



FAST écho aux urgences & au déchocage

Nicolas PERSICO

Service des Urgences



- Aucun conflit d'intérêt à déclarer



FAST ?

1

A Prospective Evaluation of Abdominal Ultrasound in Blunt Trauma: Is It Useful?

Healey, Mark A.; Simons, Richard K.; Winchell, Robert J.; Gosink, Barbara B.; Casola, Giovanna; Steele, John T.; Potenza, Bruce M.; Hoyt, David B. [Less](#)

The Journal of Trauma: Injury, Infection, and Critical Care. 40(6):875-885, June 1996.

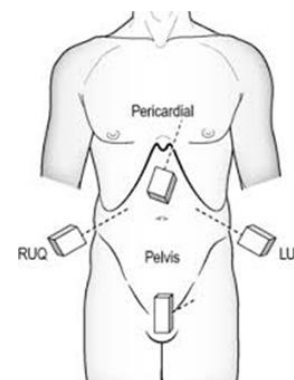


2

Focused Assessment with Sonography for Trauma (FAST): Results from an International Consensus Conference

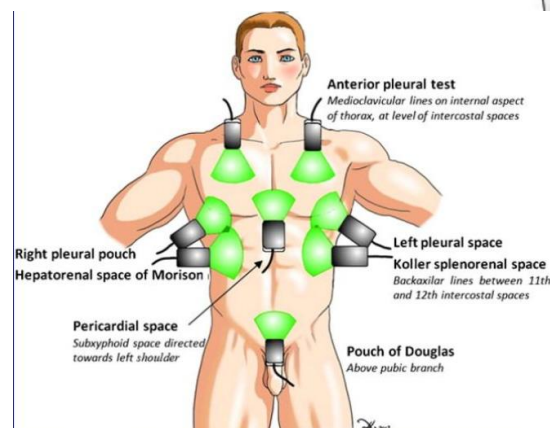
Scalea, Thomas M.; Rodriguez, Aurelio; Chiu, William C.; Brenneman, Frederick D.; Fallon, William F.; Kato, Kazuyoshi; McKenney, Mark G.; Nerlich, Michael L.; Ochsner, M. Gage; Yoshii, Hiroshi [Less](#)

The Journal of Trauma: Injury, Infection, and Critical Care. 46(3):466-472, March 1999.



3

Extended-FAST



Point-of-care ultrasonography for diagnosing thoracoabdominal injuries in patients with blunt trauma (Review)

Summary of findings 1.

No. of participants (studies)	Summary sensitivity (95% CI)	Summary specificity (95% CI)	Summary LR+ (95% CI)	Summary LR- (95% CI)	Positive predictive value (95% CI)	Negative predictive value (95% CI)
8635 (34)	0.74 (0.65 to 0.81)	0.96 (0.94 to 0.98)	18.5 (10.8 to 40.5)	0.27 (0.19 to 0.37)	0.88 (0.81 to 0.94)	0.90 (0.87 to 0.93)

Summary of findings 2. Investigation of heterogeneity

Investigation of heterogeneity	Number of studies	Summary sensitivity (95% CI)	Summary specificity (95% CI)	Chi ² _a	P value ^b
Type of injury					
Abdominal injury	27	0.68 (0.59 to 0.75)	0.95 (0.92 to 0.97)	17.36 (overall) 13.22 (sensitivity)	0.0002 (overall) 0.0003 (sensitivity)
Thoracic injury	4	0.96 (0.88 to 0.99)	0.99 (0.97 to 1.00)	5.39 (specificity)	0.0202 (specificity)
Target condition					
Limited to free fluid/free air	22	0.78 (0.68 to 0.85)	0.97 (0.96 to 0.99)	9.10 (overall) 0.06 (sensitivity)	0.0106 (overall) 0.8100 (sensitivity)
Free fluid/free air and organ injuries/vascular lesions	7	0.80 (0.73 to 0.85)	0.88 (0.70 to 0.96)	8.08 (specificity)	0.0045 (specificity)



Objectif

Existe-t-il un épanchement des séreuses?



Geste chirurgical





Les 3 « P »

Péritoine



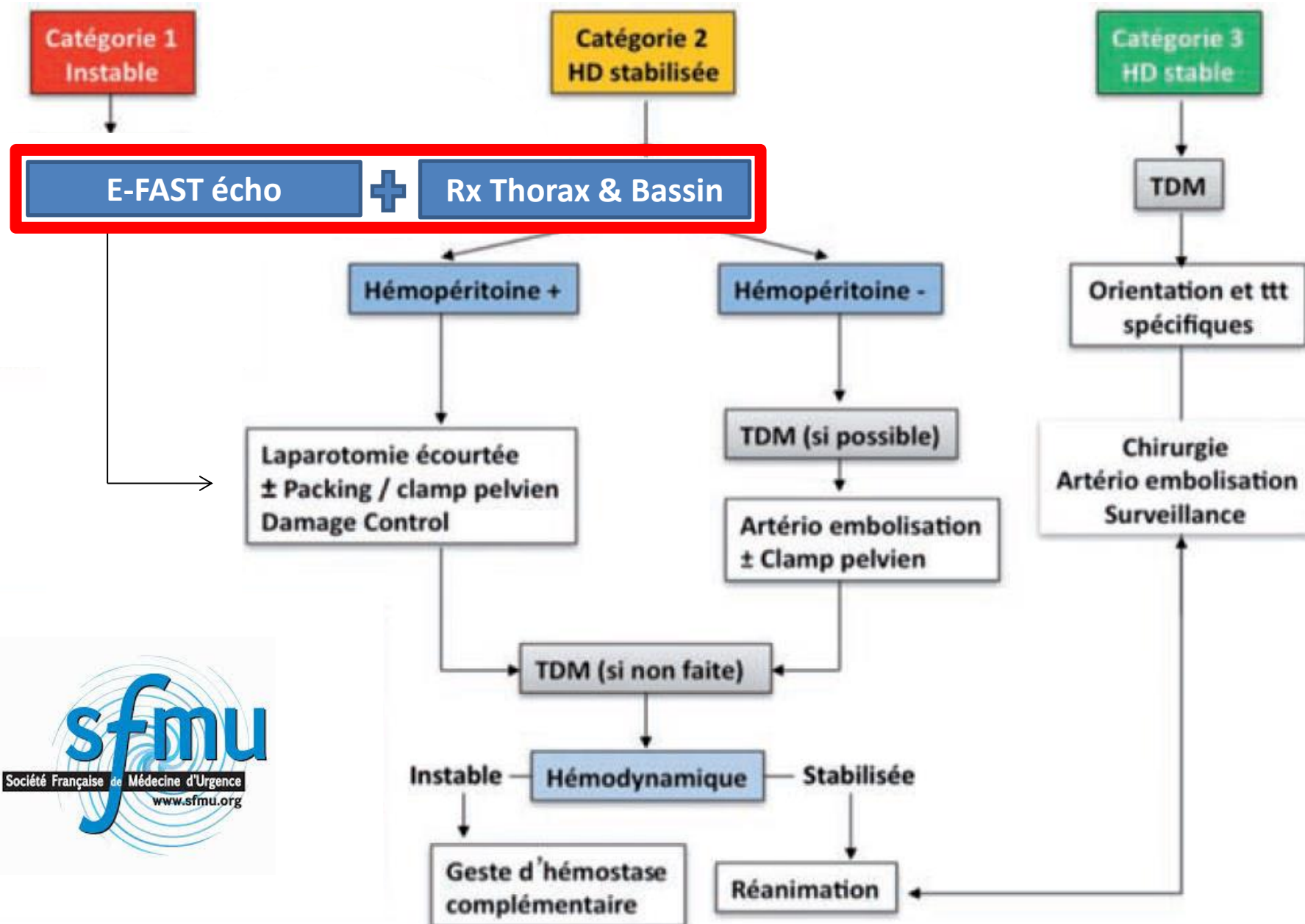
Péricarde



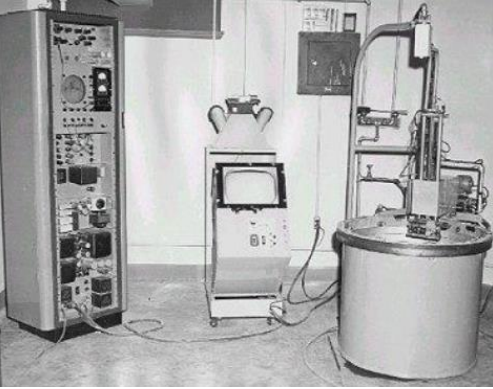
Plèvre



Quelles indications?



