



Chest ultrasound in post-operative management: the needed to rethink our perspective?

Marco Chiappetta^{1,2}, Luca Pogliani^{1,2}, Dania Nachira^{1,2}, Maria Letizia Vita^{1,2}, Stefano Margaritora^{1,2}

¹Università Cattolica del Sacro Cuore, Rome, Italy; ²Thoracic Surgery, Fondazione Policlinico Universitario A. Gemelli, IRCCS, Rome, Italy

Correspondence to: Dr. Marco Chiappetta. Fondazione Policlinico Universitario A. Gemelli IRCCS, L.go A. Gemelli 8, 00168 Rome, Italy.

Email: marcokiaps@hotmail.it; marco_chiappetta@yahoo.it.

Provenance: This is an invited article commissioned by the Academic Editor Dr. Shuangjiang Li (Department of Thoracic Surgery and West China Medical Center, West China Hospital, Sichuan University, Chengdu, China).

Response to: Lesser TG. Significance of chest ultrasound in the early postoperative period following thoracic surgery. *J Thorac Dis* 2019;11:S352-3.

Submitted Jun 28, 2019. Accepted for publication Aug 13, 2019.

doi: 10.21037/jtd.2019.08.75

View this article at: <http://dx.doi.org/10.21037/jtd.2019.08.75>

We read with interest the paper “Significance of chest ultrasound in the early postoperative period following thoracic surgery” of Dr. Thomas G. Lesser (1), underlining the limited use of chest ultrasonography (CU) in post-operative.

In particular the author reported his experience in intraoperative use of CU, suggesting its potential advantages also in postoperative evaluation, especially regarding lung consolidations and chest tube management. We agree with the author in believing that CU has not gained the proper prominence as a diagnostic tool following thoracic surgery.

We are very interested about that, because as you wrote in your paper, only few articles talk about this argument.

Regarding the author experience, do they think that intraoperative knowledge may present some advantages also in post-operative chest evaluation?

About this point, in usual clinical practice, post-operative chest X-ray (CXR) are used in patient’s management but also to assess the presence of pleuro-parenchymal alteration and to detect early complications. Routine daily CRX or selective evaluation in thoracic surgery follow-up remains an argument of debate as showed from different reports with non-univocal results (2,3). Moreover, especially in early preoperative days, CXR is performed bed-side using anterior-posterior projection with the risk of incorrect quantification of the pleural effusion or distinguish it from pneumonia or atelectasis.

Chest ultrasound is readily available and radiation-free, and the three-dimensional vision of the body tissues seen with CU allows to discriminate easily between different

clinical problems and their severity when it is accompanied by an accurate physical examination. Many authors show as chest ultrasound has high accuracy, superior to the CXR, for the diagnosis of pleural effusion, pneumothorax and consolidation (4,5). CU can show if a partial opacification on CXR is due to bleeding, empyema or pleural effusion by analysing fluid characteristic as echogenicity, presence of clotted blood, settled pleural effusion or hyperechogenic spots. Moreover, CU is helpful to discriminate between pneumonia and atelectasis by analysing the air bronchogram during recruitment manoeuvres.

It is important to note that actually, the major part of thoracic surgeons can read a CXR, interpreting the minimal not clinically significant alterations such as small pneumothorax or lung contusion.

In our experience, we used CU instead of conventional radiology in post-operative, especially after mini invasive thoracic surgery (6,7), intending chest ultrasound not as alternative to CXR but as complementary and synergic tool. With this technique we had to reset our practice and interpret the new small alteration, such as small insignificant pneumothorax or pleural effusion, on the basis of the clinical conditions (7). This may be a little problem, especially in chest tube management, but we think that it is possible to train and improve our patients management with CU only with the experience and starting with “easy” patients or in collaboration with expert in CU.

Do the authors have any experience in management of chest tube or lung consolidations using CU? What do

they think about possibility to use CU as a supplementary/integrative diagnostic exam associate with chest radiography?

Based on the reported observations, we would greatly appreciate the authors' reflections on the topics discussed.

Acknowledgments

None.

Footnote

Conflicts of Interest: The authors have no conflicts of interest to declare.

Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

References

1. Lesser TG. Significance of chest ultrasound in the early postoperative period following thoracic surgery. *J Thorac Dis* 2019;11(Suppl 15):S2039-S2040. doi: 10.21037/jtd.2019.08.75
2. Cerfolio RJ, Bryant AS. Daily chest roentgenograms are unnecessary in nonhypoxic patients who have undergone pulmonary resection by thoracotomy. *Ann Thorac Surg* 2011;92:440-3.
3. French DG, Dilena M, LaPlante S, et al. Optimizing postoperative care protocols in thoracic surgery: best evidence and new technology. *J Thorac Dis* 2016;8:S3-11.
4. Hew M, Tay TR. The efficacy of bedside chest ultrasound: from accuracy to outcomes. *Eur Respir Rev* 2016;25:230-46.
5. Hew M, Corcoran JP, Harriss EK, et al. The diagnostic accuracy of chest ultrasound for CT-detected radiographic consolidation in hospitalised adults with acute respiratory failure: a systematic review. *BMJ Open* 2015;5:e007838.
6. Peris A, Tutino L, Zagli G, et al. The use of point-of-care bedside lung ultrasound significantly reduces the number of radiographs and computed tomography scans in critically ill patients. *Anesth Analg* 2010;111:687-92.
7. Chiappetta M, Meacci E, Cesario A, et al. Postoperative chest ultrasound findings and effectiveness after thoracic surgery: A pilot study. *Ultrasound Med Biol* 2018;44:1960-7.

Cite this article as: Chiappetta M, Pogliani L, Nachira D, Vita ML, Margaritora S. Chest ultrasound in post-operative management: the needed to rethink our perspective? *J Thorac Dis* 2019;11(Suppl 15):S2039-S2040. doi: 10.21037/jtd.2019.08.75