Thoracic ultrasound for the detection of rib metastases of non-small cell lung cancer

The authors declare no financial disclosure

Abstract

Transthoracic ultrasound has lately emerged as a useful diagnostic tool for respiratory physicians in the diagnosis of diverse pulmonary diseases, usually including pleural effusion and pneumothorax. However, the use of chest ultrasound may be also critical in the evaluation of chest wall diseases. Therefore, we present an interesting case of a patient with metastases of lung cancer to the rib, detected during the chest wall ultrasound examination. By representing a non-invasive, surface-imaging technique with several advantages, chest ultrasound may evolve to a valid, bedside diagnostic tool for the diagnosis and follow up of lung cancer with metastases in the chest wall.

Key words: non small cell lung cancer (NSCLC), chest ultrasound, chest wall metastasis

Introduction

A 63 year-old-male, current smoker (60 pack-year), with medical history significant for stage IV non-small cell lung cancer (NSCLC) under chemotherapy, was referred to our department complaining for chest pain on the left hemithorax for the last week. Physical examination revealed decrease breath sounds at the left side of the chest, while there was no evident chest wall mass infiltration. Chest X-ray showed an opacification on the left lung (Fig. 1). Transthoracic ultrasound revealed a hypoechoic mass on the fourth rib, instead of the normal bone echogenicity, consistent with rib infiltration, thus, bony metastasis to the rib was suspected (Fig. 2). This was confirmed by chest-computed tomography (CT) showing a bone metastasis in the frontal side of the fourth rib and the known solid tumor in the left lower lobe (Fig. 3).

Figure 1. Chest X-ray showed an opacification on the left lung

Transthoracic ultrasound has emerged as a useful diagnostic tool for clinicians in the diagnosis of pleural effusion, pneumothorax, interstitial lung syndrome and lately in community-acquired pneumonia [1, 2]. Chest ultrasound
examination may also be useful in the evaluation of a wide range of pleural and chest wall diseases, including metastases of lung cancer to the ribs [3]. It represents a non-invasive, surface-imaging technique with several advantages, including the lack of radiation exposure and the possibility to be performed at the bedside. Together, these advantages render chest ultrasound a valid, bed-side diagnostic tool for the diagnosis and follow up of lung cancer with metastases in the chest wall [3, 4].

**Conflict of interest**

The authors declare no conflict of interest.

**References:**