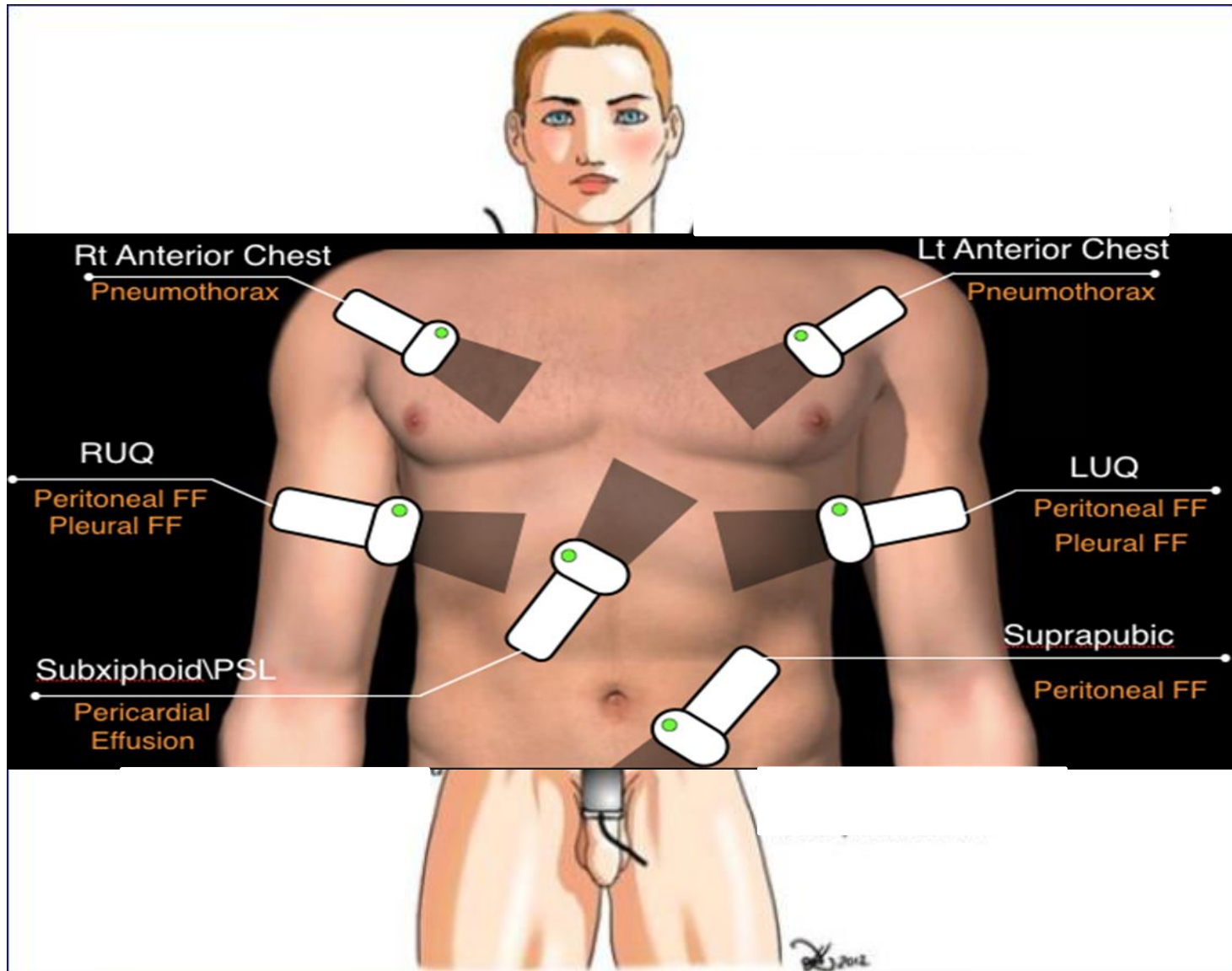
Matériel



MORPHOLOGIE

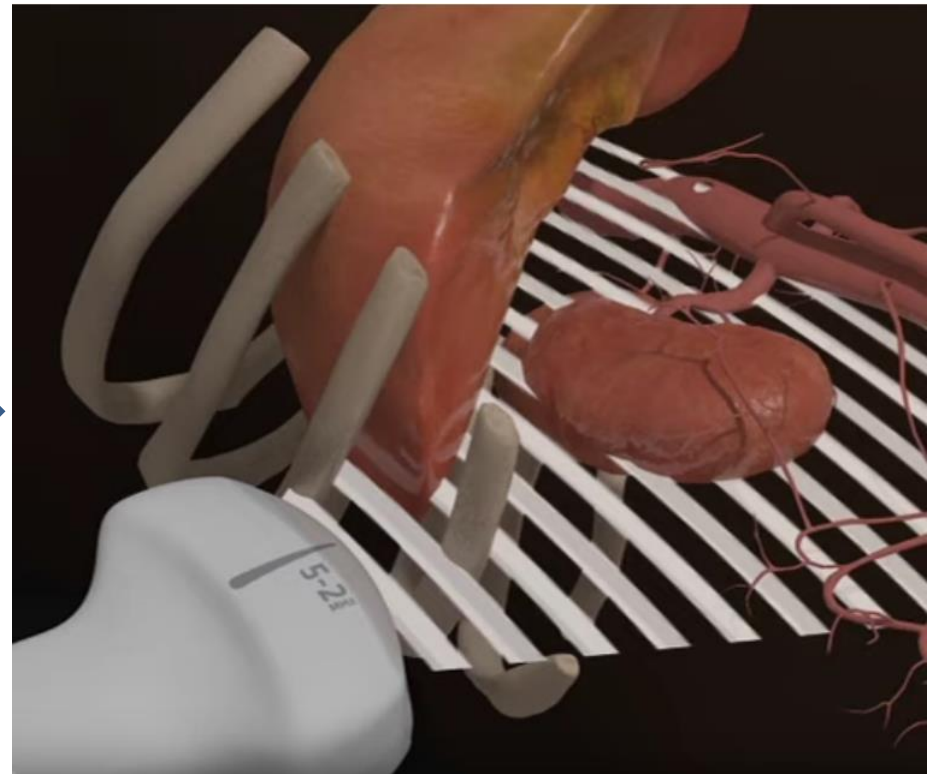


6 QUADRANTS



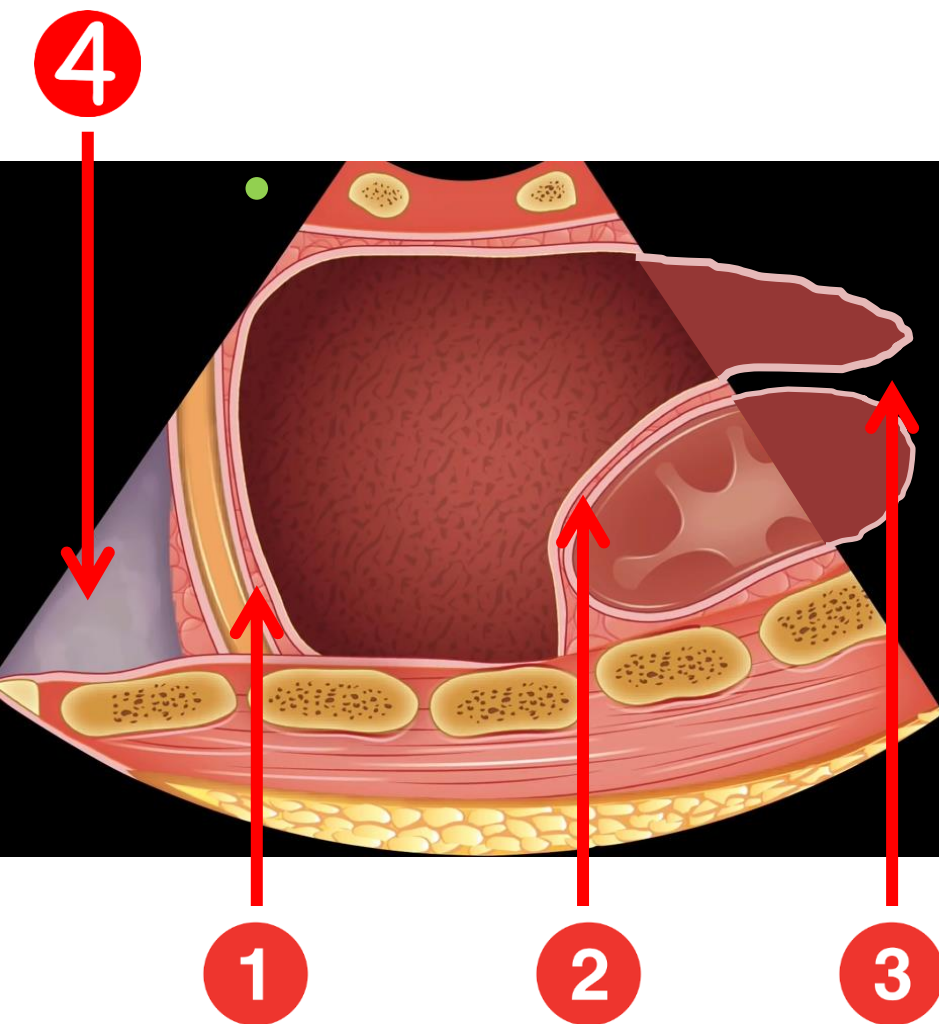


Quadrant supérieur Dt





Quels espaces?



Epanchement?



Evaluation of Hemoperitoneum Using a Single- vs Multiple-view Ultrasonographic Examination

*O. John Ma, MD, Michael P. Kefer, MD,
James R. Mateer, MD, RDMS, Beth Thoma, MD*

N = 245 → 37 épanchements +



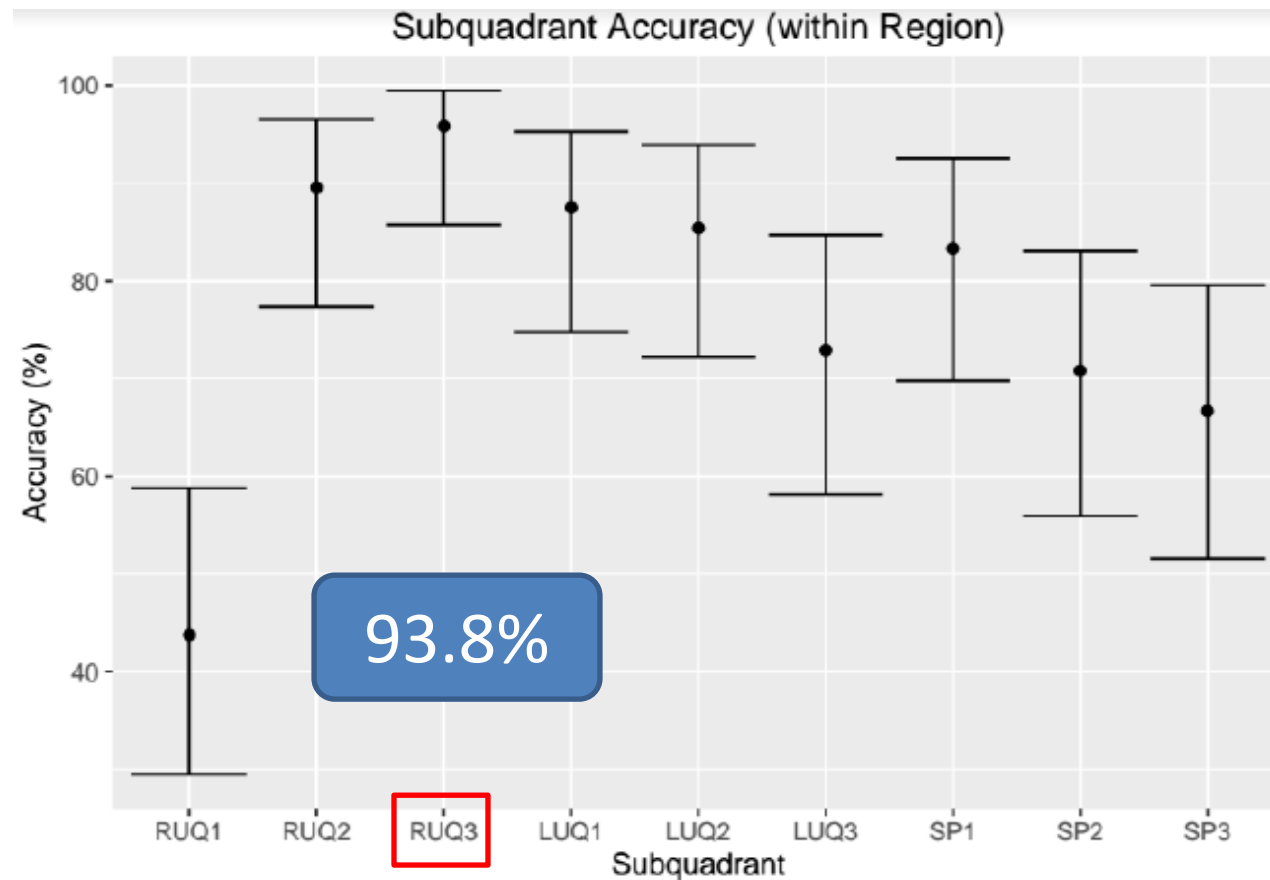
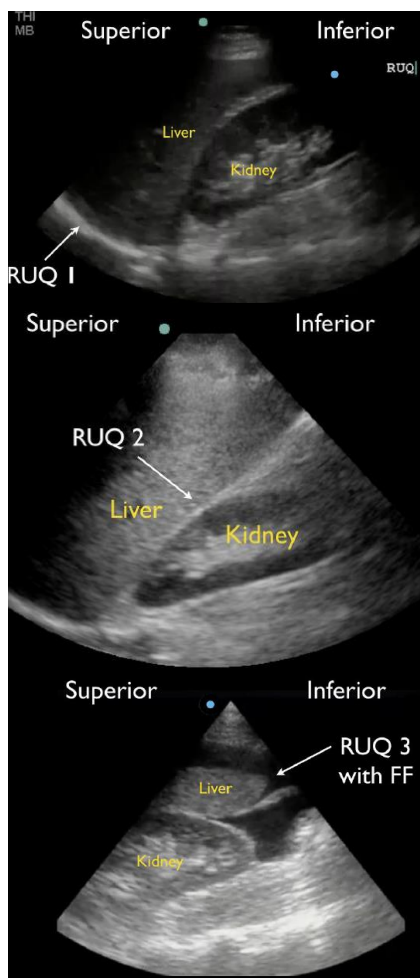
Sensitivity 51%
Specificity 100%



Sensitivity 87%
Specificity 99%

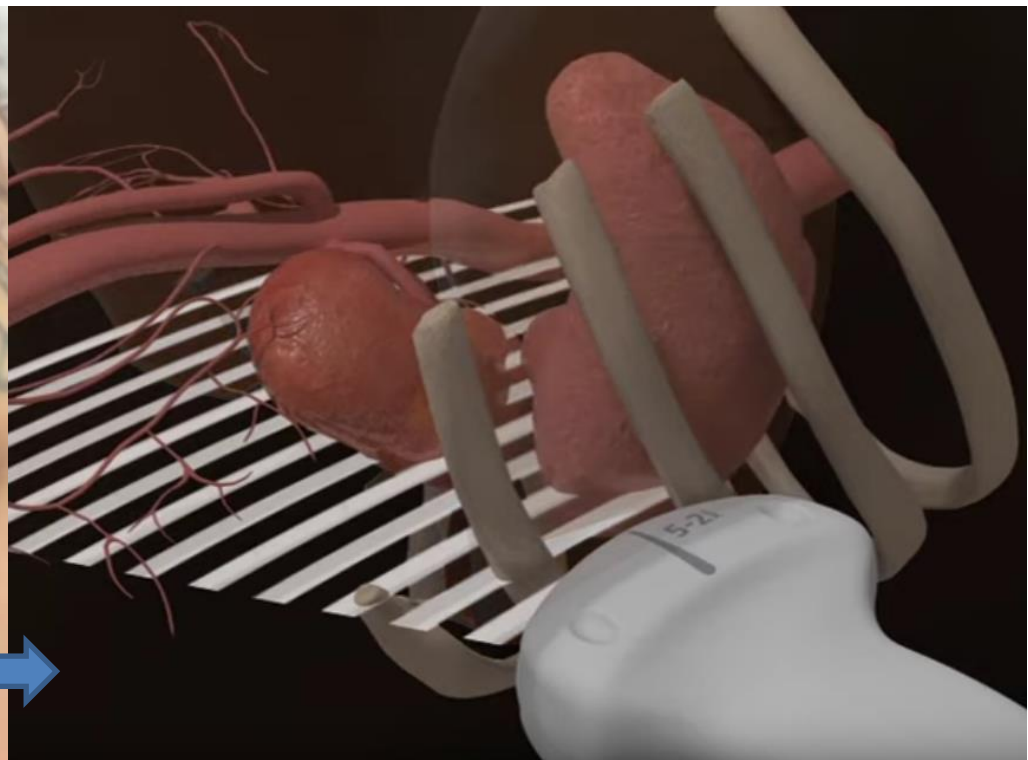
Caudal Edge of the Liver in the Right Upper Quadrant (RUQ) View Is the Most Sensitive Area for Free Fluid on the FAST Exam

Lobo V, Hunter-Behrend M, Cullnan E, Higbee R, Phillips C, Williams S, Perera P, Gharahbaghian L.

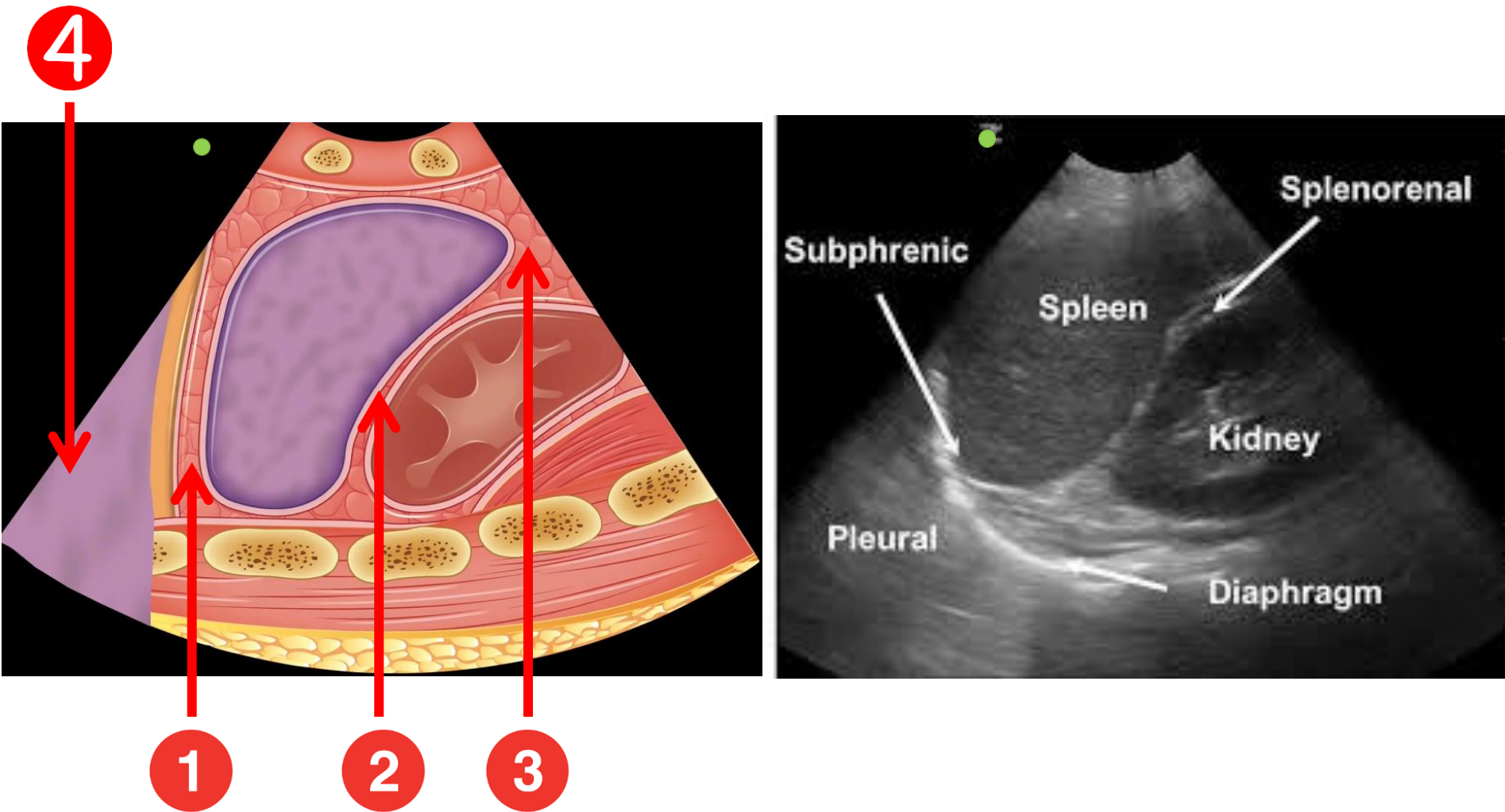




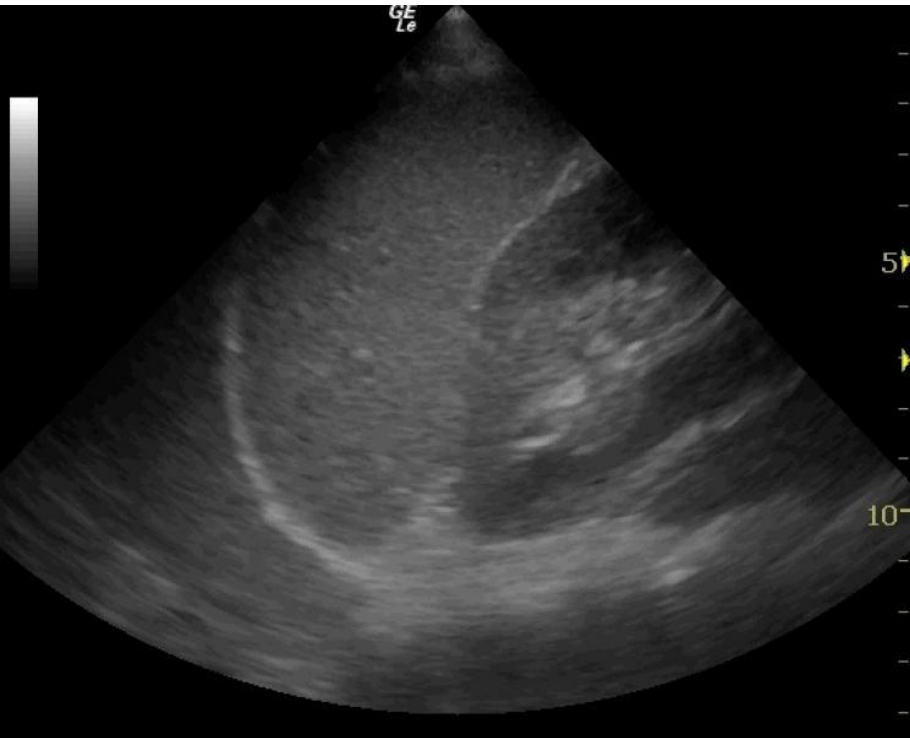
Quadrant Supérieur Gauche



Quels espaces?



