Echographie pulmonaire en réanimation

Groupe hospitalier
Paris Saint-Joseph

Johan Wormser, MKDE
Réanimation Polyvalente
GHPSJ

JARCA

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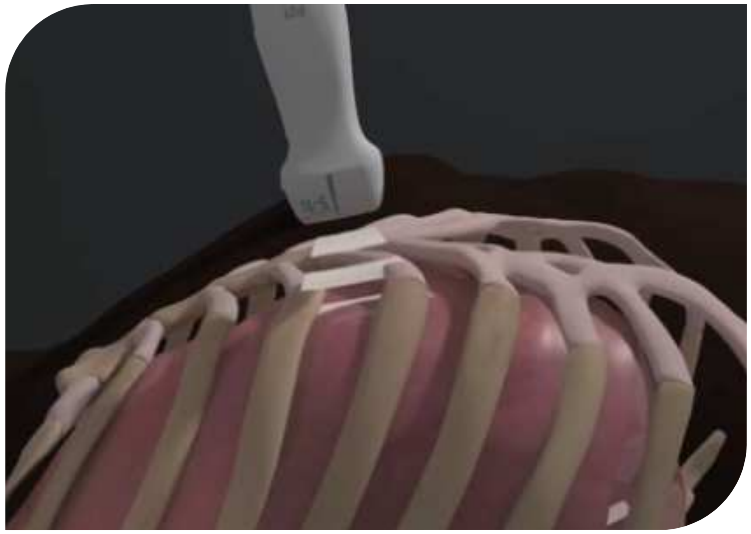
Johan WORMSER, MKDE, JARCA 2018

Groupe hospitalier
Paris Saint-Joseph

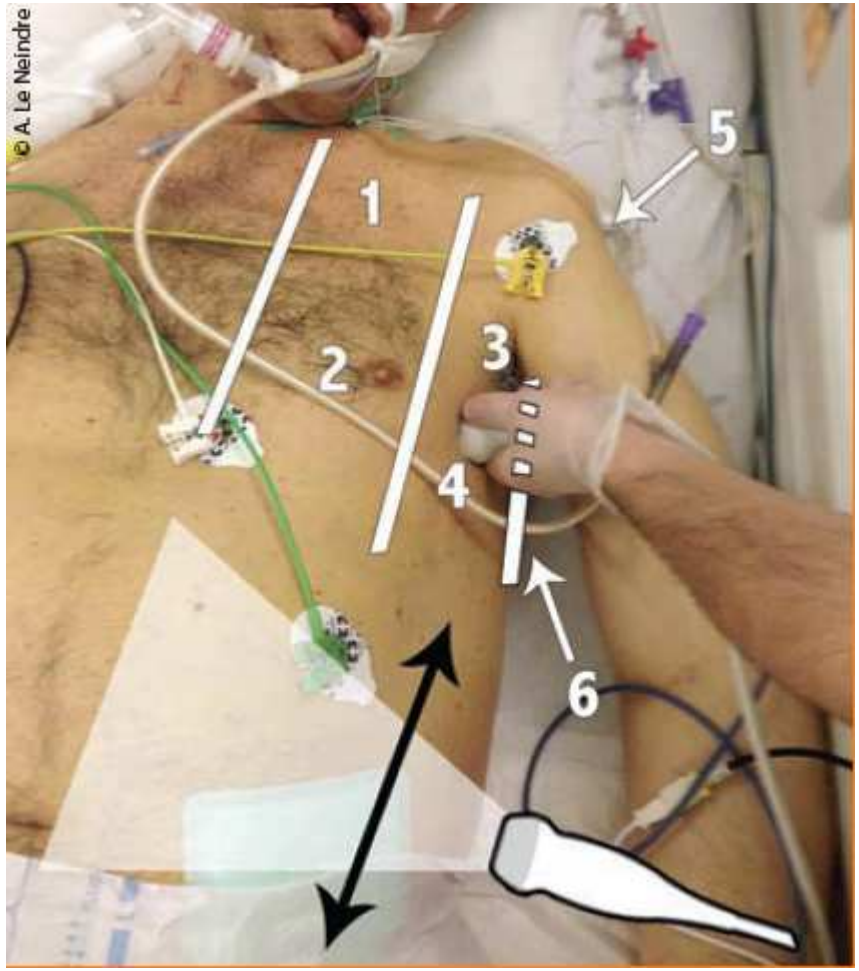
Aucun conflit d'intérêts

L'ÉCHOGRAPHIE THORACIQUE

L'EVALUATION PULMONAIRE NORMALE
L'EVALUATION DU DIAPHRAGME



Zone thoracique à explorer

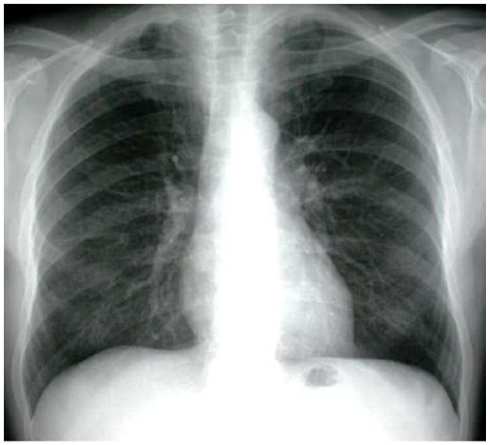


- Pour chaque hémi-thorax :
  - ✓ Région antérieure (1-2)
  - ✓ Région latérale (3-4)
  - ✓ Région postérieure (5-6)

- Chacune subdivisée en une région supérieure et inférieure

- Au total, 12 régions à explorer (6 par hémi-thorax)

Le Neindre A, Lebret M, Wormser J. L'échographie pulmonaire : principes de base et perspectives d'utilisation en kinésithérapie respiratoire. Kinésithér Scient 2015;(571):41-7

