



Lung ultrasound in a dyspneic patient with giant bullae

Daniel Lichtenstein¹ and Gemma Rialp^{2*} 

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A 60-year-old man with exacerbated COPD and severe dyspnea was admitted to the intensive care unit (ICU). Lung auscultation revealed prolonged expiration and decreased vesicular breath sounds. Chest X-ray showed prominent hilar vascular shadows with no parenchymal consolidation and lung ultrasound was performed at ICU admission (Fig. 1a, b). A thoracic high resolution CT scan was performed in order to complete the COPD phenotype classification and this revealed a giant subpleural bullae (Fig. 1c).

Bullae cannot be visualized per se using ultrasound. However, the present case showed that lung sliding can

be seen, in this minimal variant. This is interesting when a pneumothorax is suspected on radiography, because even trace lung sliding allows pneumothorax to be discounted.

Minimal lung sliding can be seen in COPD and asthma. B-lines would help but are rarely present in bullous disease as interlobular septa are destroyed. If focusing at the very pleural line, one can see characteristic perturbations coming regularly, stopping exactly at the pleural line, not spreading above. These trace perturbations at the pleural line look a bit like a Morse code, hence the suggested label “Morse code sign” that is a variant of extremely

*Correspondence: grialp@gmail.com

² Intensive Care Department, Hospital Son Llàtzer, Carretera de Manacor km 4, 07198 Palma de Mallorca, Spain

Full author information is available at the end of the article



Fig. 1 **a** Lung ultrasound at the anterior left upper BLUE-point with a 5-MHz microconvex probe, semirecumbent patient, sublongitudinal (short rib-axis view) scan, real time. Arrows 1, a few millimeters above the ribs. Arrow 2, pleural line. Arrow 3, one A-line, at roughly the expected location, here in a minimal variant. **b** Same ultrasound, M-mode. On this smart machine, both images are at exactly the same level, a critical detail in critical settings. Arrow 2, pleural line, exactly facing the left image. Three fine circles are displayed (to minimize spoiling the image). Their middles indicate subtle artifacts arising exactly at and just below the pleural line. On video, they appear repeatedly, in the manner of a Morse code, hence the Morse code sign. In this patient, this subtle semiology confidently allowed us to rule out a pneumothorax. **c** Thoracic CT scan. Panlobular emphysema with huge parenchymal destruction and giant subpleural bullae. Note where the (microconvex) probe was located

discreet lung sliding that allows one to rule out the diagnosis of pneumothorax in those patients with giant bulla (Video1).

Electronic supplementary material

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Author details

¹ Intensive Care Unit, Hôpital Ambroise-Paré, Boulogne (Paris-Ouest), France.

² Intensive Care Department, Hospital Son Llàtzer, Carretera de Manacor km 4, 07198 Palma de Mallorca, Spain.

Compliance with ethical standards

Conflicts of interests

The authors declare that they have no competing interests.

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