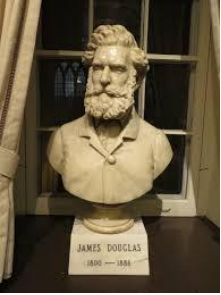
Epanchement?



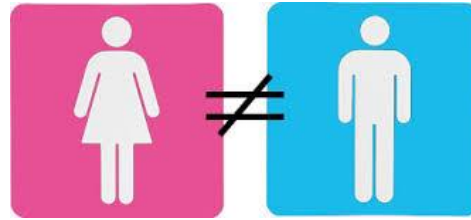


Quadrant sus-pubien

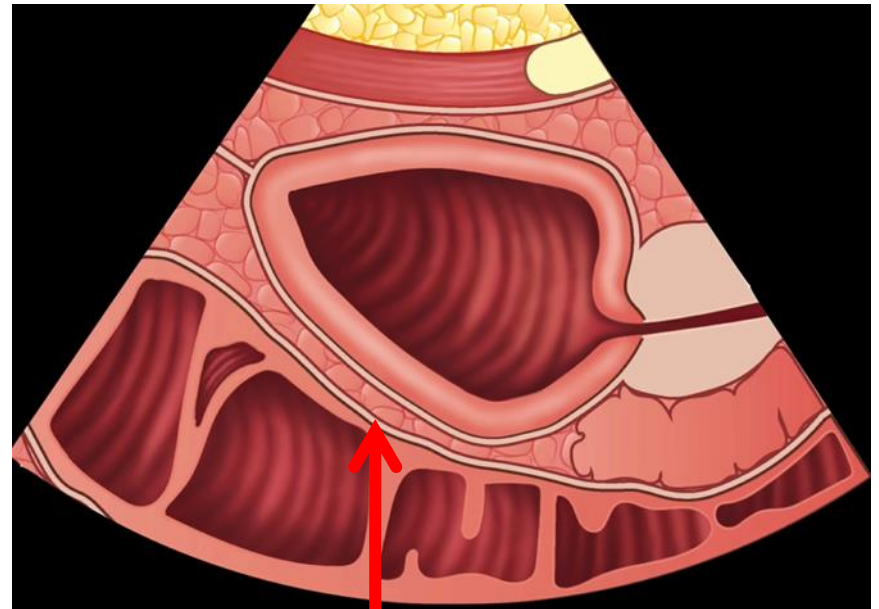
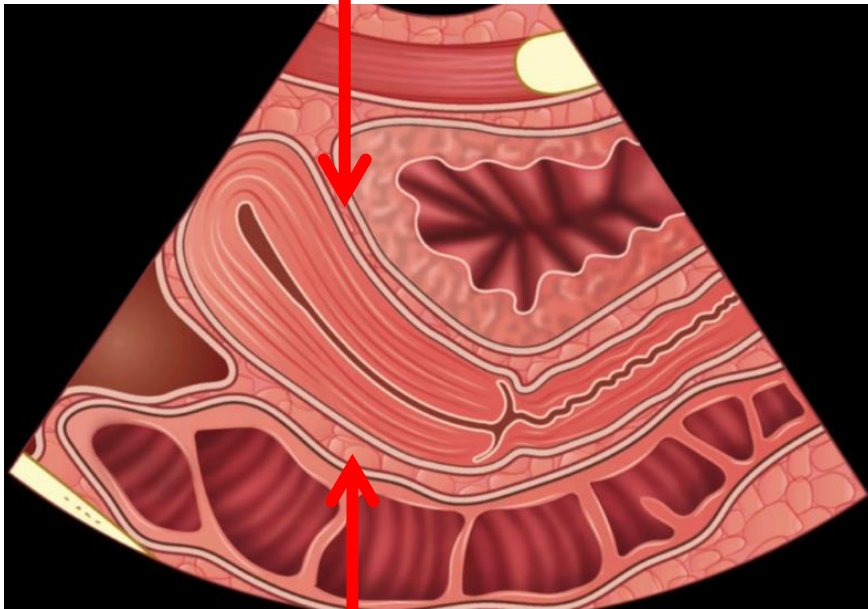




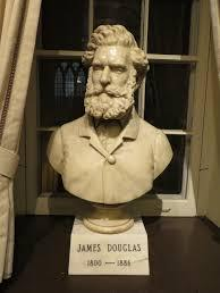
Coupe longitudinale



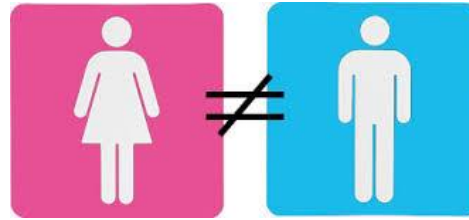
2



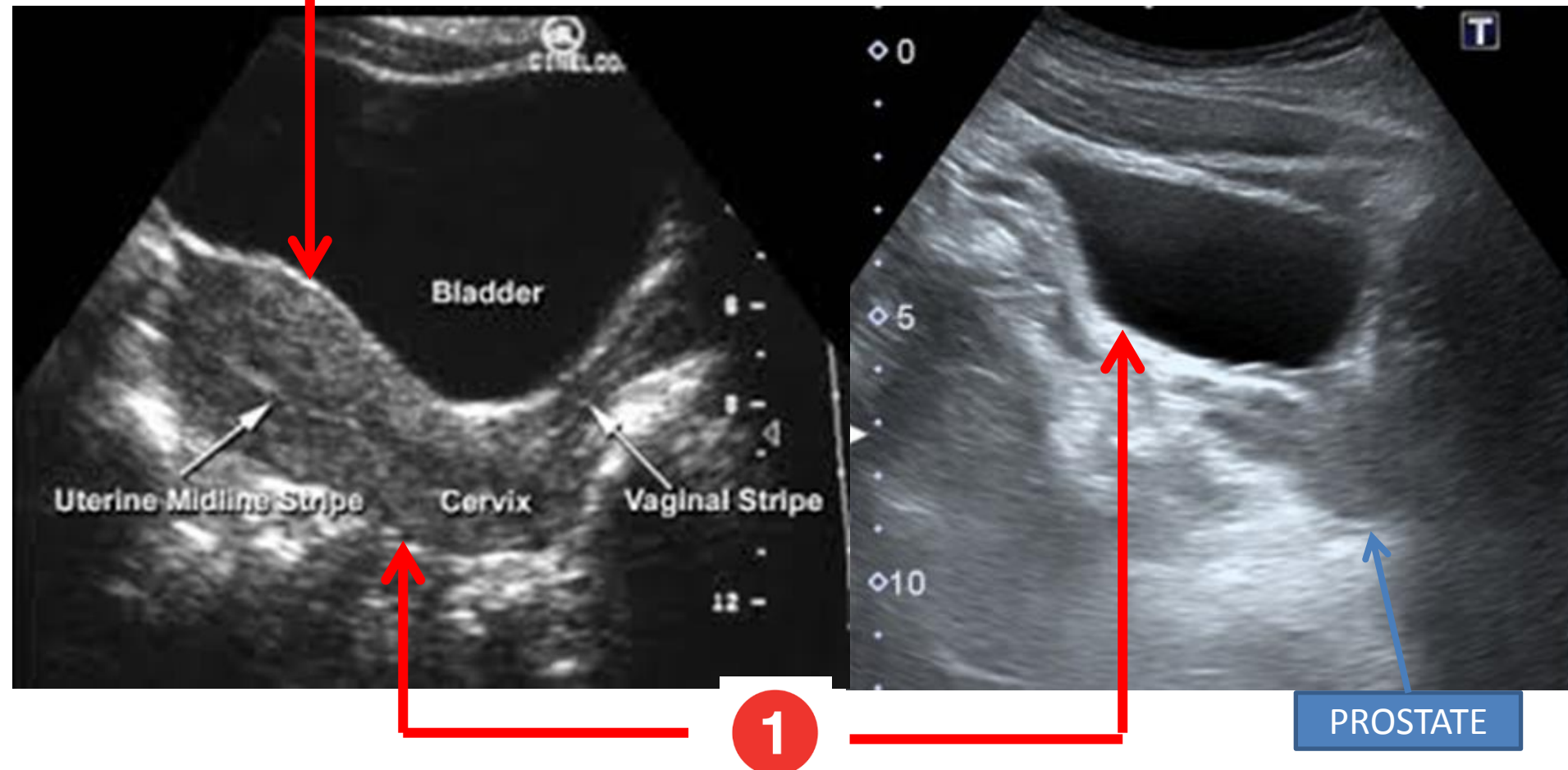
1



Coupe longitudinale

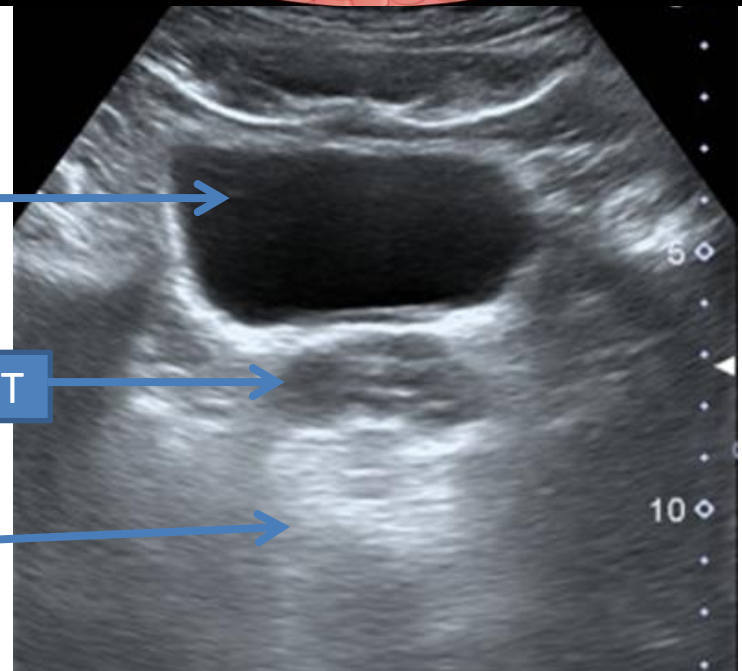
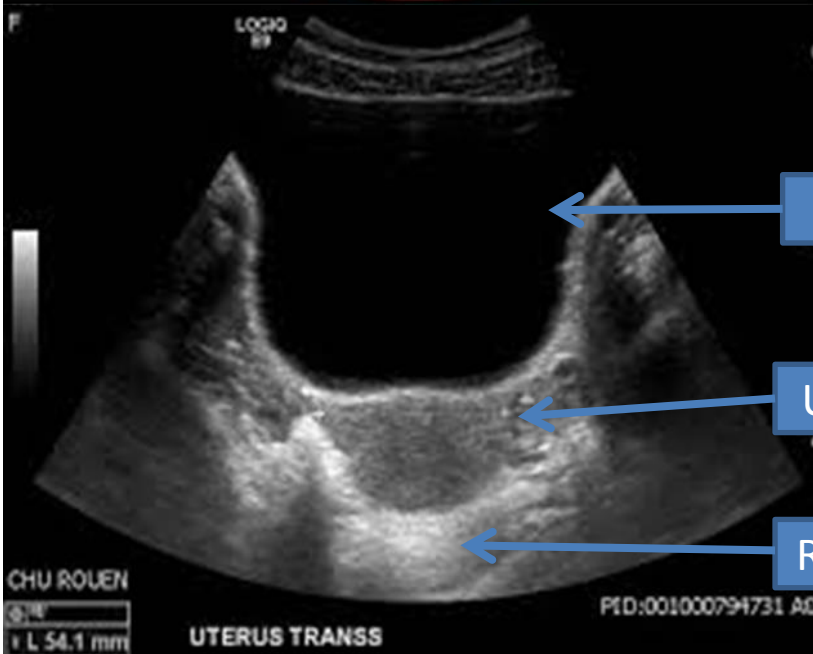
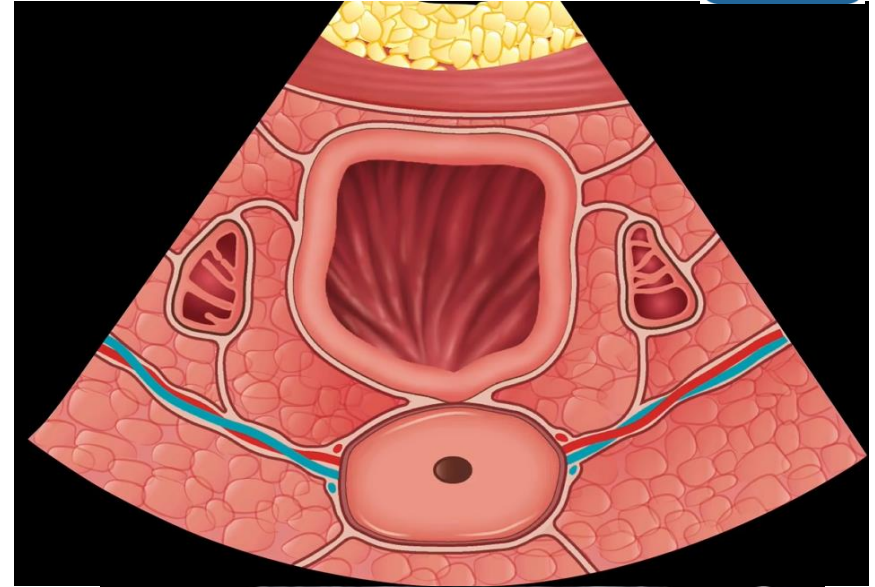
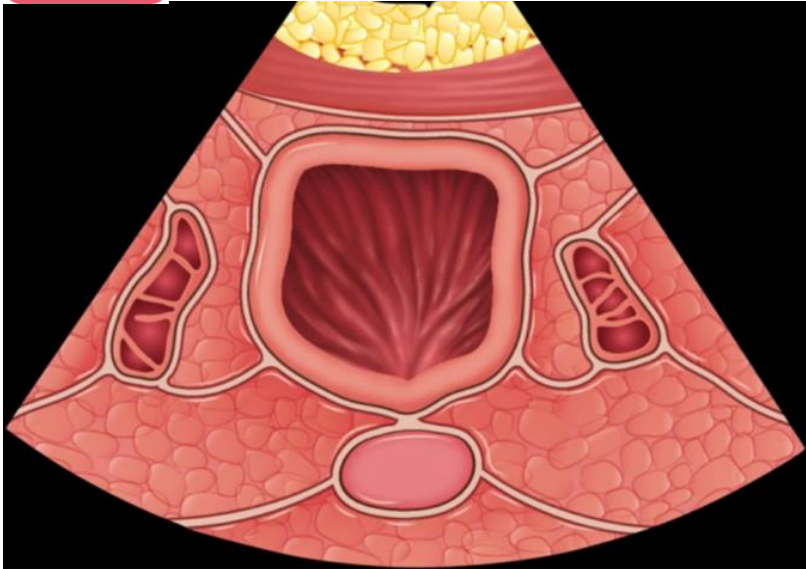