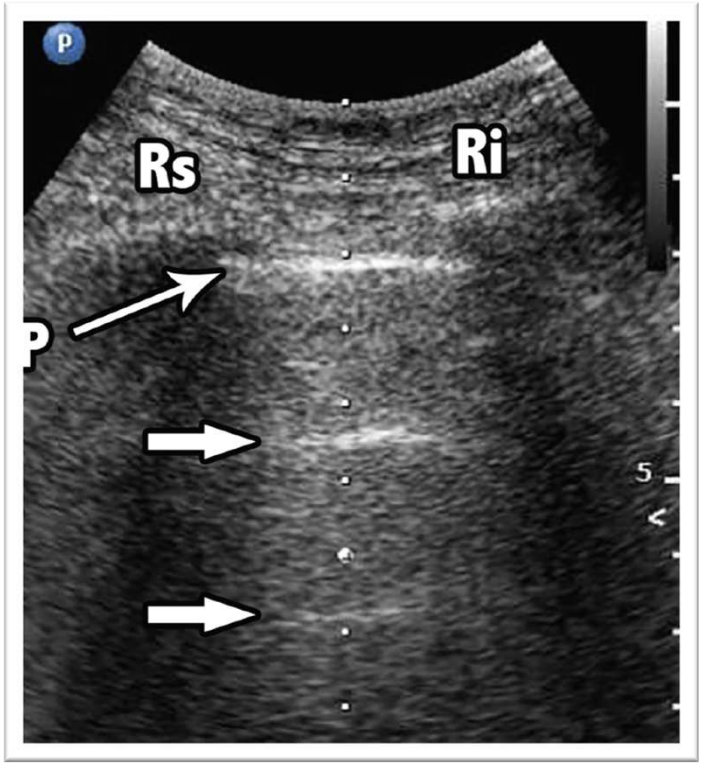


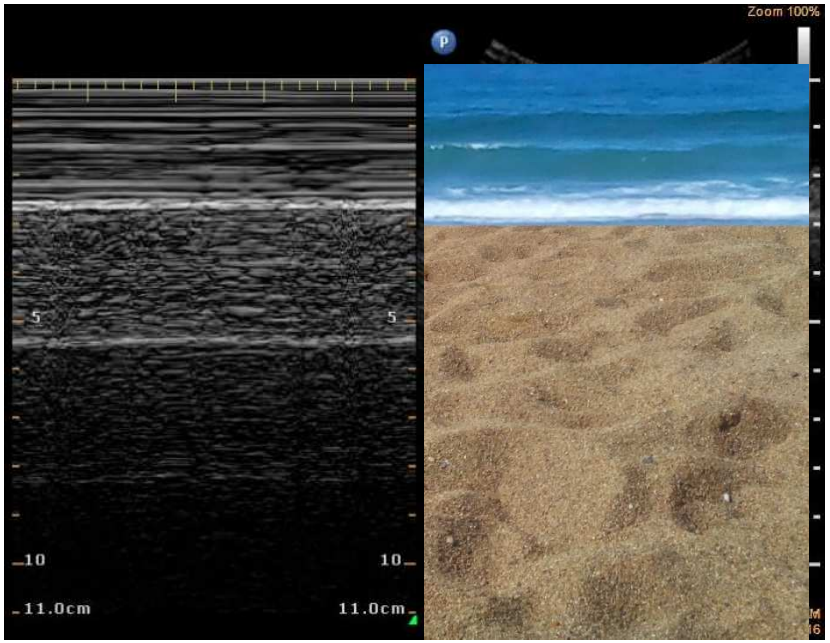
L’évaluation pulmonaire normale

3 signes

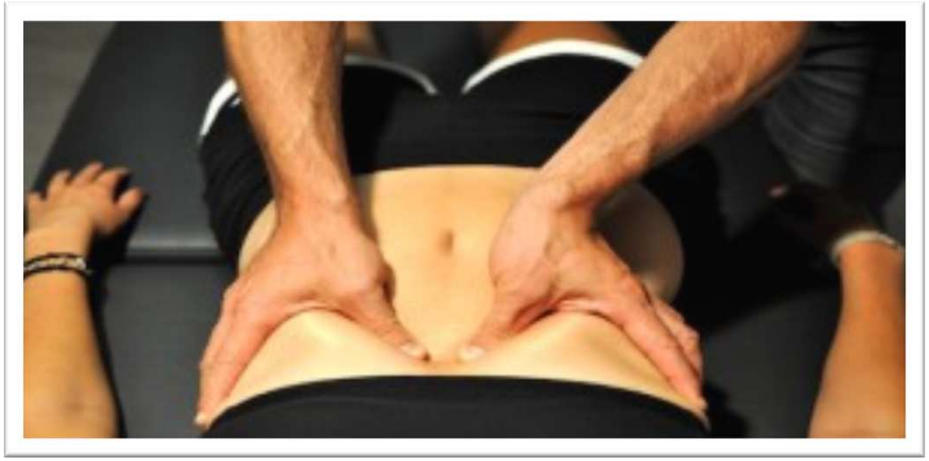
Bat sign

Lignes A





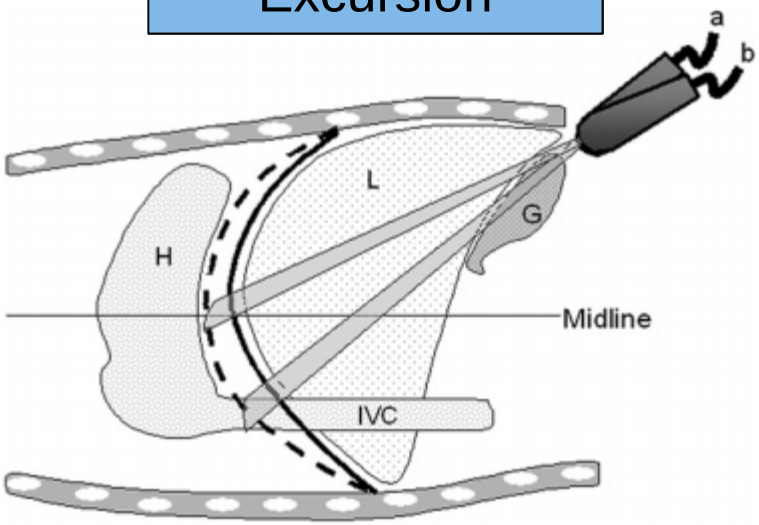
Glissement pleural
Bord de Mer

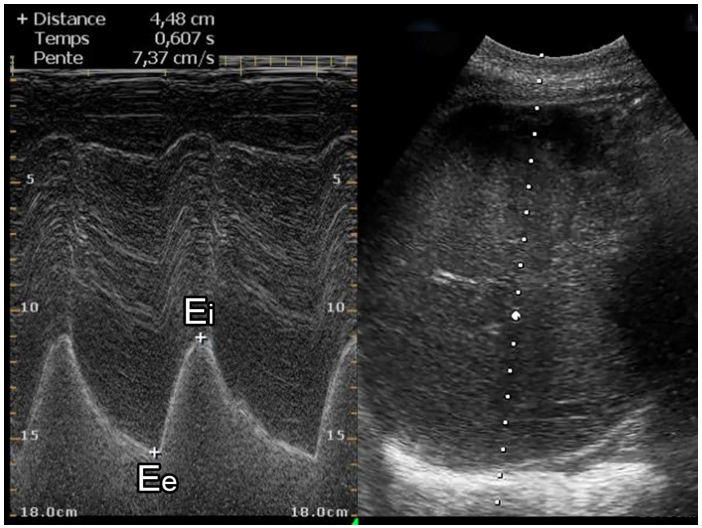


L’évaluation du diaphragme

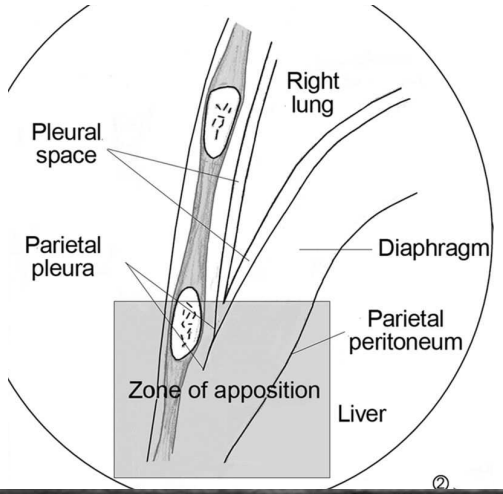
