CORRESPONDENCE

Radiological Diagnosis in Lung Disease: Factoring Treatment Options Into the Choice of Diagnostic Modality

by Dr. med. Mark O. Wielpütz, Prof. Dr. med. Claus P. Heußel, Prof. Dr. med. Felix J. F. Herth, Prof. Dr. med. Hans-Ulrich Kauczor in volume 11/2014

Don't Forget Diagnostic Ultrasound

In my opinion, diagnostic evaluation using thoracic sonography should not be forgotten in the diagnosis of pulmonary and thoracic disorders; this modality is of confirmed relevance not only in diagnosing pleural effusion.

Transcutaneous thoracic ultrasonography is more diagnostically conclusive in detecting pleural effusion than the methods listed in the article. Septations can also be more easily identified than on a computed tomography scan of the thorax. As far as the legal situation is concerned, it needs to be borne in mind that a thoracic overview radiograph taken solely for the purposes of detecting a pleural effusion can be classed as a physical assault.

In peripheral pulmonary and pleural disorders extending to the thoracic wall sonography also offers advantages compared with methods that expose patients to radiation or are expensive. Large studies have shown the value of sonography in the diagnostic evaluation and assessment of the course of pneumonia and peripheral pulmonary embolism (1).

Sonographically guided biopsy of lesions extending to the thoracic wall is a diagnostically safe method that is low in complications, and effective. Signal amplification ultrasound is gaining importance in the detection of vital tumor areas for a diagnostically more conclusive biopsy.

Intensive care medicine and emergency medicine without ultrasound diagnosis have become inconceivable. Indications for further diagnostic approaches can be defined with greater certainty on this basis (2).

The German Federal Association of Pneumologists recommends in children primarily the use of thoracic ultrasound, and radiography only in case of doubt.

I would like to go into the role of endoscopic ultrasound here. I wish to mention, however, that by using ultrasound in the diagnostic evaluation of pulmonary embolism, the heart and the femoral veins can be assessed at the same time (3). DOI: 10.3238/arztebl.2014.0376a

REFERENCES

1. Reißig A, Görg C, Mathis G: Transthoracic sonography in the diagnosis of pulmonary diseases: a systematic approach. *Ultraschall Med* 2009; 30: 438–54; quiz 455–6.
2. Volpicelli G, et al.: International evidence-based recommendations for point-of-care lung ultrasound. *Intensive Care Med* 2012; 38: 577–91.
3. Mathis G: Sonographie bei Lungenembolie: drei Fliegen auf einen Streich [Ultrasound in pulmonary embolism: killing three birds with one stone]. *Pneumologie* 2006; 60: 600–6.
4. Wielpütz MO, Heußel CP, Herth FJF, Kauczor H: Radiological diagnosis in lung disease: Factoring treatment options into the choice of diagnostic modality. *Dtsch Arztebl Int* 2014; 111: 181–7.

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In Reply:

We welcome Dr Kämmer's letter as a valuable addition to our article. Thoracic sonography is an important option for the diagnostic imaging of pleural and pulmonary disorders and was not included in our article for reasons of space (1). Some advantages of ultrasound are obvious, such as the lack of radiation exposure and point of care/bedside procedures, wide availability, real time images, and guidance of the intervention. The primary indications are also indisputable: pleural disorders (especially effusion), dynamics, but also pneumothorax (2) and processes of the thoracic wall. Sonography and magnetic resonance imaging have similar advantages compared with CT—for example, in detecting septations in pleural effusions. In children with pleural processes and processes of the thoracic wall, we initially use sonography, and if the findings are not unequivocal we progress directly to MRT, without undertaking radiography or CT scanning. In the initial diagnosis of pneumonia or pulmonary embolism, sonography—also in combination with echocardiography and Doppler ultrasound of the femoral veins—can provide useful positive results—however it cannot provide an exclusion diagnosis. For this reason, sonography is particularly suitable for the purpose of monitoring. Furthermore, it is important for guided biopsies and endobronchial applications (3). However, the general characteristics of sonography need to be borne in mind in this setting: interobserver variability, particular challenges in terms of reliable documentation, and the time taken up by examining the entire thorax. Professional training in thoracic ultrasound is not generally available and has to be acquired in most cases by attending costly training courses in one's spare time.

In sum, sonography should be used early in the indication related diagnostic algorithm where the expertise is a given, in order to avoid further procedures altogether or in order to define their indication in a targeted and therefore personalized way.

DOI: 10.3238/arztebl.2014.0376b

REFERENCES

1. Herth FJ, Kreuter M: Ultrasound in pulmonology. *Respiration* 2014; 87: 1–2.
2. Kreuter M, Eberhardt R, Wenz H, Schmitteckert H, Heussel C, Herth F: Diagnostische Wertigkeit der transthorakalen Sonografie vergleichend zur Thoraxübersicht beim Nachweis eines postinterventionellen Pneumothorax. *Ultraschall Med* 2011; 32: E20–23.
3. Gompelmann D, Herth F: Role of endobronchial and endoscopic ultrasound in pulmonary medicine. *Respiration* 2013; 87: 3–8.
4. Wielpütz MO, Heußel CP, Herth FJF, Kauczor H: Radiological diagnosis in lung disease: Factoring treatment options into the choice of diagnostic modality. *Dtsch Arztebl Int* 2014; 111: 181–7.

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Conflict of interest statement

The authors of both contributions declare that no conflict of interest exists.