2





Coupe transversale



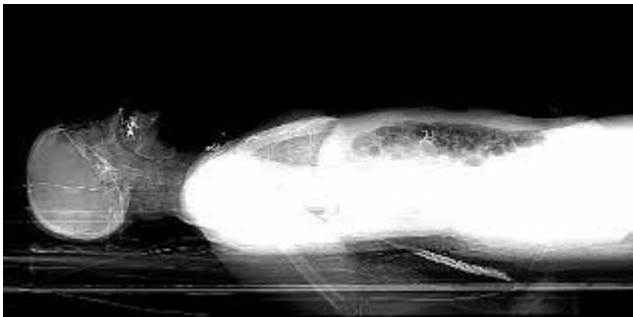
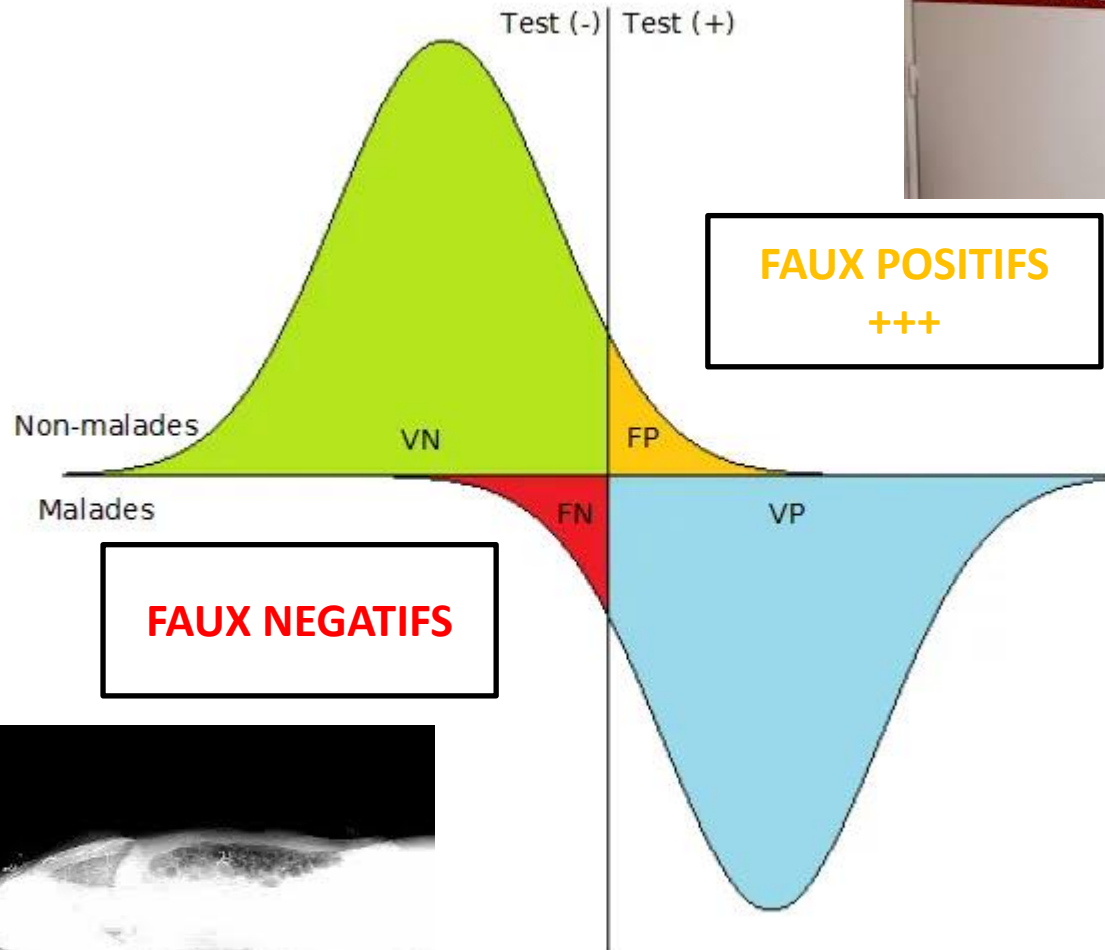
← VESSIE →

← UT / PROST →

← RECTUM →

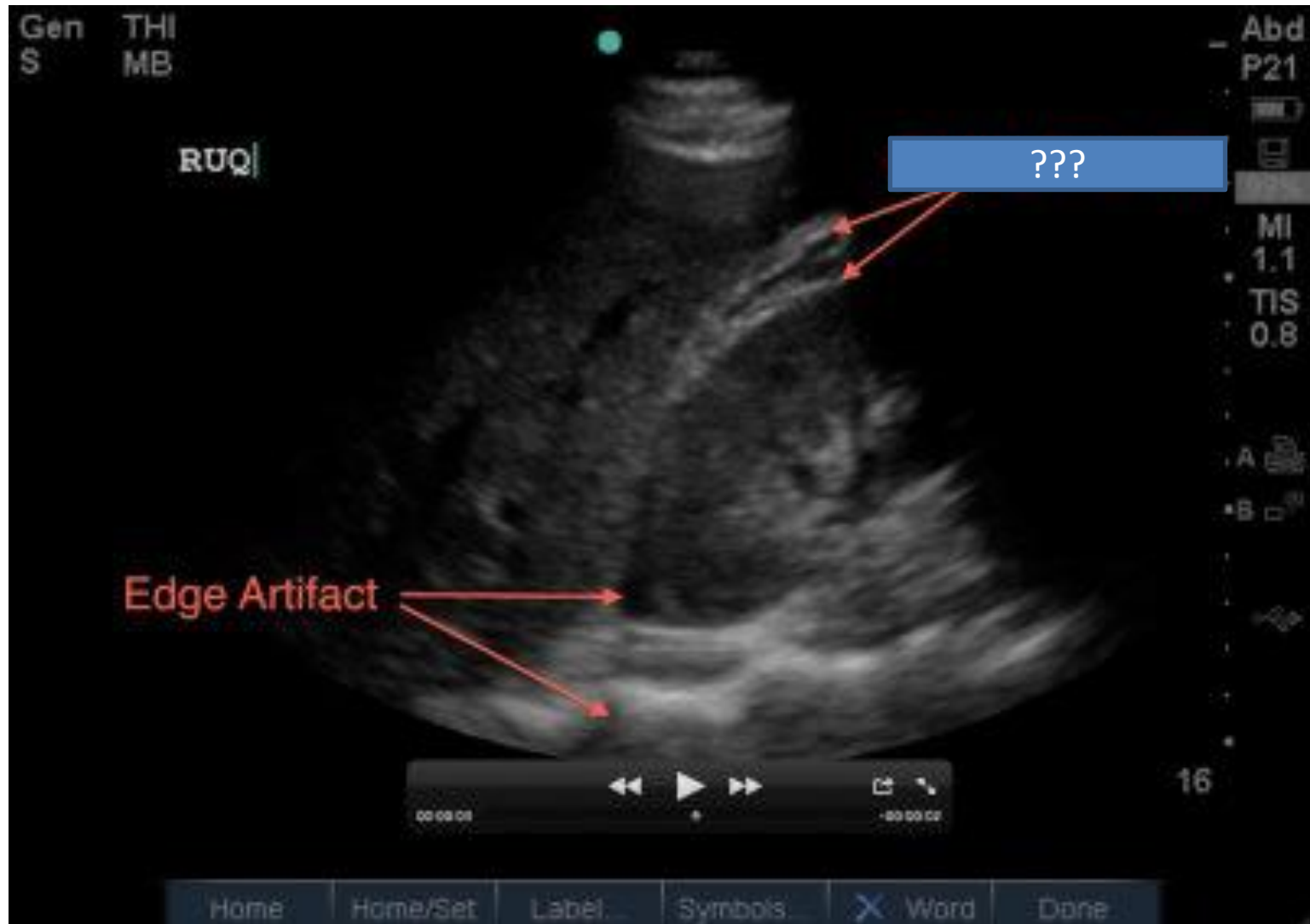


Les pièges...





Epanchement?



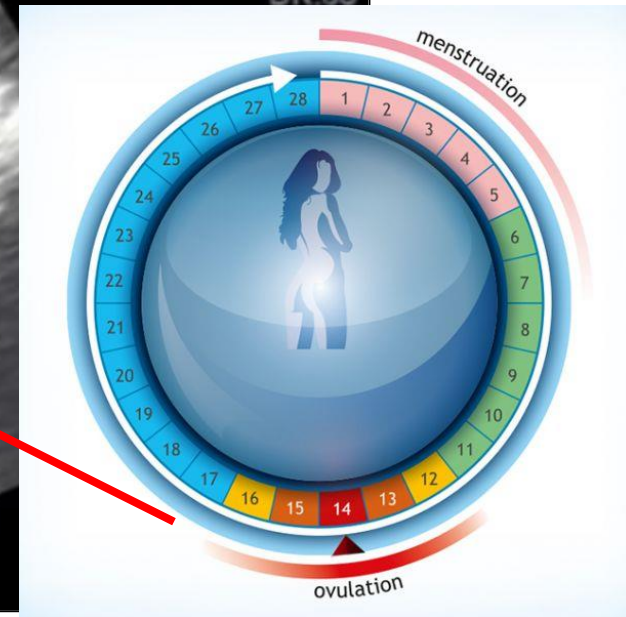
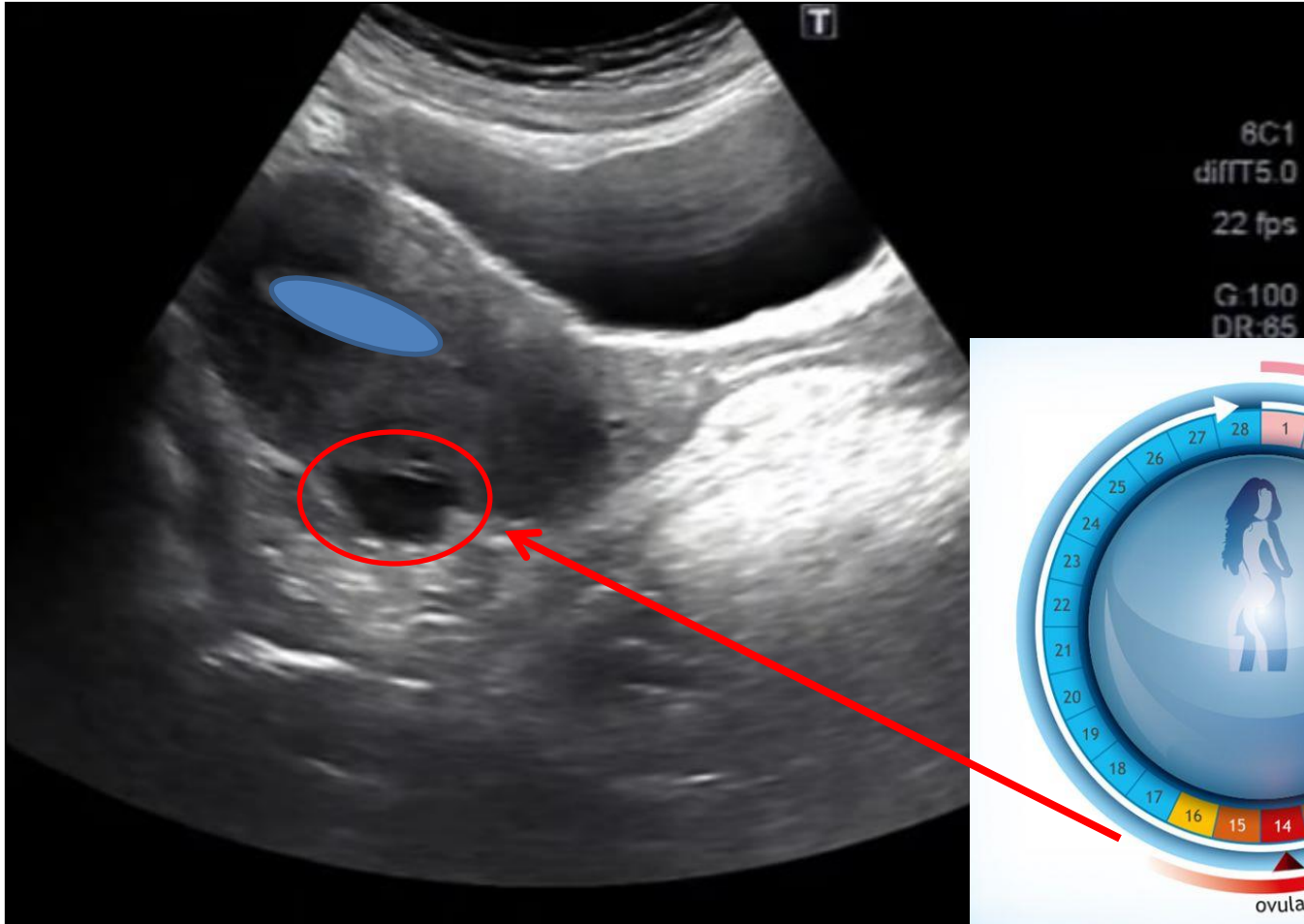


Bloc?





Pathologique?