Evaluation du diaphragme

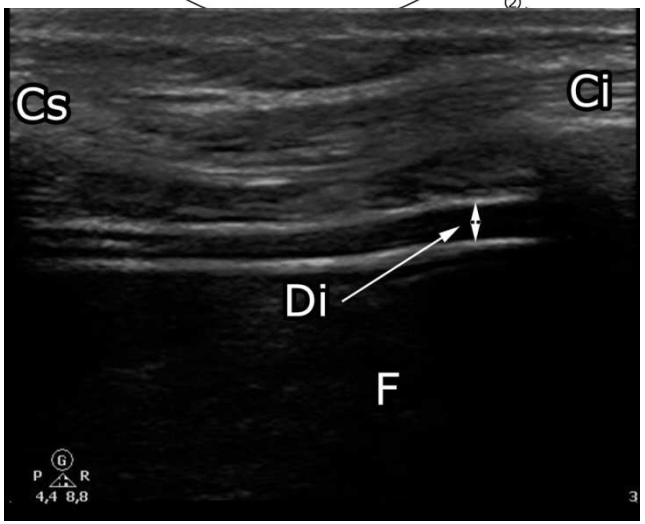
Excursion

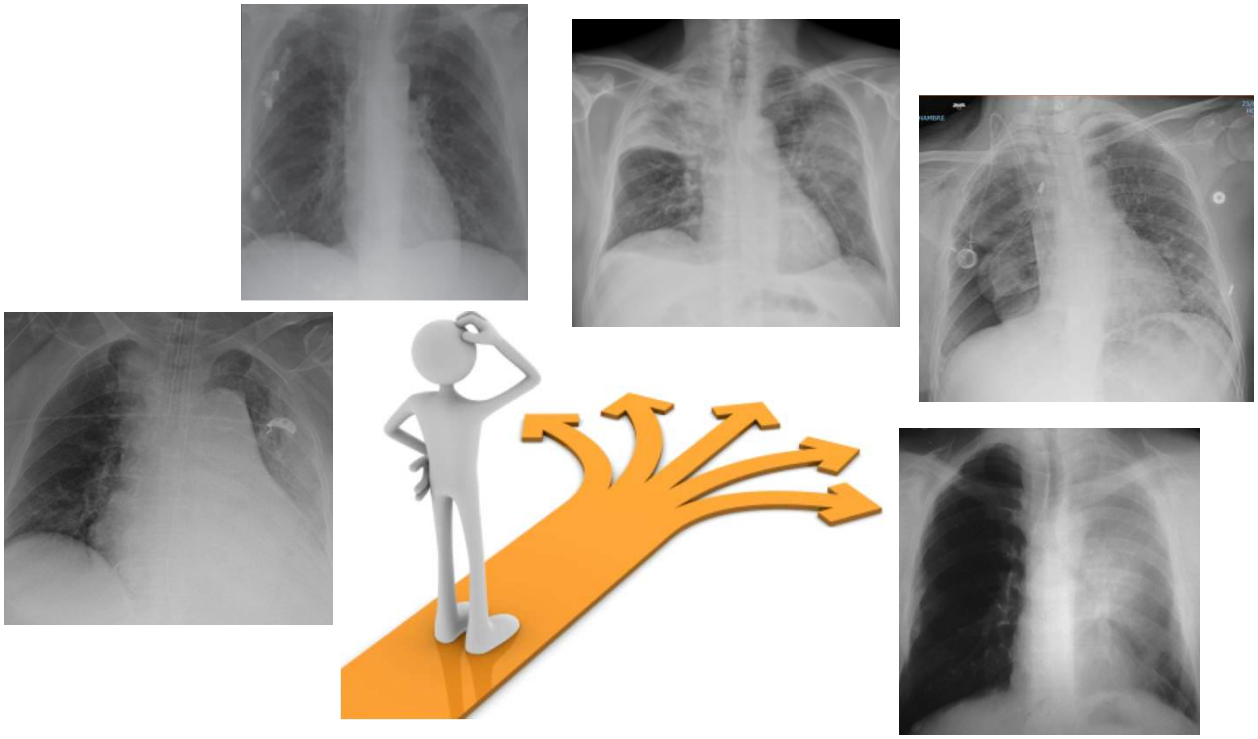




Epaississement

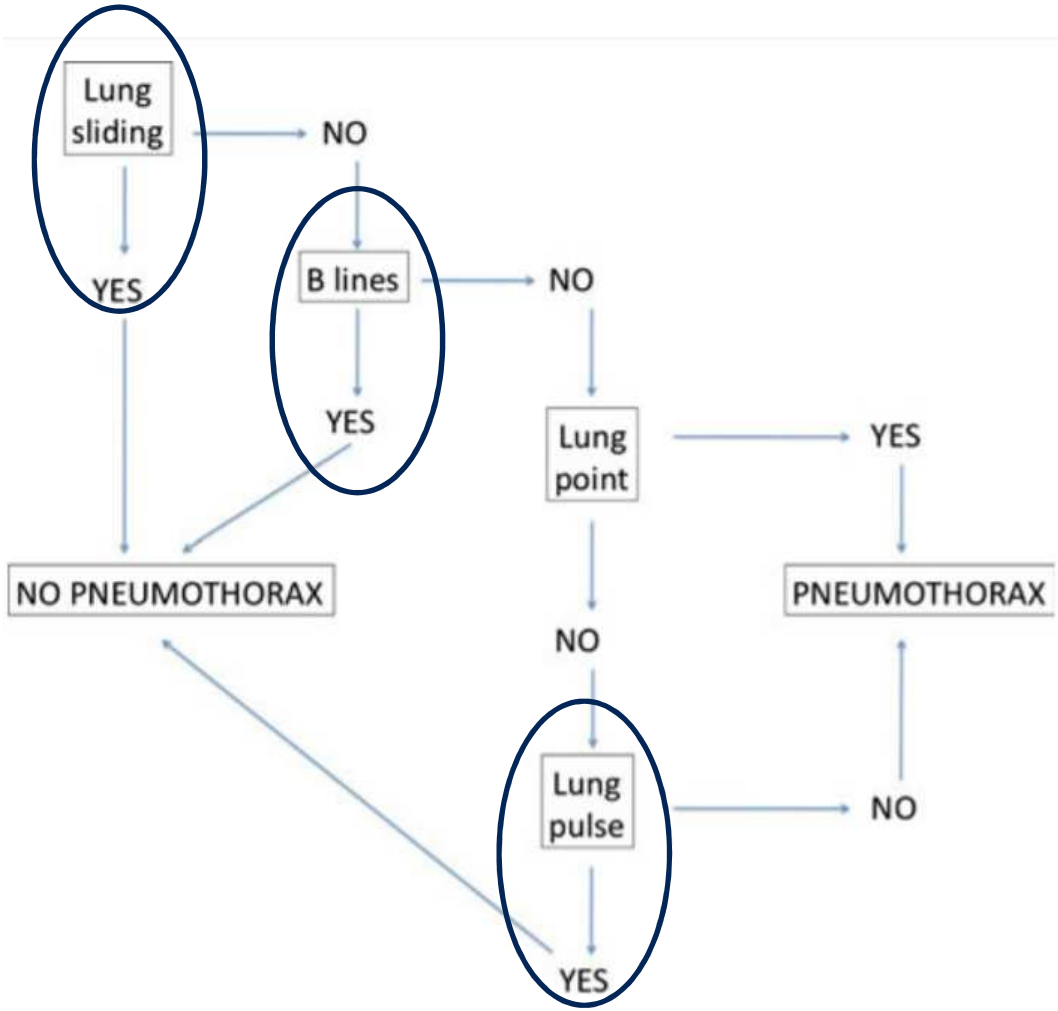






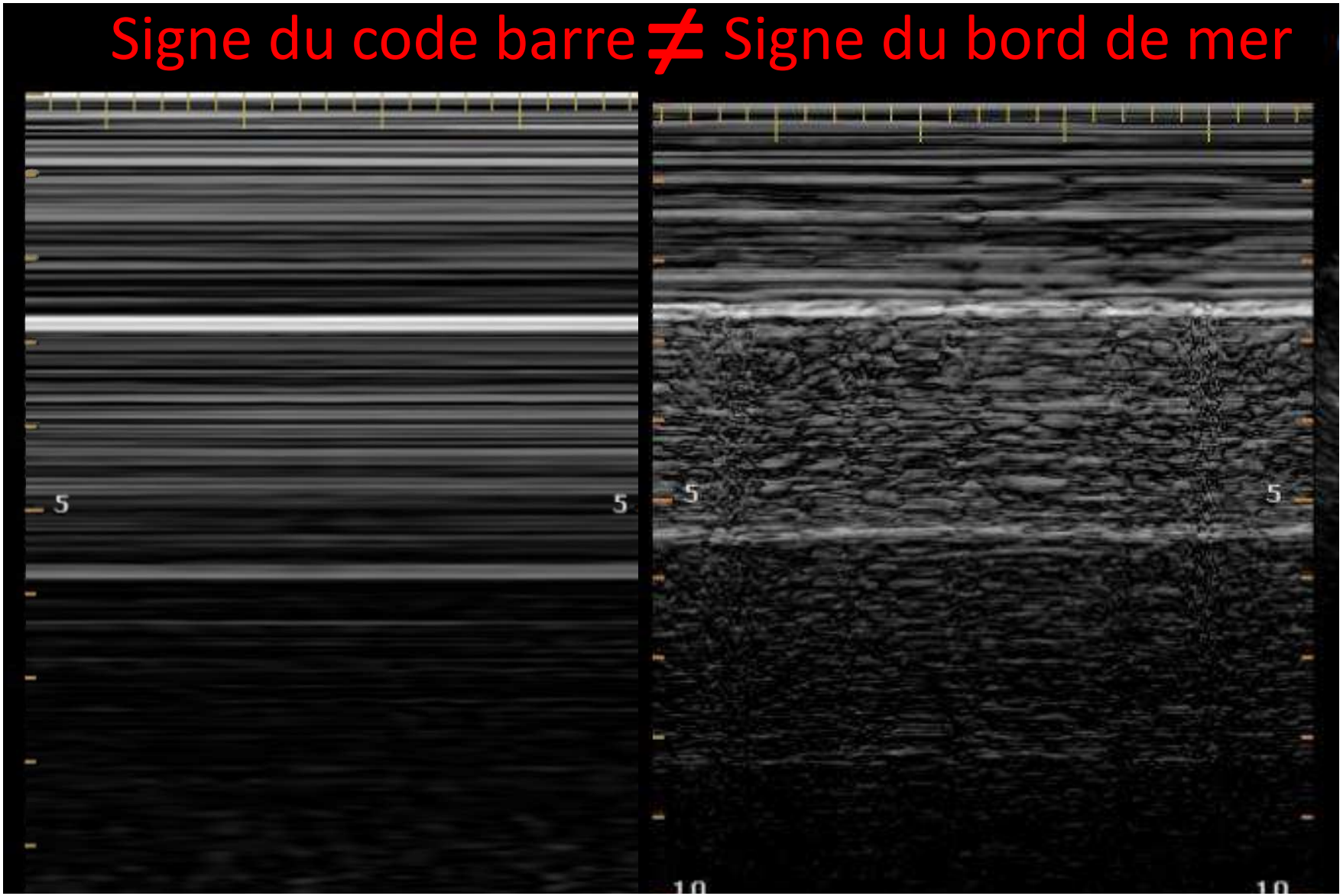
Evaluation du patient

Eliminer le pneumothorax



Volpicelli et al. International evidence-based recommendations for point of care lung ultrasound. ICM 2013

