

Manuscript title: Lung ultrasonography for the assessment of perioperative atelectasis : a pilot feasibility study.

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Supplemental Digital Content

Appendix

At baseline, 47% of patients were found to have small subpleural consolidations (Table), usually a single one. Small subpleural consolidations increased in number (data not shown) and doubled in frequency after GA induction. Following pneumoperitoneum insufflation and for the rest of the study, small subpleural consolidations could be imaged in every patient. Except at baseline, small subpleural consolidations were predominantly found in the basal and dependent quadrants.

Table. Incidence and spatial distribution of small subpleural consolidations at the various time points

	Patients with at least a single small subpleural consolidation				
Timepoints	A	B	C	D	E
n (%)	14 (47%)	28 (93%)	30 (100%)	30 (100%)	30 (100%)
Quadrant	Spatial distribution of small subpleural consolidations				

Superoanterior	12%	2%	1%	2%	3%
Inferoanterior	15%	5%	8%	10%	11%
Superolateral	31%	11%	12%	9%	8%
Inferolateral	15%	27%	29%	32%	30%
Superoposterior	4%	18%	15%	9%	9%
Inferoposterior	23%	38%	35%	39%	40%

Discussion

Based on prior personal observations and existing literature^{1,2}, we believe echographic manifestations of atelectasis include small subpleural consolidations: small hypodense areas abutting the pleural line similar to "true" consolidations but smaller and devoid of their characteristic tissular pattern³, and displaying at least one B line at its inferior border. Although not described by the authors in their ex-vivo model of graded atelectasis, small subpleural consolidations can be observed in their echographic images of naturally collapsed lung². Interestingly, the initial incarnation of the LUS score, the lung ultrasound reaeration score, included the presence of these small subpleural consolidations as a distinctive feature in its grading system⁴. Furthermore, increasing PEEP causes their disappearance¹. By demonstrating a better correlation between atelectasis and small subpleural consolidations than the one observed with B lines, the recently published work of Acosta and coworkers adds support to our approach for the study of atelectasis⁵. In our study, only the

modified LUS score seemed sufficiently sensitive to detect the previously documented deterioration in lung aeration with pneumoperitoneum insufflation^{6,7}. However, all other analyses were not influenced by use of the original or modified score. Certainly, further research is warranted to validate this approach.

References

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