptian Society of Chest Diseases and Tuberculosis. Production and hosting by Elsevier B.V. Open access under CC BY-NC-ND license.

Introduction

Pleural effusion is an important and common clinical finding. In some diseases it represents the initial or only sign and its presence can alter the prognosis and treatment of concomitant disease.

Physical, biochemical, bacteriological and cytological examinations of pleural fluid are important for etiological diagnosis. However, the etiology of pleural effusion may be obscure after initial thoracentesis in a significant proportion of patients [1,2]. In addition to thoracotomy and open pleural biopsy; various biopsy techniques are available to diagnose pleural disease. These range from older techniques such as blind or closed needle biopsy of the pleura, to newer techniques including image-guided and thoracoscopic pleural biopsy [3]. Closed needle biopsy of the pleura is a routine invasive investigation in the etiologic diagnosis of exudative pleural effusion. The diagnostic accuracy of the needle biopsy however, is limited because it takes pleural tissues from around a single puncture site. Moreover, biopsy of extra pleural tissue is possible [4].

Thoracoscopy and thoracotomy are the ultimate diagnostic options. These procedures enable us to take biopsy from multiple pleural sites under vision. However, these latter procedures are associated with certain complications and discomfort to the patient [5,6]. One of the image-guided procedures is forceps biopsy of the pleura under sonographic guidance which enable the physician to take biopsy from multiple pleural sites and can cover the diagnostic yield gap between the needle biopsy and the more invasive procedures such as thoracoscopy and thoracotomy [7,8].

So the aims of this study are: (1) to describe the ultrasound-guided forceps for pleural biopsy as a technique not in common use in our practice to obtain pleural tissue. (2) To evaluate the diagnostic yield of this technique in undiagnosed exudative pleural effusion.

Materials and methods

This prospective interventional study conducted in the Ultrasound Unit – Chest Department – Assiut University Hospital during the period from March 2010 to January 2012. This study included a total number of 96 patients who were admitted to our Chest Department, Assiut University Hospital, all of them had exudative pleural effusion with the first pleural tapping was non-diagnostic. Also all of them were eligible to do medical thoracoscopy in our endoscopy unit using semi-rigid thoracoscope (LTF; Olympus; Tokyo, Japan). Patients

with bleeding tendency or coagulation profile abnormalities were excluded from the study. Each one was submitted for the procedure once after their agreement to contribute to this study. The equipment used were ultrasound apparatus (ALOKA – Prosound – SSD – 3500SV), biopsy forceps (KARL – STORZ – Germany 10329L – BS)(Fig. 1), trocar and cannula of Cope's needle and rubber inlet seal (this specimen usually fixed at the proximal port of light bronchoscope channel) as shown in (Figs. 2 and 3).

The Procedure (Figs. 4–11) is performed using the free-hand technique under sonographic observation. The targeted skin site for instrument introduction is determined according to the site of the pleural lesion which is identified by US. The patient is then premedicated by analgesic (Ketorolac thromethamine 20 mg) and lying either in a sitting or semi-recumbent position. The skin at the biopsy site is cleaned and anesthetized with 5–10 ml of 2% xylocaine followed by making a stab incision with No. 11 scalpel blade along the intended biopsy track. The skin incision is followed by introduction of the trocar and cannula into the pleural space. The trocar is then withdrawn and the mouth at the cannula occluded with the thumb simultaneously with closure of the cannula valve to prevent leaking any air into the pleural cavity. Rubber inlet seal is then fixed at the mouth at the cannula to ensure that no fluid or air could pass during introduction of the forceps. During forceps introduction through the cannula the valve is opened and simultaneously the US probe is applied to the chest wall using sterile jell. The operator holds the probe and the cannula while the assistant holds the forceps which is directed sonographically to the targeted pleural lesion to take biopsy. Following biopsy, the forceps is withdrawn gradually and the cannula valve closed. Further biopsy from different sites is achieved by the reintroduction of the forceps and changing the angle of the cannula at the skin simultaneously with the changing position of the US probe. All biopsies are



Figure 1 Biopsy forceps (KARL – STORZ – Germany 10329 – BS).

Download English Version:

<https://daneshyari.com/en/article/3400347>

Download Persian Version:

<https://daneshyari.com/article/3400347>

[Daneshyari.com](https://daneshyari.com)