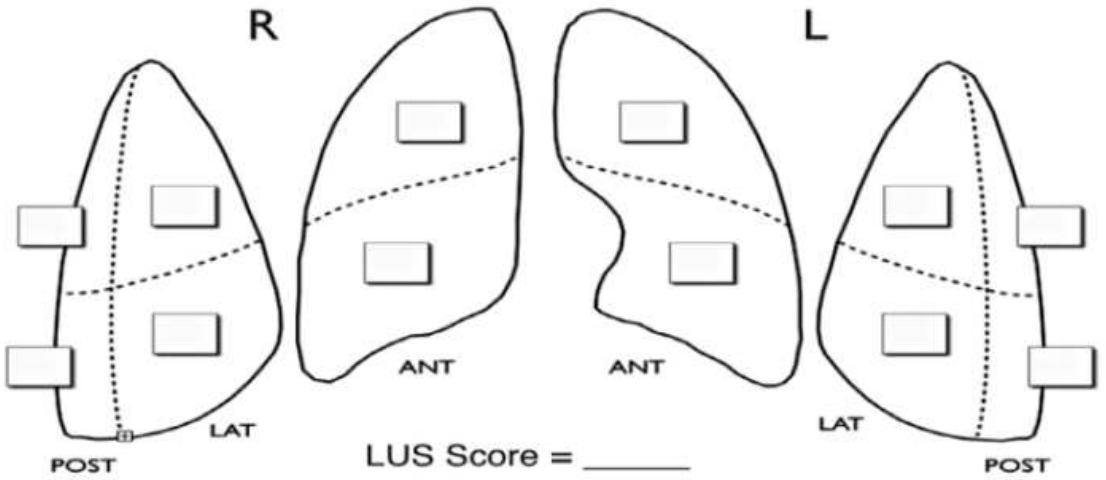
Eliminer le pneumothorax



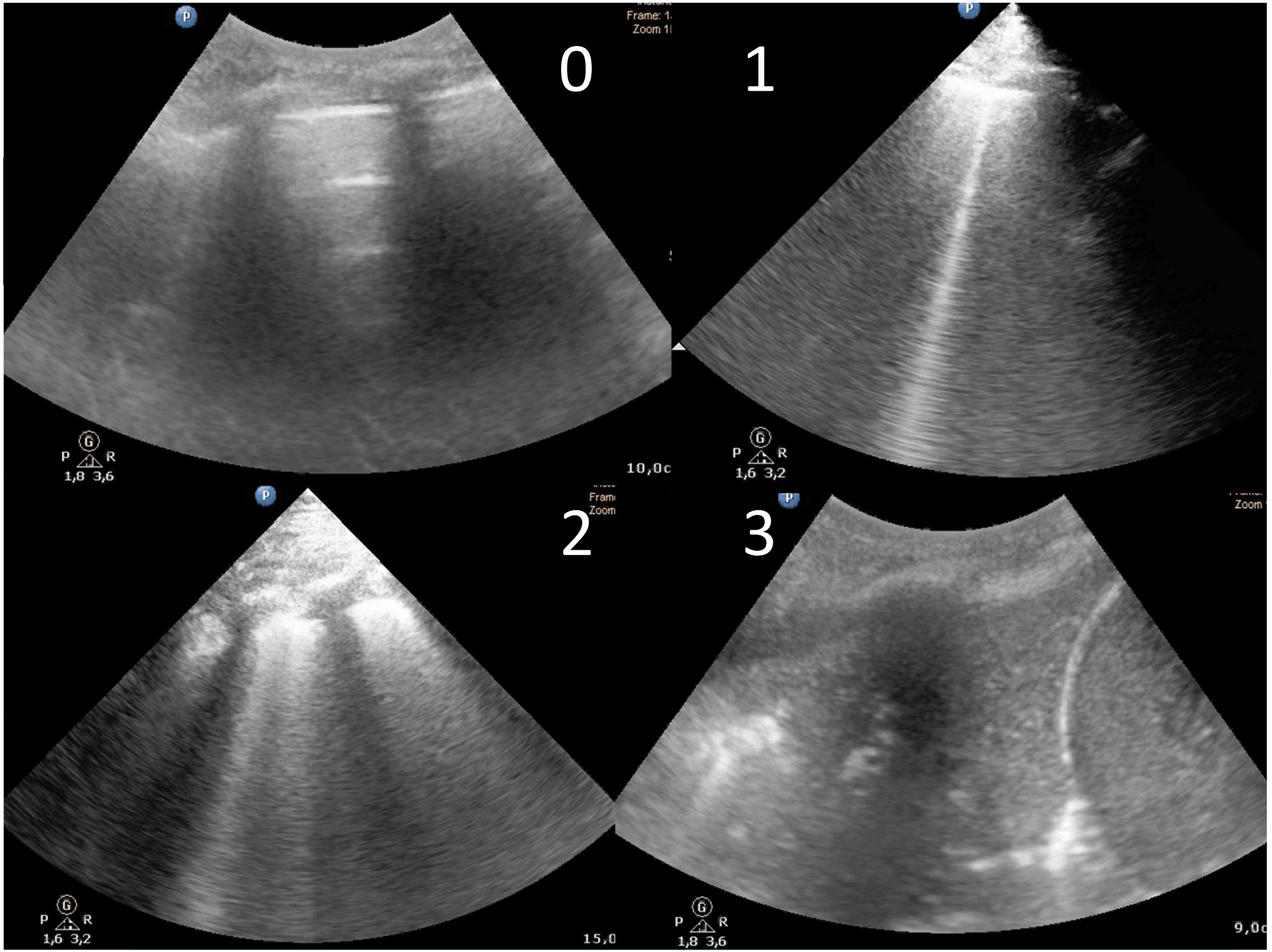
Aération pulmonaire

Lung Ultrasound Score ou LUS. Sur 36, pour chaque quadrant :

- 0 = aération normale,
- 1 = multiples lignes B, distinctes,
- 2 = lignes B coalescentes en « rideau »,
- 3 = consolidation.