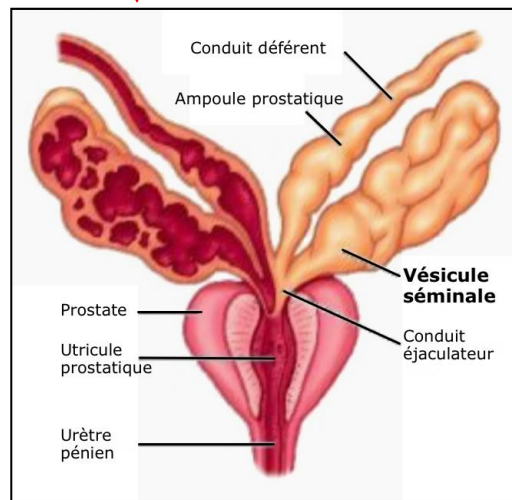
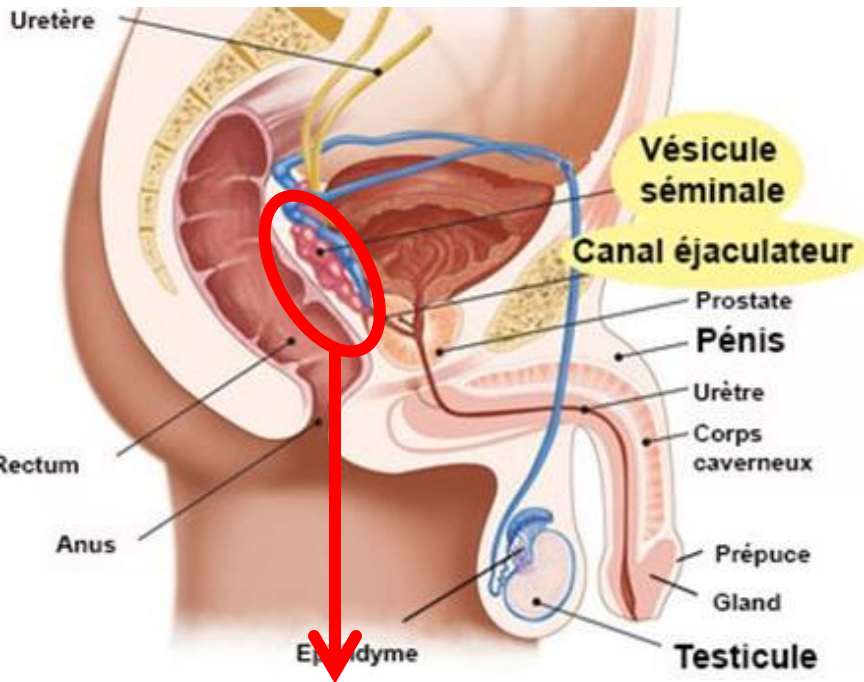


Pathologique?





Vésicules séminales



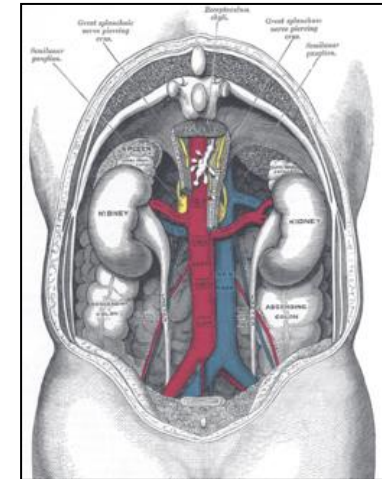


Epanchement latéro-vésical?

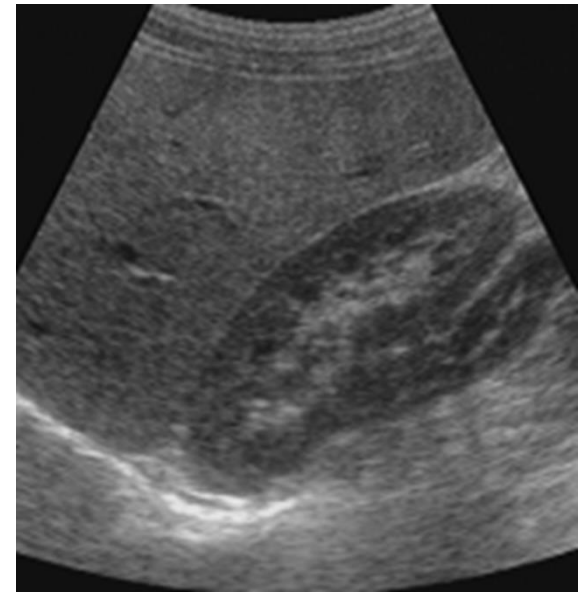




Faux négatifs



REPETITION
IS
THE KEY TO
SUCCESS





Epanchement rétro-péritonéal



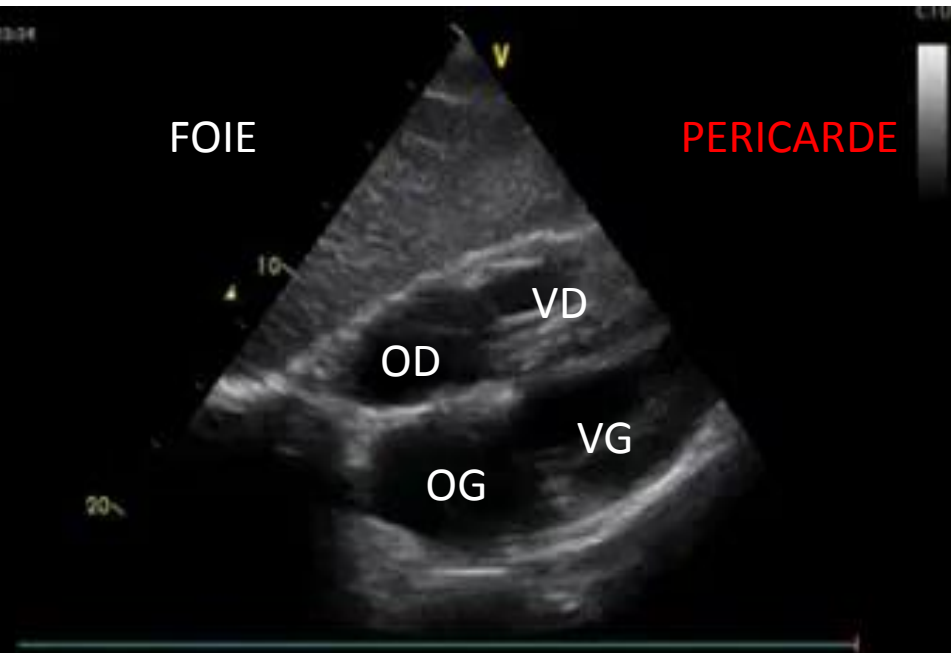
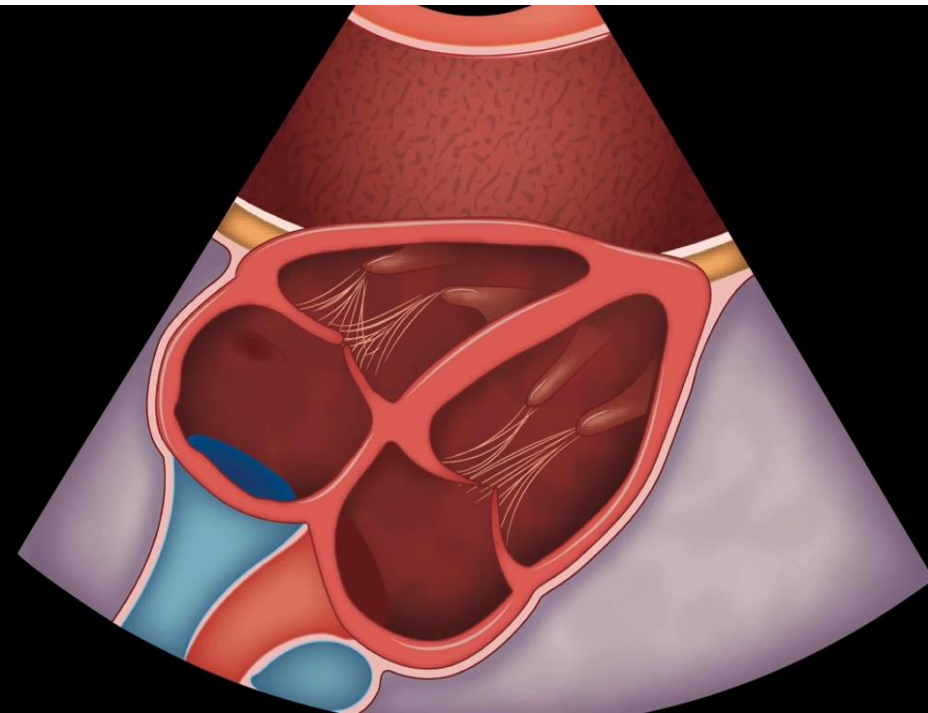


Sous-Xiphoïdien

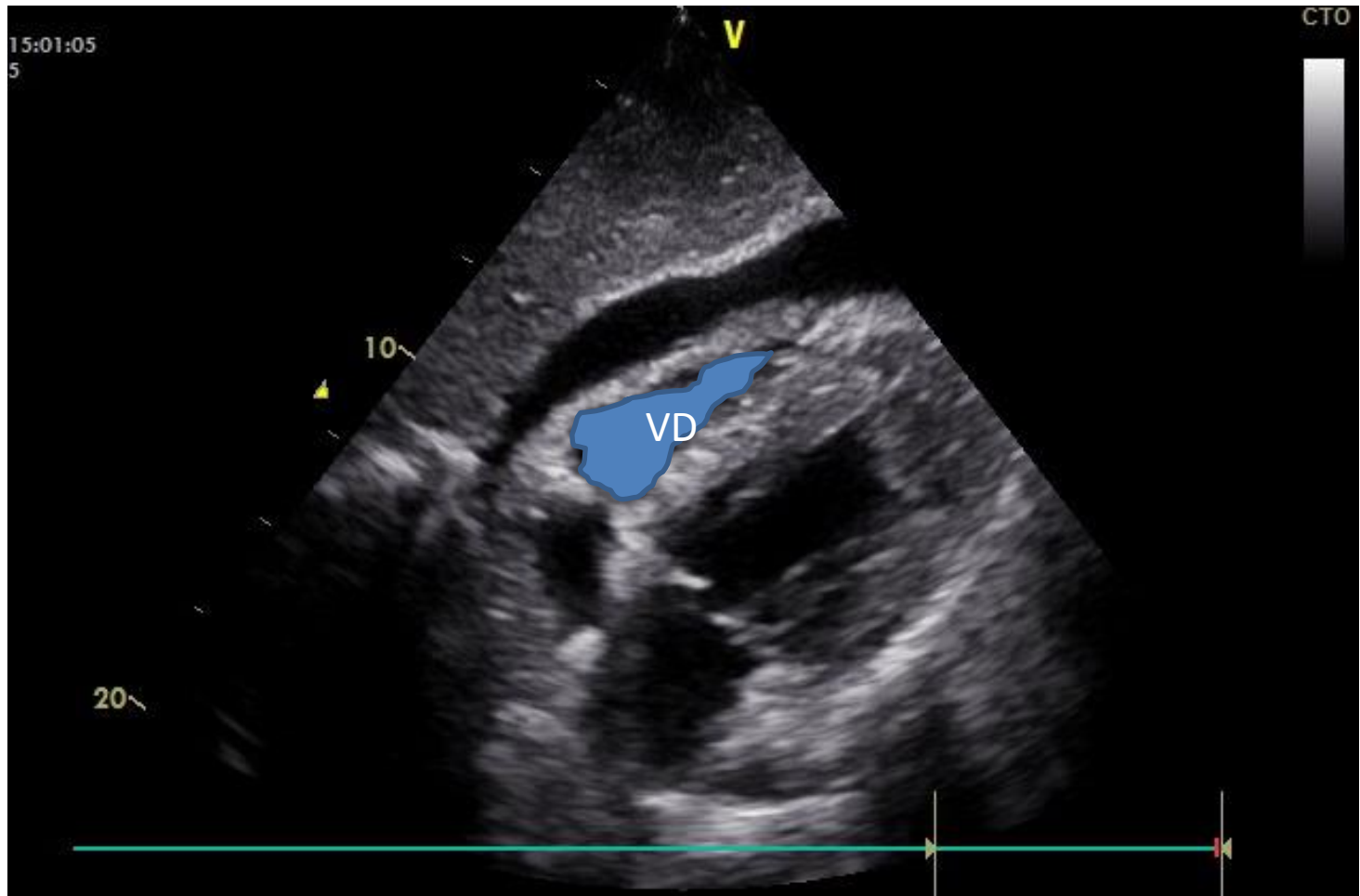




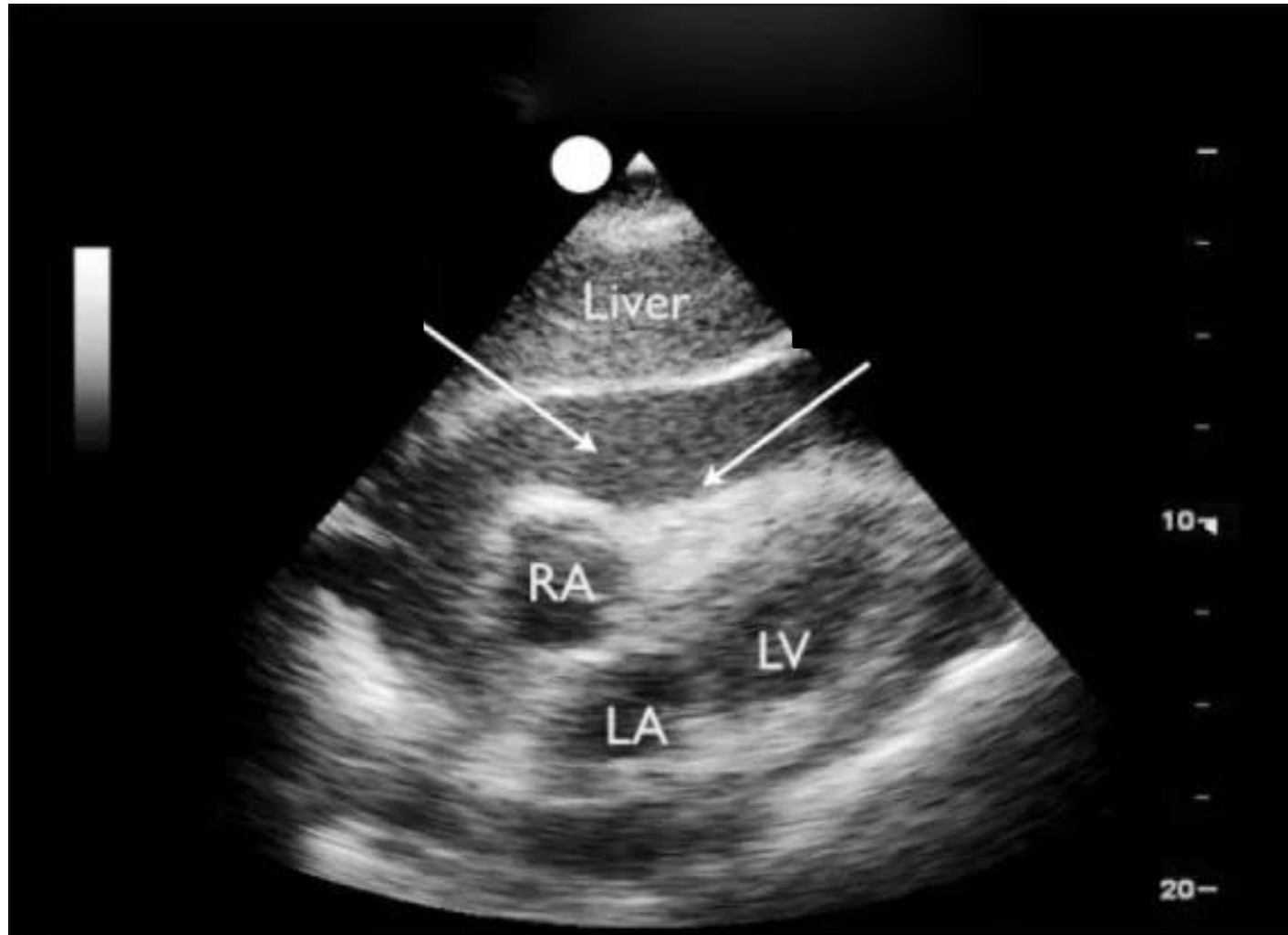
Péricarde



Tolérance?



