

B lines in COVID-19: “Unspecificity” is not “meaningless”

We thank Prof. Trovato and Dr Sperandeo for commenting on our article.¹ We agree with them that lung ultrasound (LU) imaging is useful and our aim was to provide readers with a succinct overview of how LU was used in the care of COVID-19 patients at two centers in Italy.² The frequent finding in COVID-19 patients of lung consolidation at the inferior and basal regions means that one of the limitations of LU, which is to perform a complete assessment of the periphery of the lungs, is mitigated, as affected regions are not obscured by the scapula. Other authors have shown that in COVID-19 patients, LU provided results similar to those of computed tomography (CT) of the lung and superior to those of standard chest X-rays.³⁻⁵ Therefore, LU provides clinicians with another mode of lung imaging that can be performed noninvasively and without the logistic challenges of obtaining CT lung scan in these patients, as is well known to centers who have been faced with a large caseload.⁶ As stated in our article, we have not identified an LU finding that is pathognomonic of COVID-19.¹⁻⁷ However, the presence of B lines in several different clinical situations does not decrease their significance. In medicine, many signs are frequent in various diseases, like fever, but this is not a good reason to underestimate or not consider them at all. Furthermore, emerging ultrasound image analysis based on artificial intelligence and deep learning has the potential to further enhance the utility of LU.^{8,9} Although caution is needed in terms of exaggerating the power of LU, we hope it will continue to be used widely after the pandemic.

KEYWORDS

B lines, COVID-19, interstitial syndrome, lung ultrasound

CONFLICT OF INTEREST

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REFERENCES

- Sperandeo M, Trovato G. Usefulness of lung ultrasound imaging in Covid-19 pneumonia: the persisting need of safety and evidences. *Echocardiography*. In press (ECHO-2020-0386).
- Vetrugno L, Bove T, Orso D, et al. Our Italian experience using lung ultrasound for identification, grading and serial follow-up of severity of lung involvement for management of patients with COVID-19. *Echocardiography*. 2020;37:625–627.
- Huang Y, Wang S, Liu Y. A preliminary study on the ultrasonic manifestations of peripulmonary lesions of non-critical novel coronavirus pneumonia (COVID-19). *SSRN*. 2020. <https://doi.org/10.21203/rs.2.24369/v1>
- Jin YH, Cai L, Cheng ZS, et al. A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version). *Mil Med Res*. 2020;7:4. <https://doi.org/10.1186/s40779-020-0233-6>
- Convissar D, Gibson LE, Berra L, Bittner EA, Chang MG. Application of lung ultrasound during the COVID-19 Pandemic: a narrative review [published online ahead of print, 2020 Apr 30]. *Anesth Analg*. 2020. <https://doi.org/10.1213/ANE.0000000000004929>
- Wang E, Mei W, Shang Y, et al. Chinese Association of Anesthesiologists Expert Consensus on the use of perioperative ultrasound in coronavirus disease 2019 patients [published online ahead of print, 2020 Apr 10]. *J Cardiothorac Vasc Anesth*. 2020;34(7):1727–1732.

7. Vetrugno L, Bove T, Orso D, Bassi F, Boero E, Ferrari G. Lung ultrasound and the COVID-19 "pattern": not all that glitters today is gold tomorrow [published online ahead of print, 2020 May 8]. *J Ultrasound Med*. 2020. <https://doi.org/10.1002/jum.15327>
8. Corradi F, Brusasco C, Vezzani A, et al. Computer-aided quantitative ultrasonography for detection of pulmonary edema in mechanically ventilated cardiac surgery patients. *Chest*. 2016;150:640–651.
9. Gullett J, Donnelly JP, Sinert R, et al. Interobserver agreement in the evaluation of B-lines using bedside ultrasound. *J Crit Care*. 2015;30:1395–1399.

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