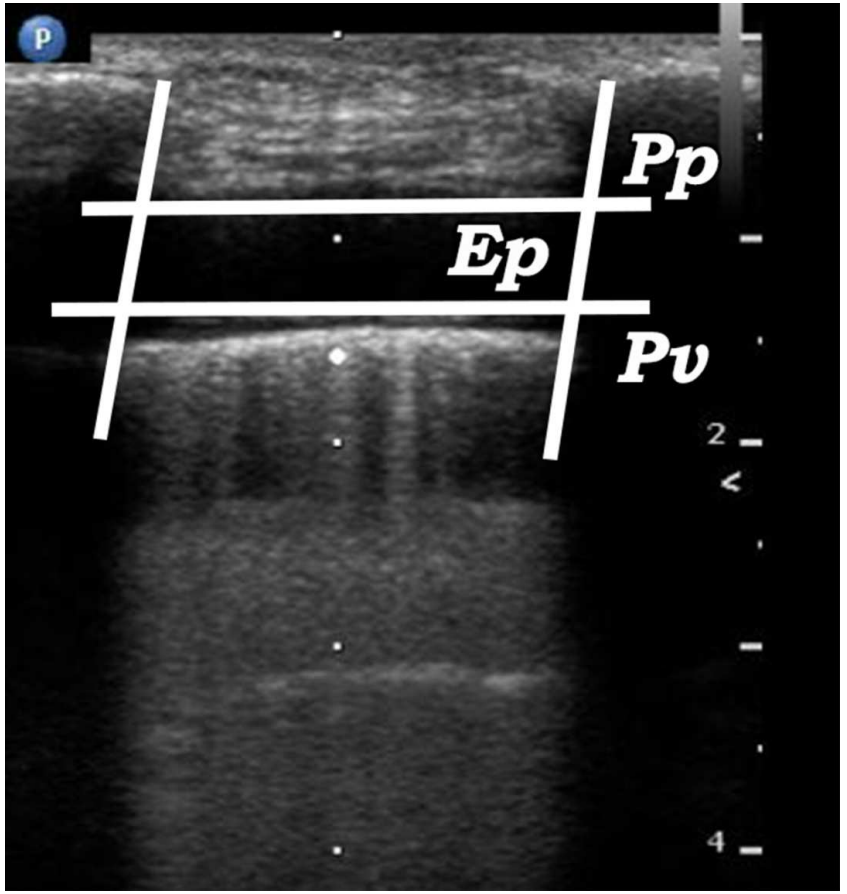
Bouhemad B, Mongodi S, Via G, Rouquette I. Ultrasound for “lung monitoring” of ventilated patients. Anesthesiology. 2015;122:437–47


0
1
2
3
P
G
P R
1,8 3,6
1,6 3,2
10,0c
15,0
9,0c

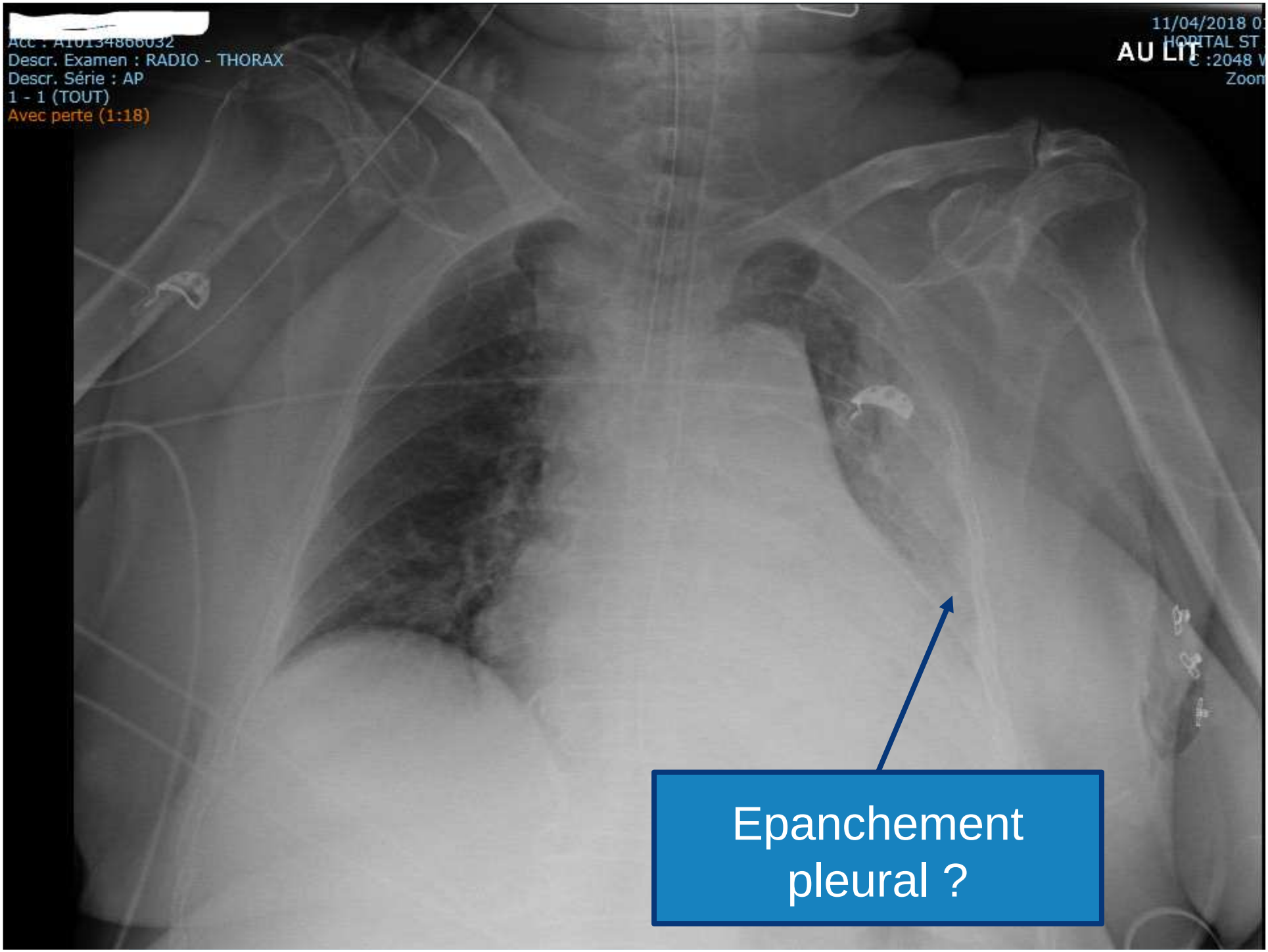
Épanchement pleural ou consolidation ?

Espace inter-pleural délimité par :

- Limite sup
  - Plèvre pariétale
- Limite inf
  - Plèvre viscérale
- Limites latérales
  - Ombres costales



Le **signe du dièse**
Indique la présence d'un épanchement pleural


Acc : A1013486032
Descr. Examen : RADIO - THORAX
Descr. Série : AP
1 - 1 (TOUT)
Avec perte (1:18)
11/04/2018
AU LIT
Zoom
Epanchement pleural ?

Épanchement pleural ou consolidation ?