Tolérance ?





Drainage péricardique?

Compression OD télédiastolique



Compression VD holodiastolique

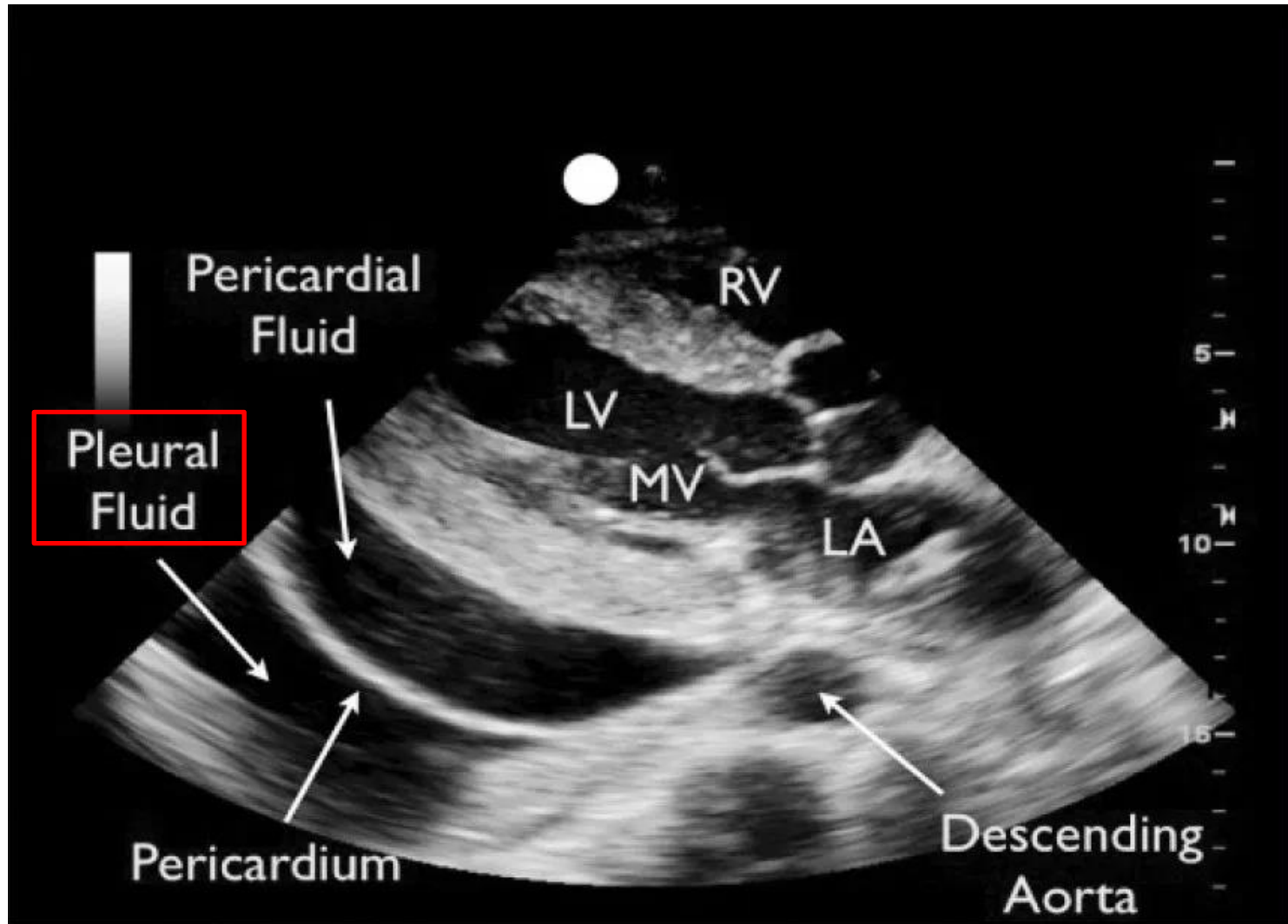


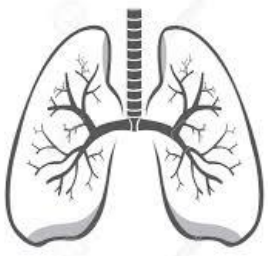
Swinging Heart
= circonférentiel

Diminution collapsus VCI < 50%



Le piège

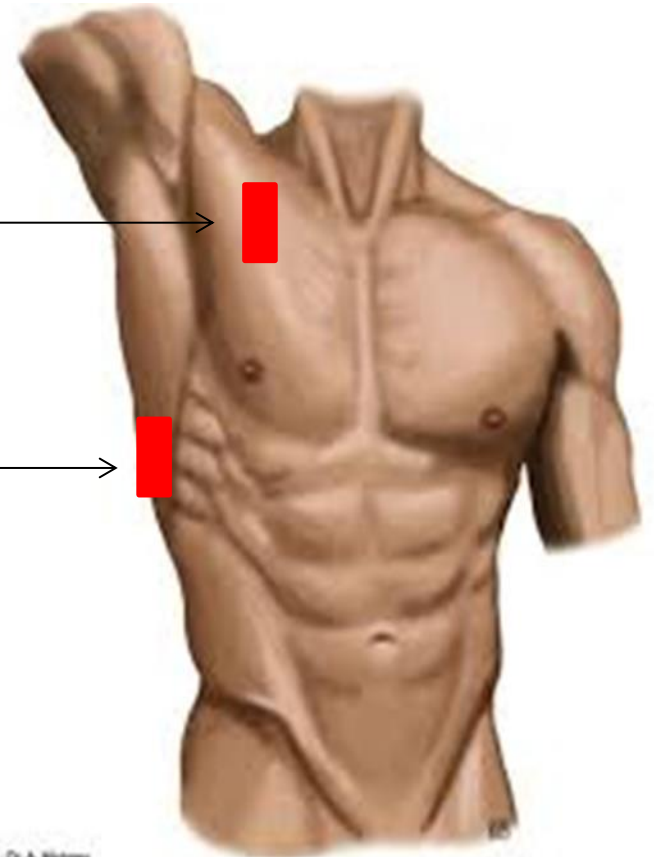




Etage thoracique

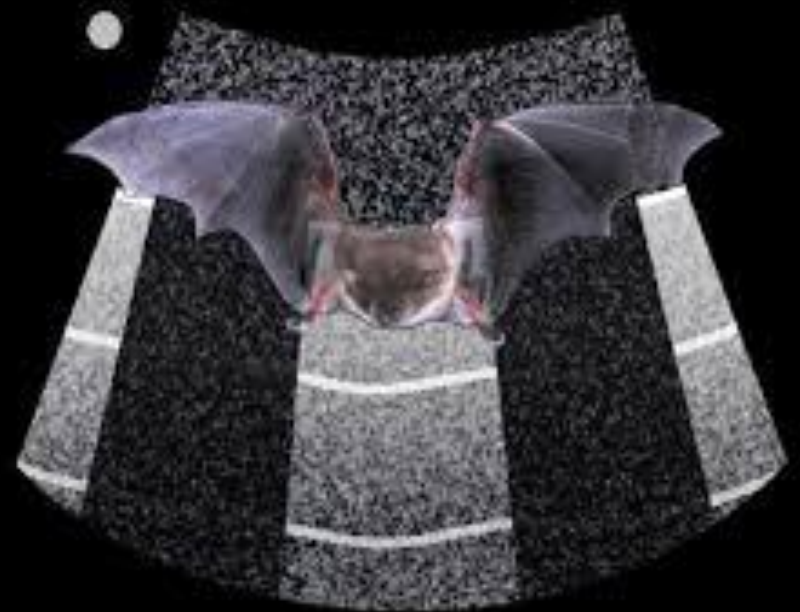
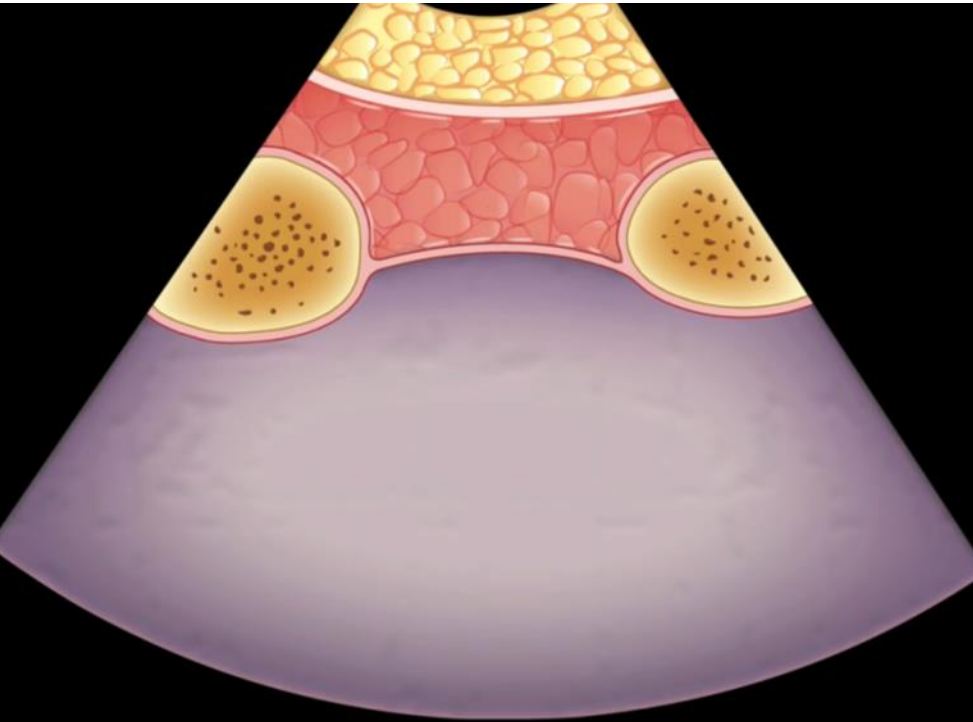
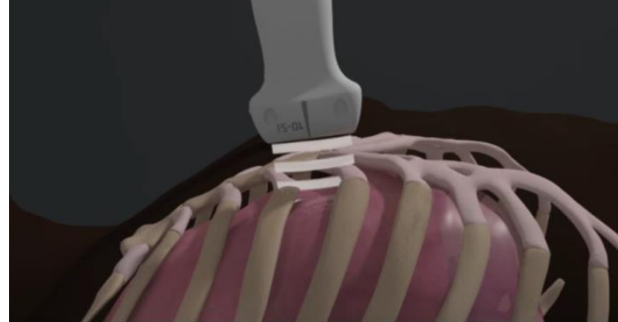
- Situation physiologique

- Epanchement
 - aérique →
 - liquidien →





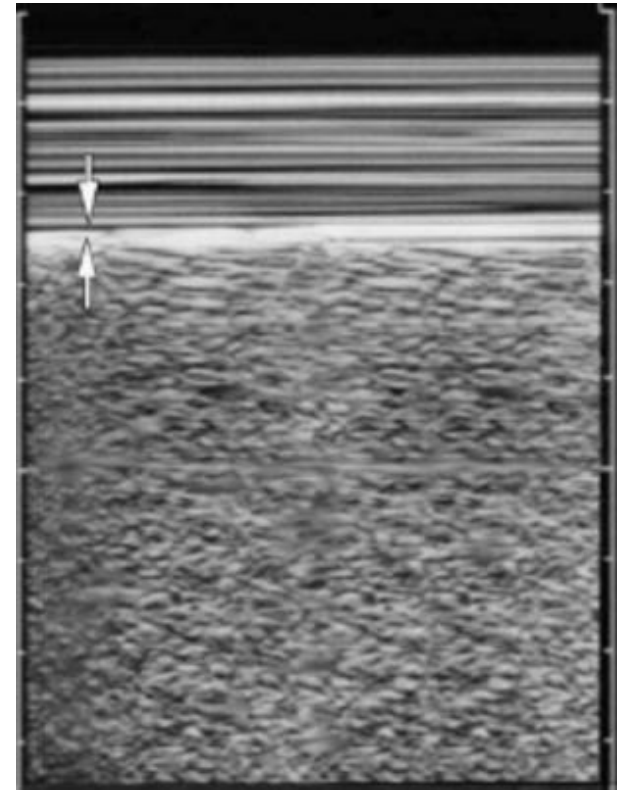
Quadrant thoracique antérieur



Physiologie



Glissement pleural



Signe bord de mer

Lung ultrasound in the critically ill

Pneumothorax

1 Glissement pleural abolis?



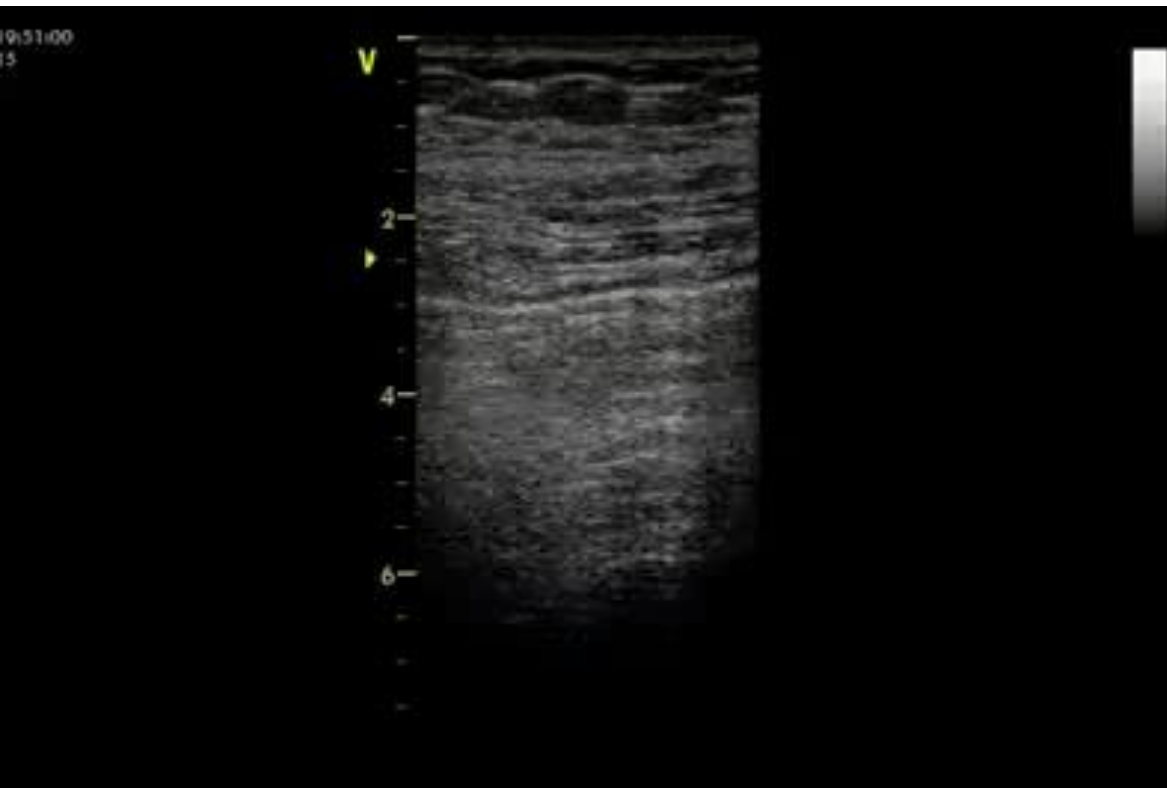
2 Lignes A exclusives?