Non !! Une consolidation …

Objectiver la fonction du diaphragme

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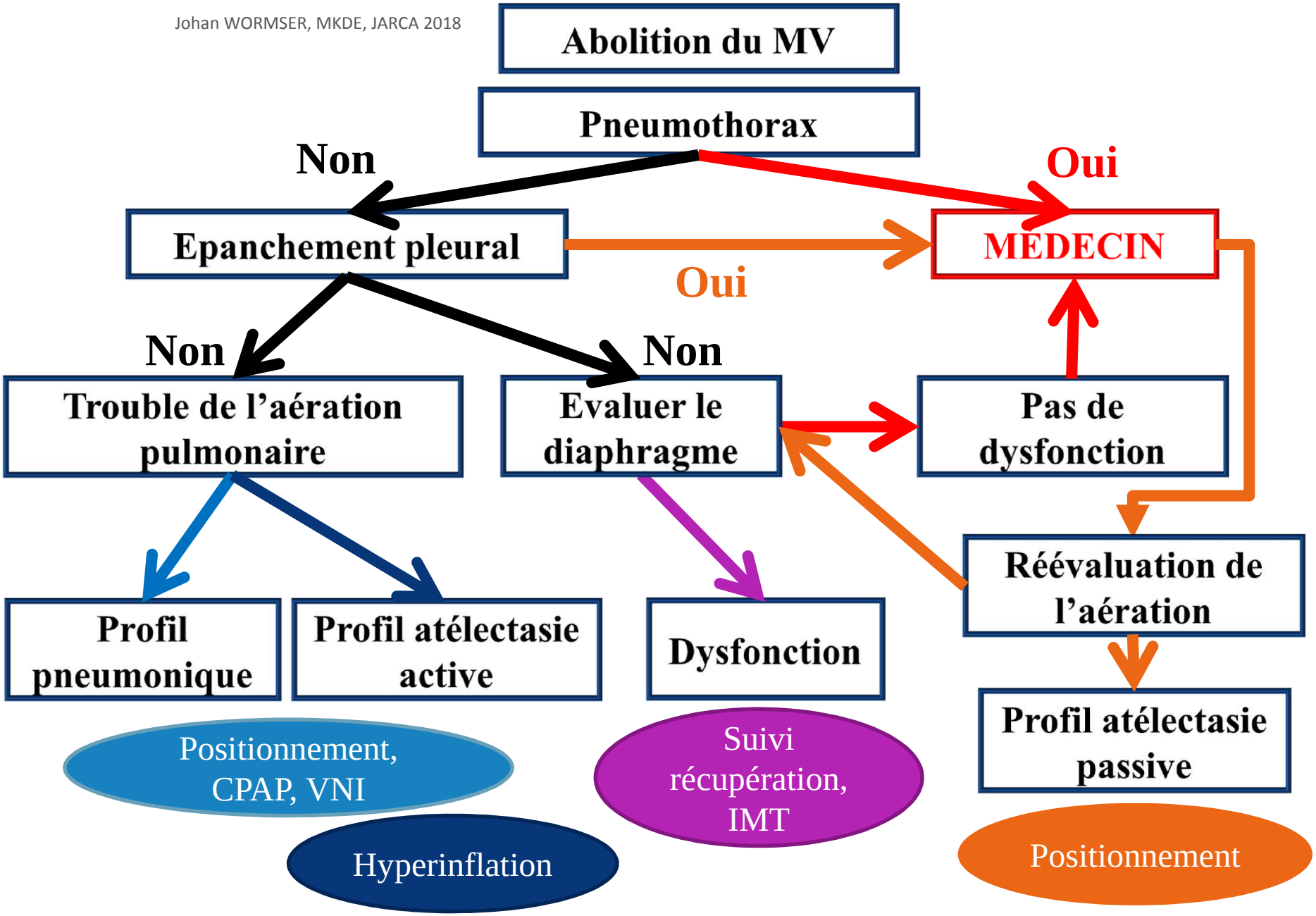
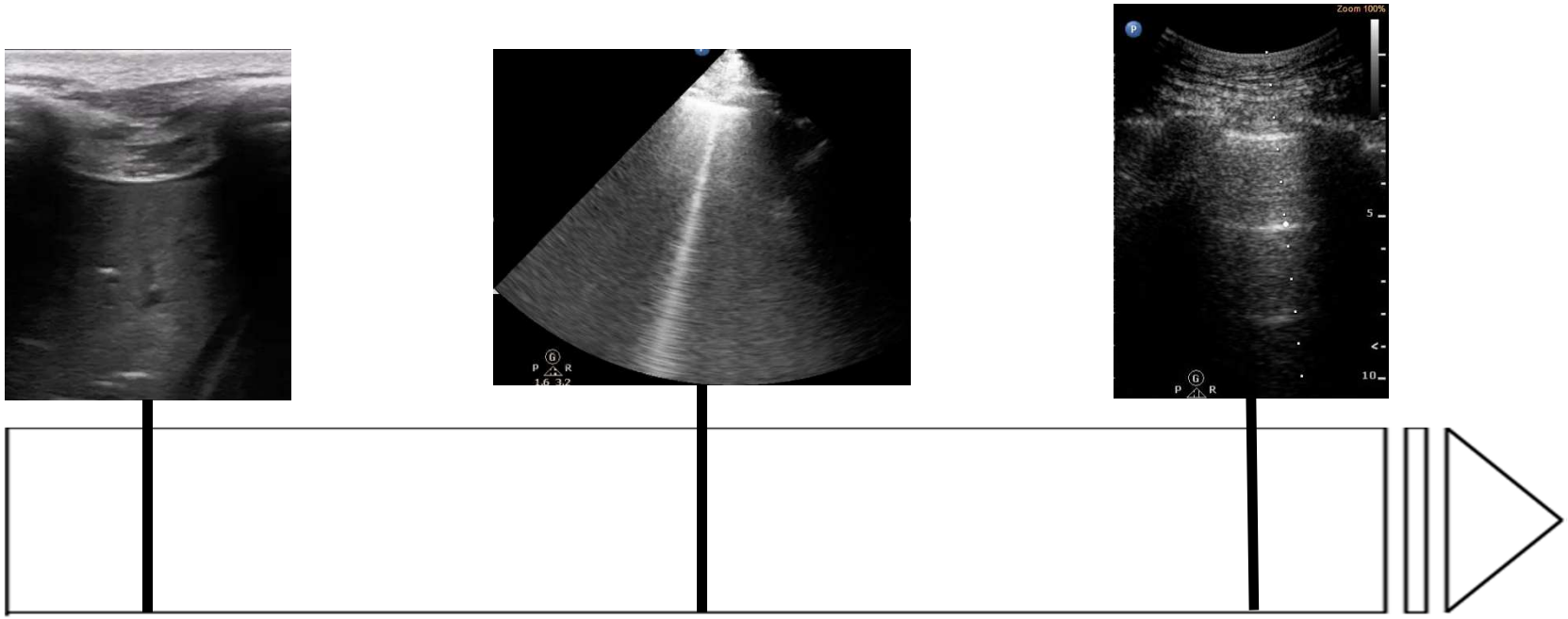


Le Neindre A et al. Thoracic ultrasound: Potential new tool for physiotherapists in respiratory management. A narrative review. J Crit Care. 2016