3 Point-poumon   Spé = 100%



Pneumothorax



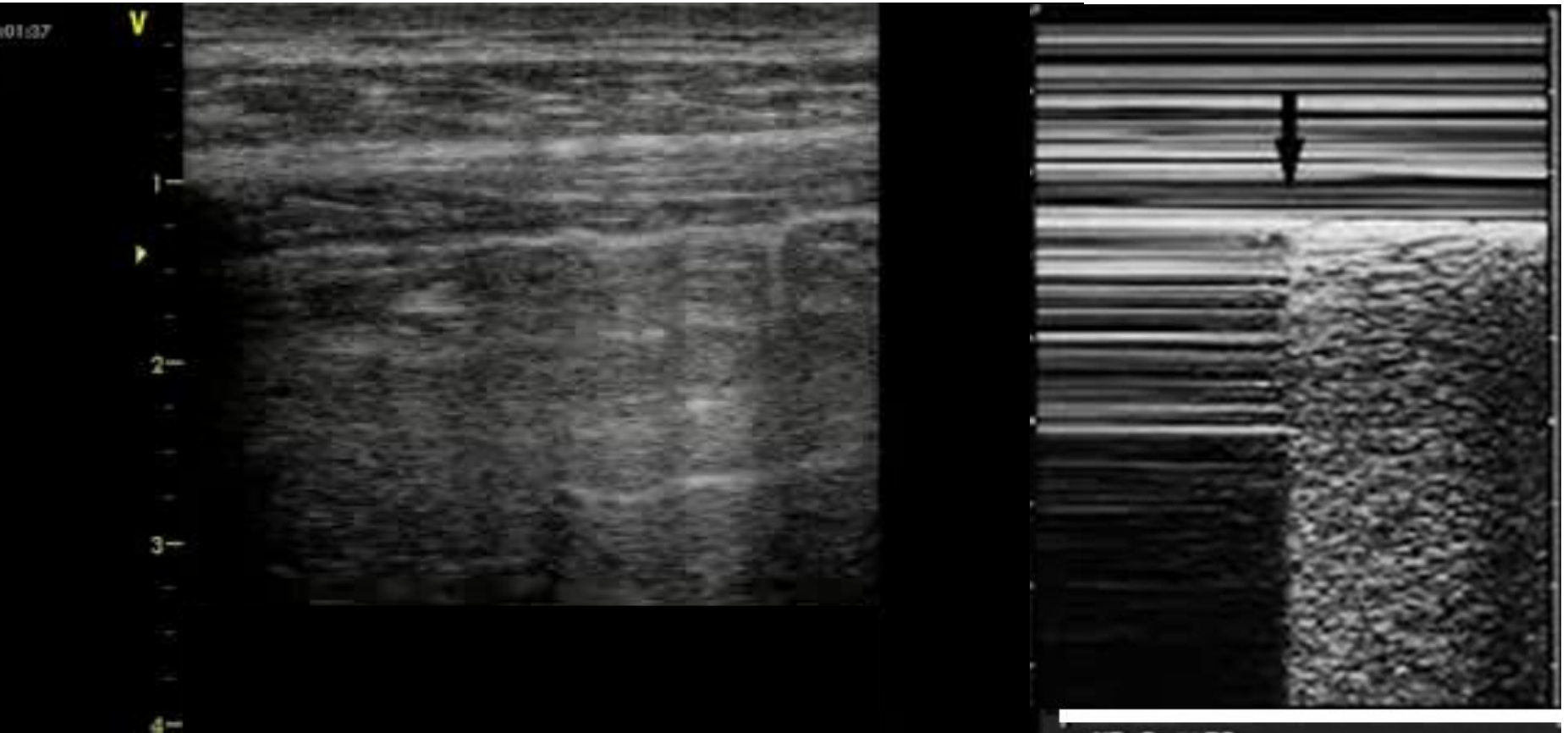
Abolition
Glissement pleural



Signe code barre



Le point-poumon

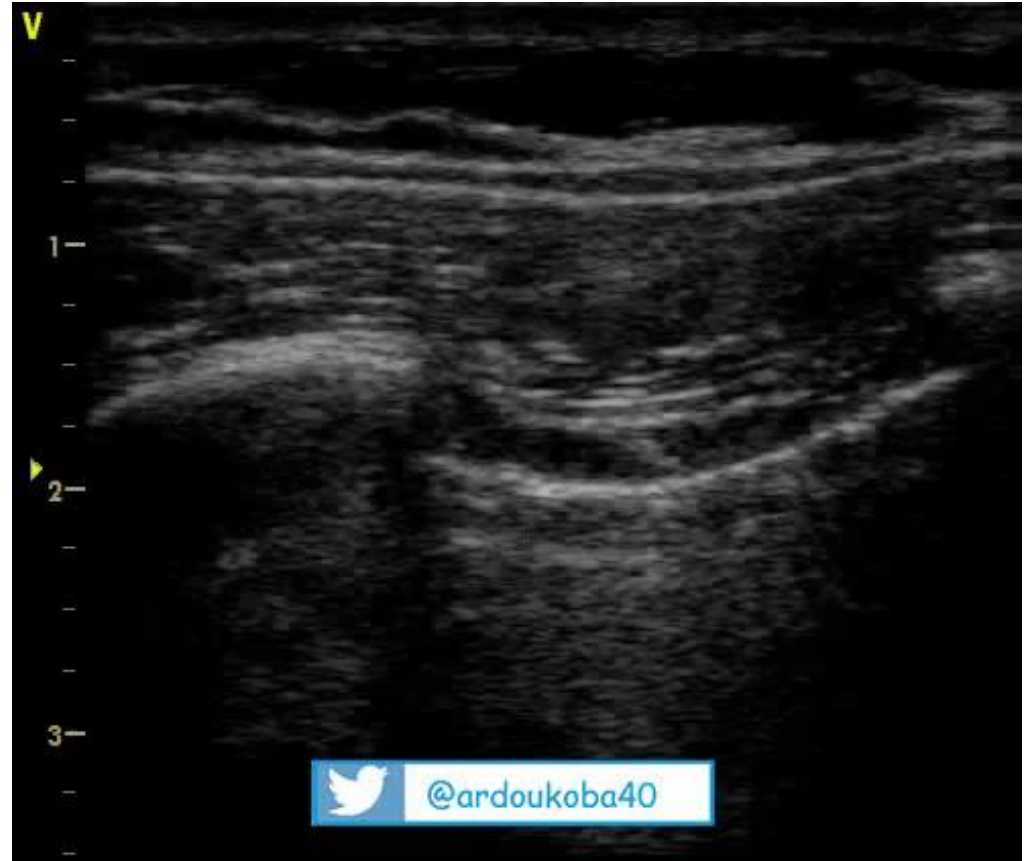




Et le pouls pleural?

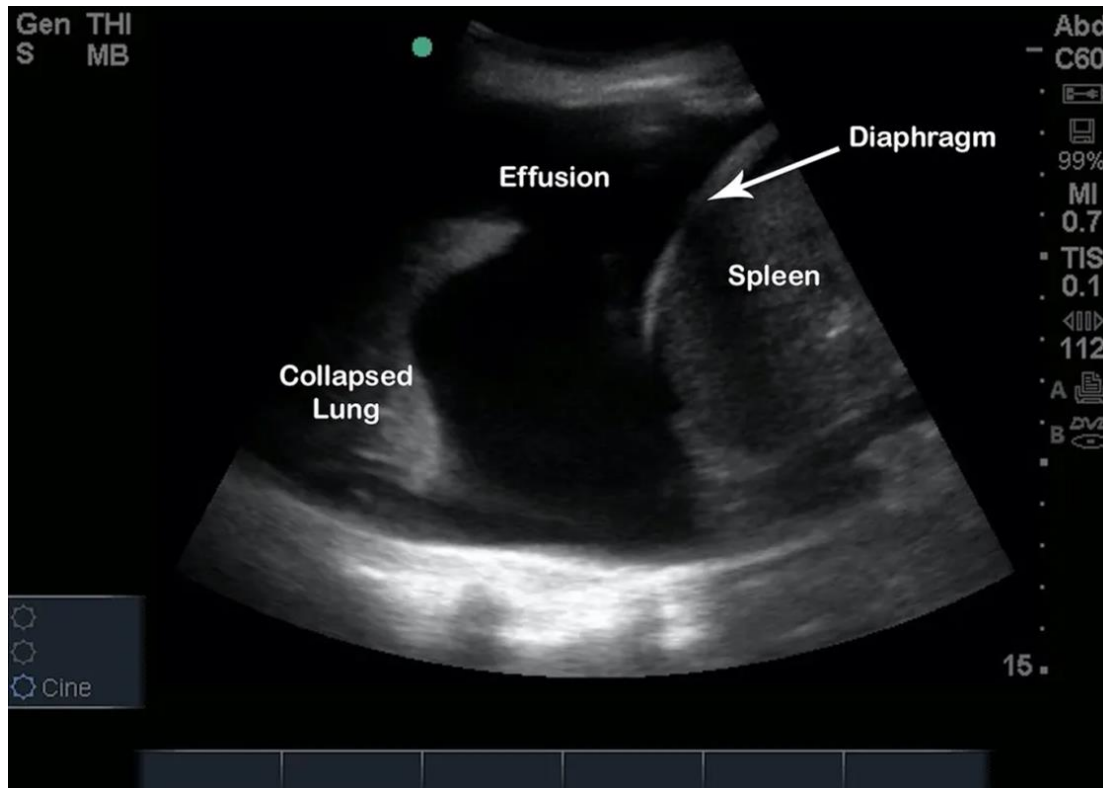
~~Glissement pleural~~

- IOT sélective
- Atélectasie

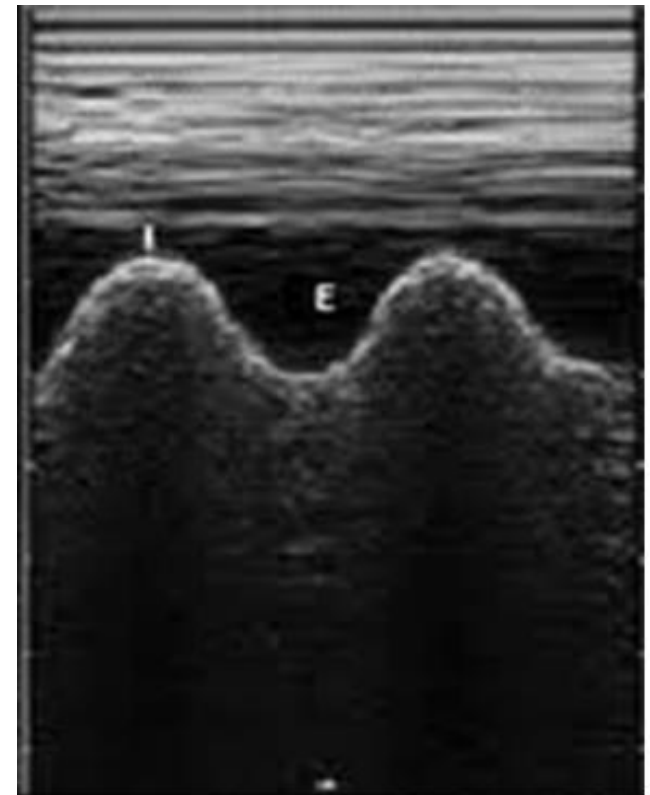




Hémothorax



Signe de la murène



Signe de la sinusoïde



Hernie diaphragmatique



Contusions



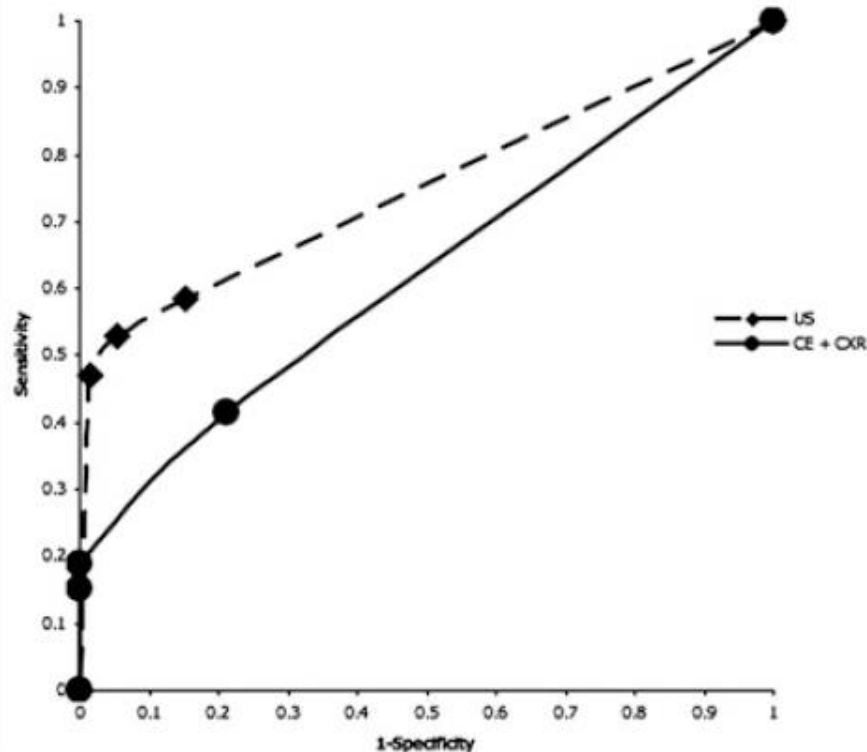


Diagnostic Accuracy of Ultrasonography in the Acute Assessment of Common Thoracic Lesions After Trauma

A

N = 53

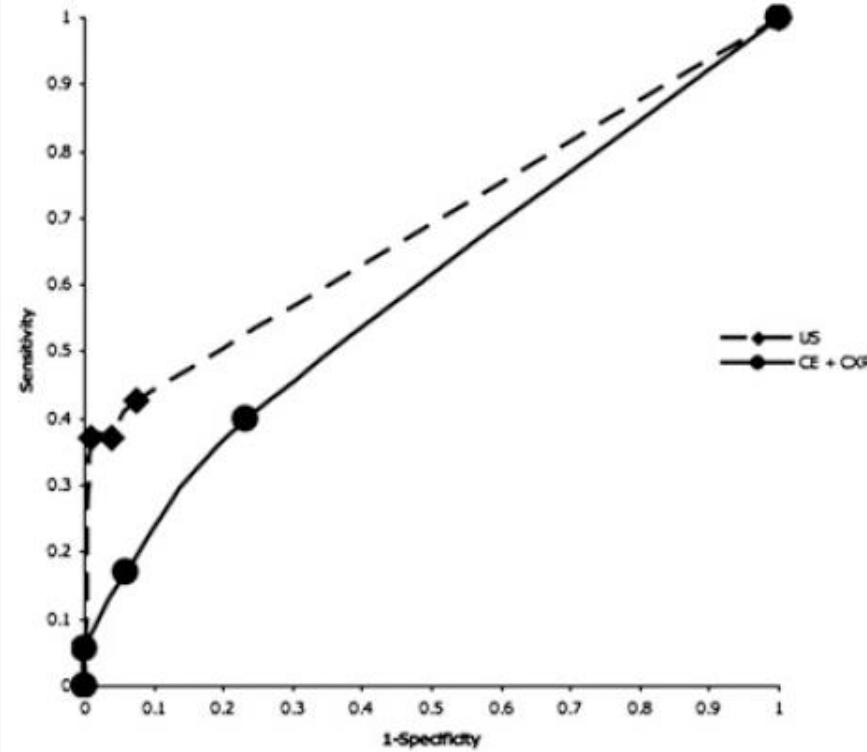
Pneumothorax

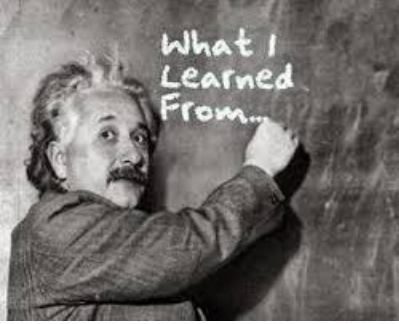


B

N = 35

Hemothorax





Conclusion

- Rapide = 3-5 min
- Une question = épanchement +++
- A répéter
- Echographie « clinique »

POCS is **positive** for free abdominal or thoracic fluid, or both, in a **haemodynamically unstable** patient. Currently, it is unlikely that stability could not be achieved by haemostatic resuscitation and other critical care efforts to make patients pan-scan ready.

Quelle(s) est/sont la/les proposition(s) vraie(s) concernant l'échographie E-FAST?

- A. Les performances diagnostiques (Se et Spé) de l'E-FAST sont supérieures dans les traumatismes thoraciques fermés en comparaison aux traumatismes abdominaux.
- B. L'espace inter-hépto-rénal est la zone la plus sensible pour détecter un épanchement péritonéal.
- C. Le volume seuil permettant la détection d'un épanchement péritonéal est de 50 cc.
- D. La recherche d'un épanchement péricardique nécessite l'utilisation d'une sonde sectorielle.
- E. Au niveau du quadrant thoracique antérieur, l'opérateur doit réaliser une coupe longitudinale.

Quelle(s) est/sont la/les proposition(s) vraie(s) concernant l'échographie E-FAST?

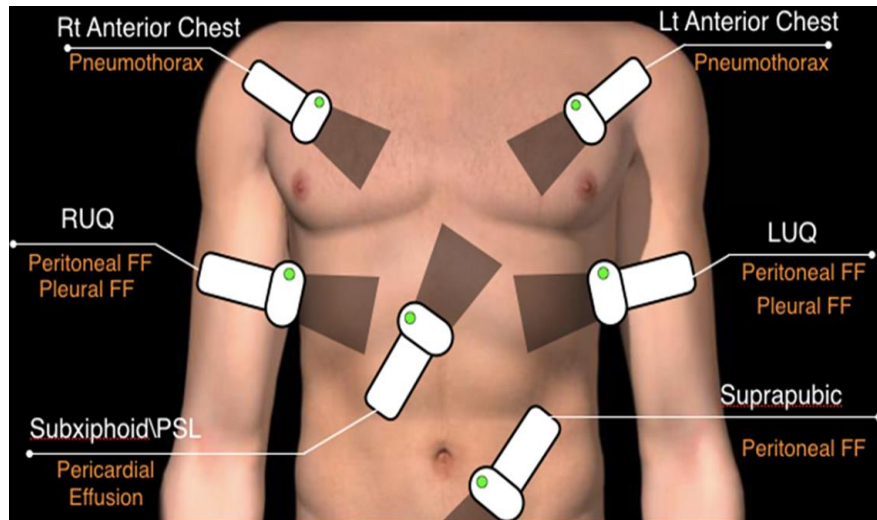
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Quel est le nombre de quadrants analysés lors d'une échographie E-FAST?



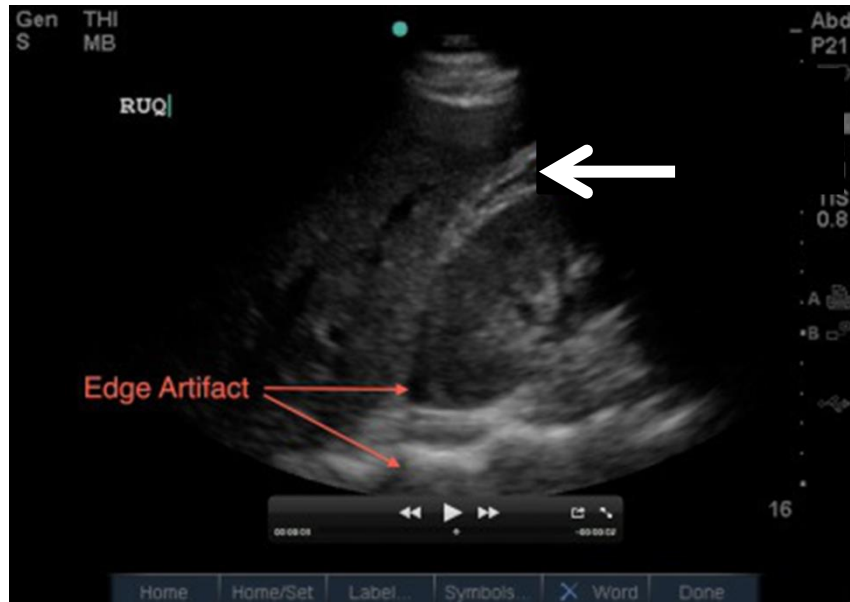
- A. 5
- B. 6
- C. 4
- D. 8
- E. Aucune de ces réponses

Quel est le nombre de quadrants analysés lors d'une échographie E-FAST?



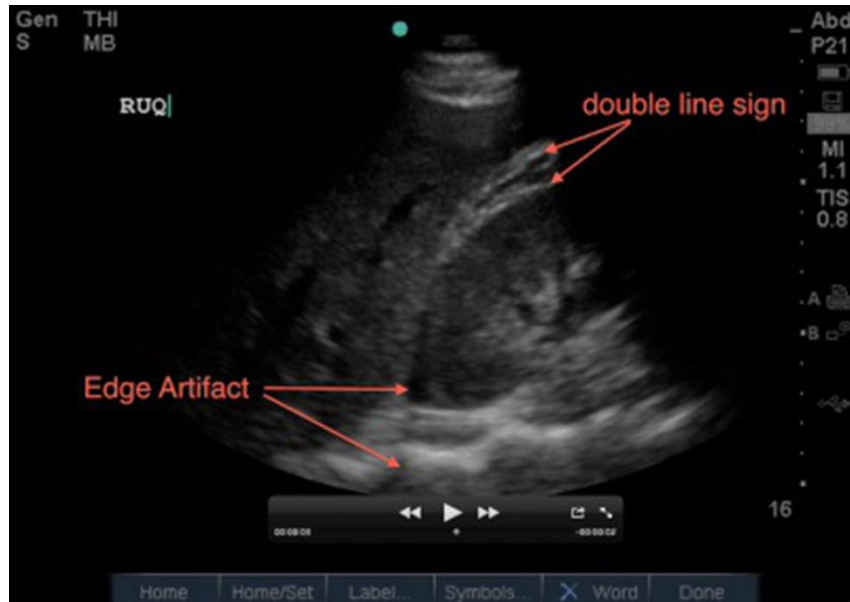
- A. 5
- B. 6**
- C. 4
- D. 3
- E. Aucune de ces réponses

Quel est l'élément désigné par la flèche blanche sur cette coupe du quadrant abdominal supérieur droit?



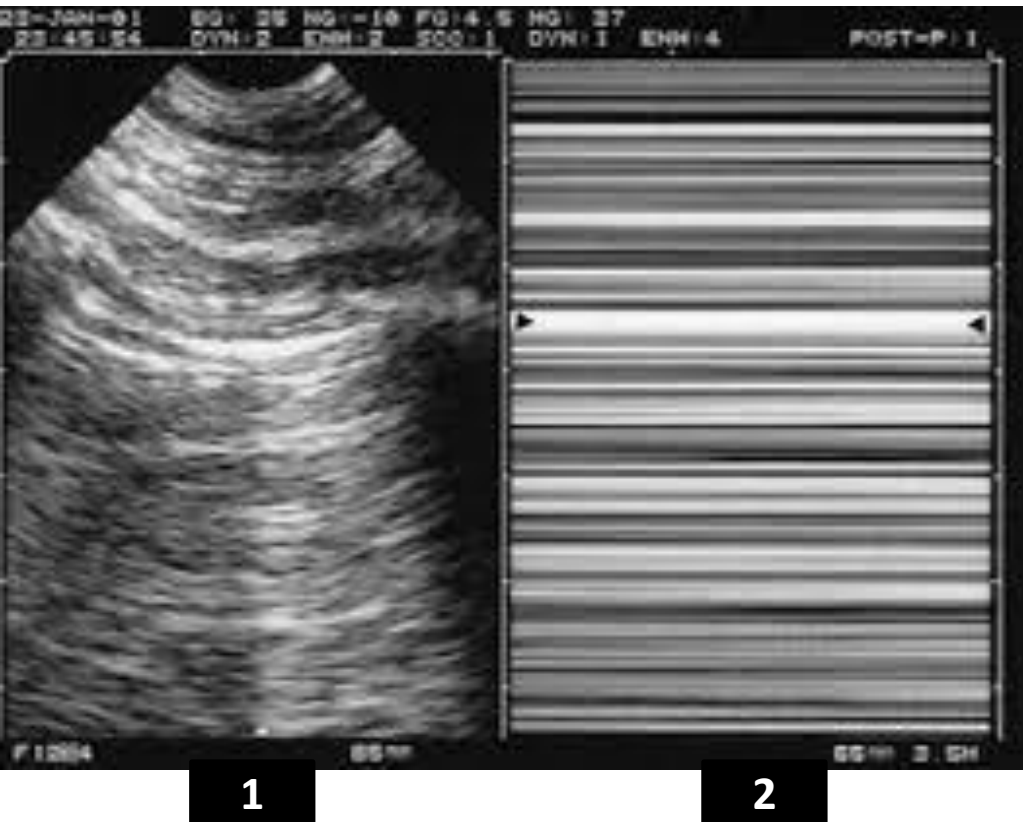
- A. Cul de sac pleural droit
- B. Epanchement péritonéal
- C. Graisse péri-rénale
- D. Veine hépatique
- E. Diaphragme

Quel est l'élément désigné par la flèche blanche sur cette coupe du quadrant abdominal supérieur droit?



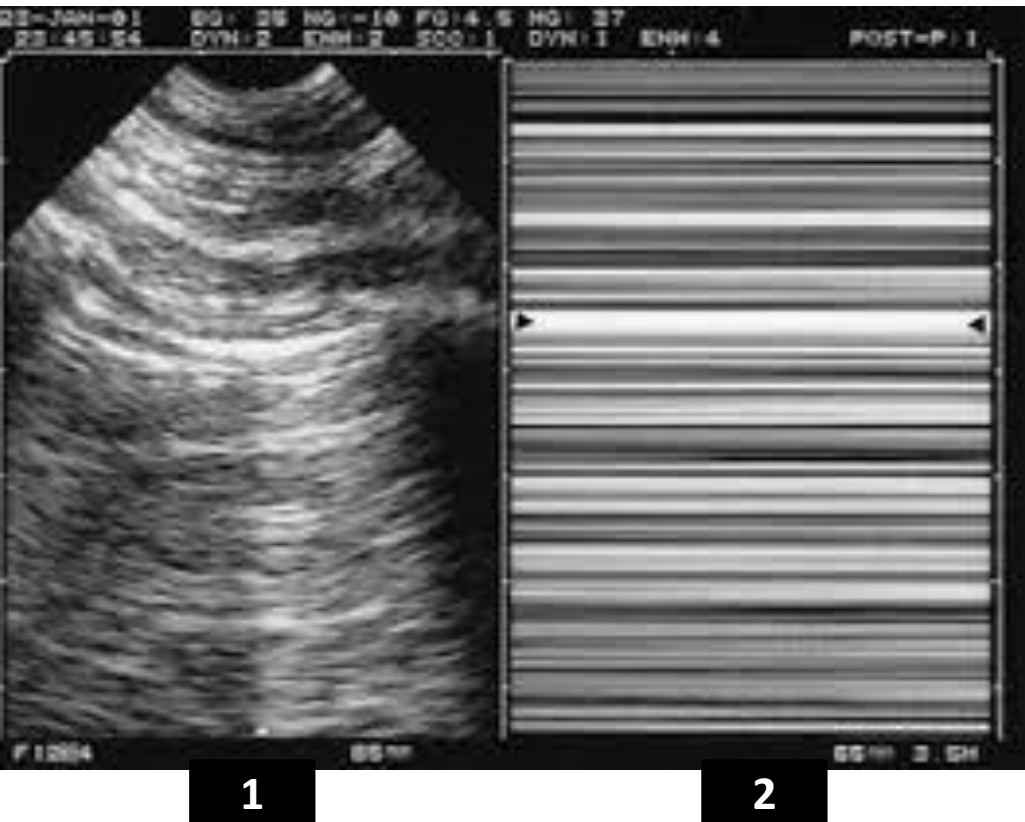
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- E. Diaphragme

Quelle(s) est/sont la/les proposition(s) vraie(s) concernant ces images?



- A. Il existe des lignes B sur l'image 2.
- B. Ces deux images montrent un pneumothorax.
- C. L'image 2 représente le signe du bord de mer.
- D. L'image 2 représente le signe du code barre.
- E. L'image 2 est en faveur d'un pneumothorax.

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