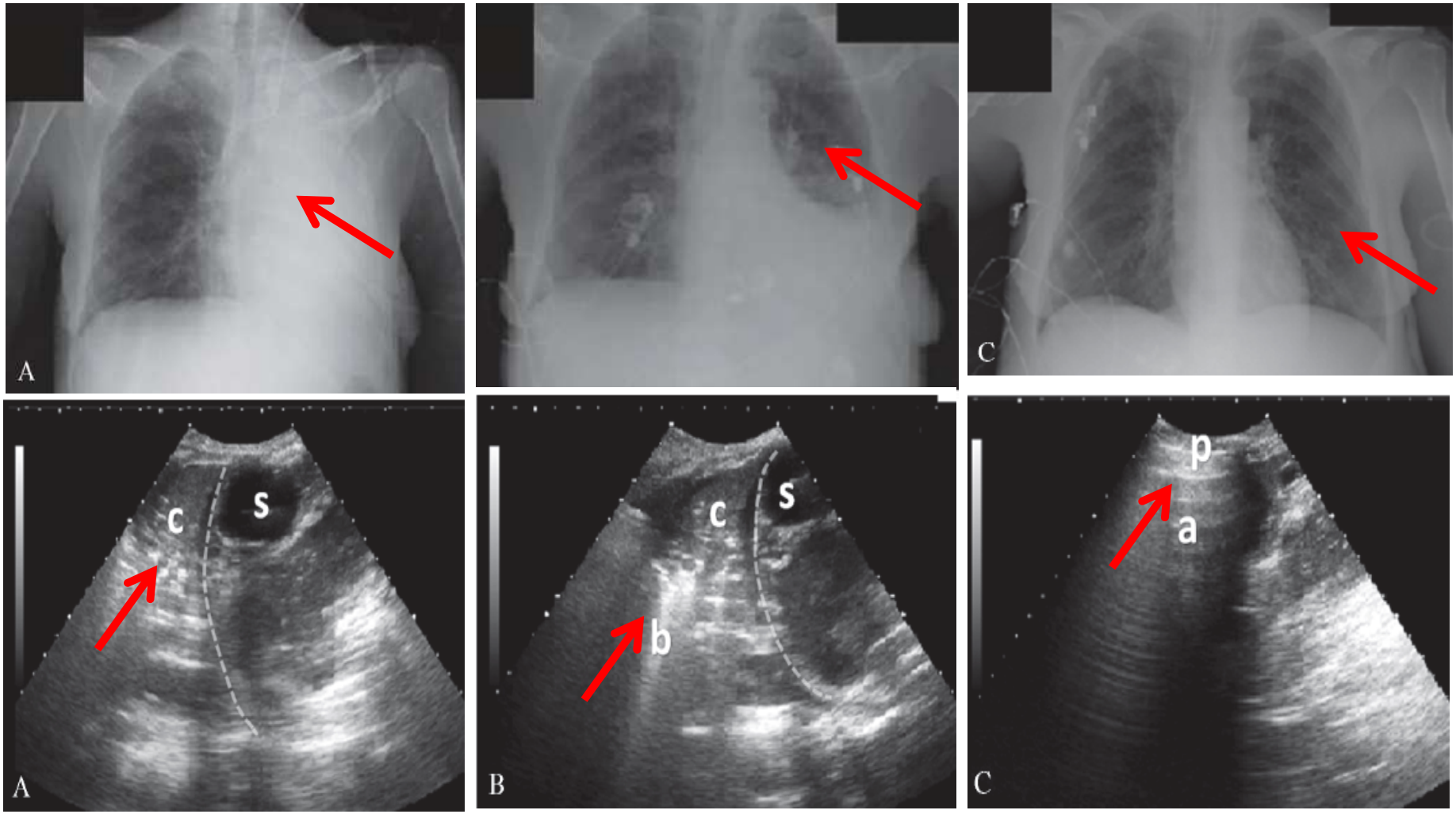


Monitoring et suivi du patient

Monitoring de l’aération

Surveillance pour le sevrage ventilatoire

Monitoring du traitement



Cavaliere et al Minerva Anestesiol 2011

LUS AND SBT

REVIEW

Ultrasonography evaluation during the weaning process: the heart, the diaphragm, the pleura and the lung

P. Mayo[1*], G. Volpicelli[2], N. Lerolle[3], A. Schreiber[4], P. Doelken[5] and A. Vieillard-Baron[6,7,8]

LUS at end of SBT	Value	Potential utility
LUS score	<13	Increased likelihood of success of extubation
LUS score	13–17	Indeterminate likelihood
LUS score	>17	Increased likelihood of failure of extubation

LUS lung ultrasonography score, *SBT* spontaneous breathing trial

➔ Dé-recrutement plus important chez les patients à haut risque de ré-intubation

Diaphragme AND SBT

REVIEW

Ultrasonography evaluation during the weaning process: the heart, the diaphragm, the pleura and the lung

P. Mayo[1*], G. Volpicelli[2], N. Lerolle[3], A. Schreiber[4], P. Doelken[5] and A. Vieillard-Baron[6,7,8]

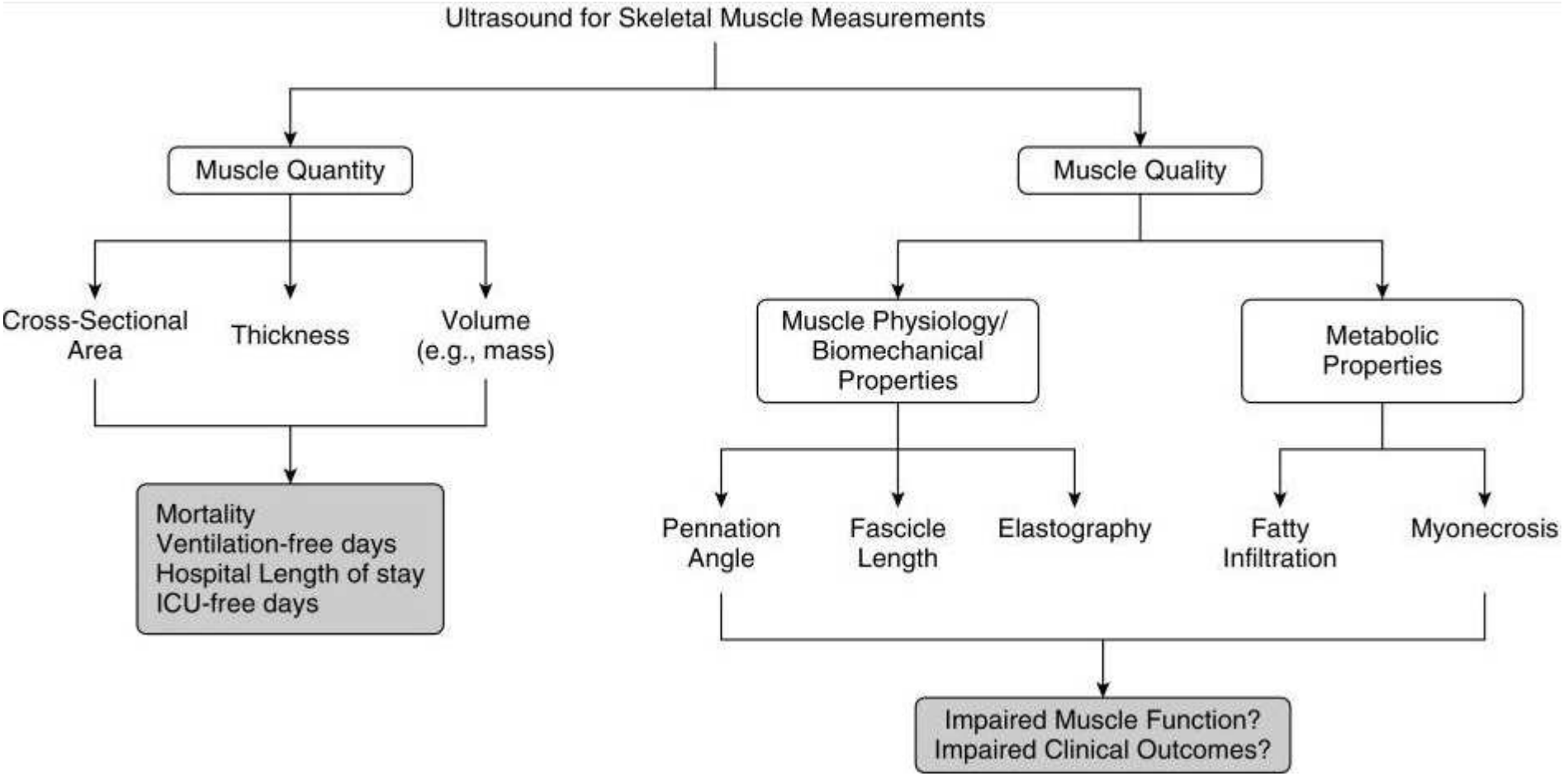
Table 2 Indices of diaphragmatic function of potential utility for weaning from mechanical ventilatory support

Measurement	Value	Potential utility
Diaphragmatic excursion during SBT	<11 mm	Increased likelihood of failure of SBT
Best diaphragmatic excursion on right or left	>25 mm	Increased likelihood of success of SBT
Thickening fraction of diaphragm during SBT	>30–36 %	Increased likelihood of success of SBT
Right- and left-sided diaphragmatic excursion	Bilateral absence of diaphragmatic excursion	Increased likelihood of failure of SBT

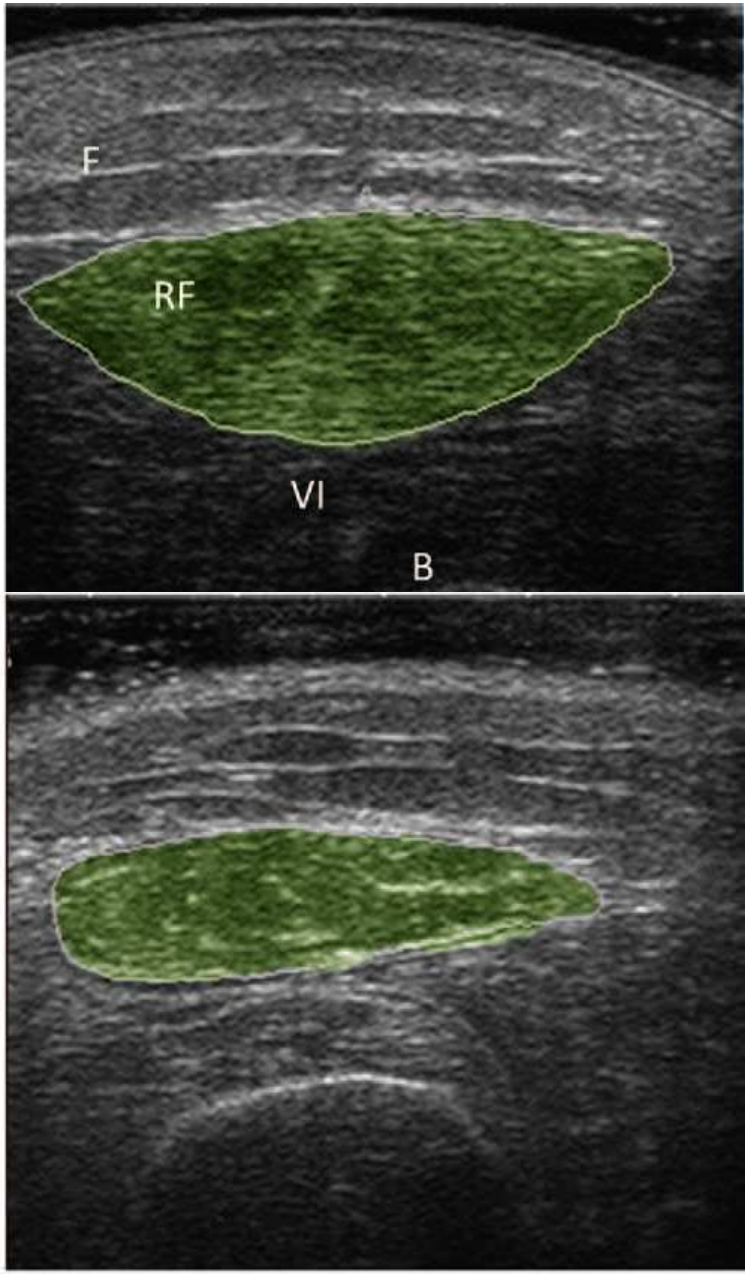
SBT spontaneous breathing trial

CONCLUSION

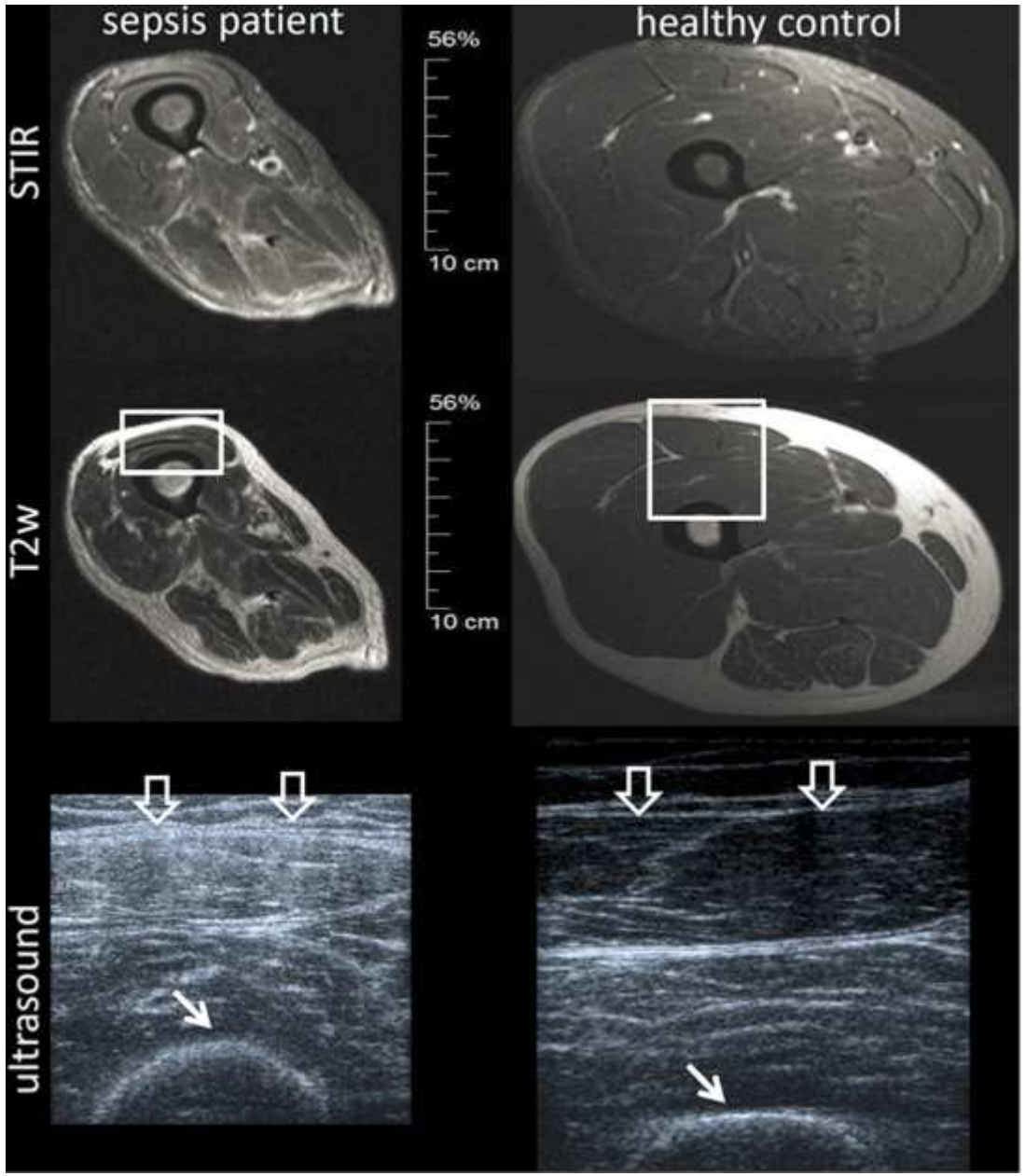
D’autres perspectives ?



Mourtzakis M, Parry S, Connolly B, Puthucheary Z. Skeletal muscle ultrasound in critical care: a tool in need of translation. Ann Am Thorac Soc 2017; 14:1495–1503.



Puthucheary ZA et al. Qualitative ultrasound in acute critical illness muscle wasting. Crit Care Med. 2015;43:1603–11.



Grimm A et al. Muscle ultrasound for early assessment of critical illness neuromyopathy in severe sepsis. Crit Care. 2013;17(5):R227–R227.

Principes et limites de l'échographie

- Pas de contre-indication particulière.
- Peu de limites hormis : épaisseur du tissus adipeux, pansements sur la zone à explorer...
- Nécessite :
  - ✓ Examinateur formé à son utilisation.
  - ✓ Connaissances de la région à explorer sont solides.
  - ✓ Respect des standards et recommandations décrits dans la littérature.

Conclusion

En aucun cas, un diagnostic sera cherché, le but est d'identifier les structures déficientes : plèvre, poumon et diaphragme.

En complément de notre évaluation pour :

- ✓ Choisir le traitement le plus adapté,
- ✓ Evaluer l'efficacité du traitement,
- ✓ Monitorer l'évolution du patient,
- ✓ Utiliser de bons critères de jugement en recherche clinique

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- Le Neindre A, Mongodi S, Philippart F, et al. Thoracic ultrasound: Potential new tool for physiotherapists in respiratory management. A narrative review. J Crit Care 2016;31:101-9.
- Leech M, Bissett B, Kot M, et al. Lung ultrasound for critical care physiotherapists: a narrative review.Physiother Res Int 2015;20:69-76.
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- Zambon M, Greco M, Bocchino S, et al. Assessment of diaphragmatic dysfunction in the critically ill patient with ultrasound: a systematic review. Intensive Care Med 2017;43:29-38.

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Merci de votre attention !