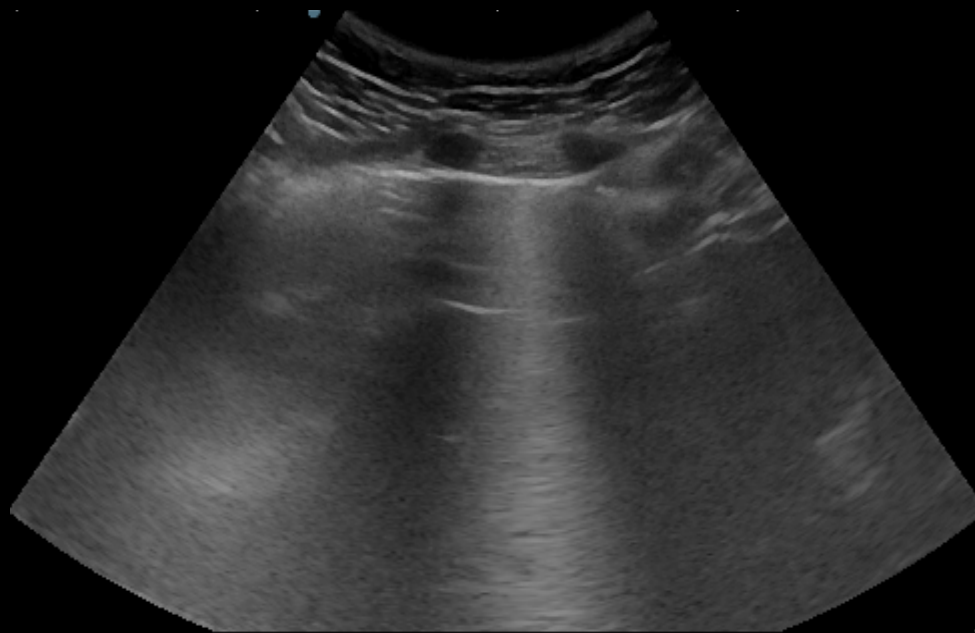


Ecografia pulmonara in Covid-19



Alexandru Andritoiu
Sp. Militar Craiova

Diagnosticul Covid-19

- Simptomatologie diversa-multidisciplinara
- Teste controversate
- Imagistica inselatoare

- Afectarea pulmonara: cea mai frecventa
- Pneumonia bilaterala
- Diverse stadii de evolutie

- Protocoalele se modifica periodic!

Pneumonia Covid-19

Evolutie stadiala-progresiva

- 1) interstitiala
- 2) alveolo-interstitiala
- 3) condensari subpleurale
- 4) condensari segmentare/lobare
- 5) fibrioza
- 6) f. rar pleurezie (minima)

10% dintre pacientii cu Covid-19 nu dezvoltă afectare pulmonară !

Caratteristici

- Postero-bazal
- Bilaterala
- Periferica
- Progresiva
- F rar: -unilaterala

Pneumonia Covid-19

DUMITRAS, LAURENTIU

D: 1640723163204

* 7/23/1964, M

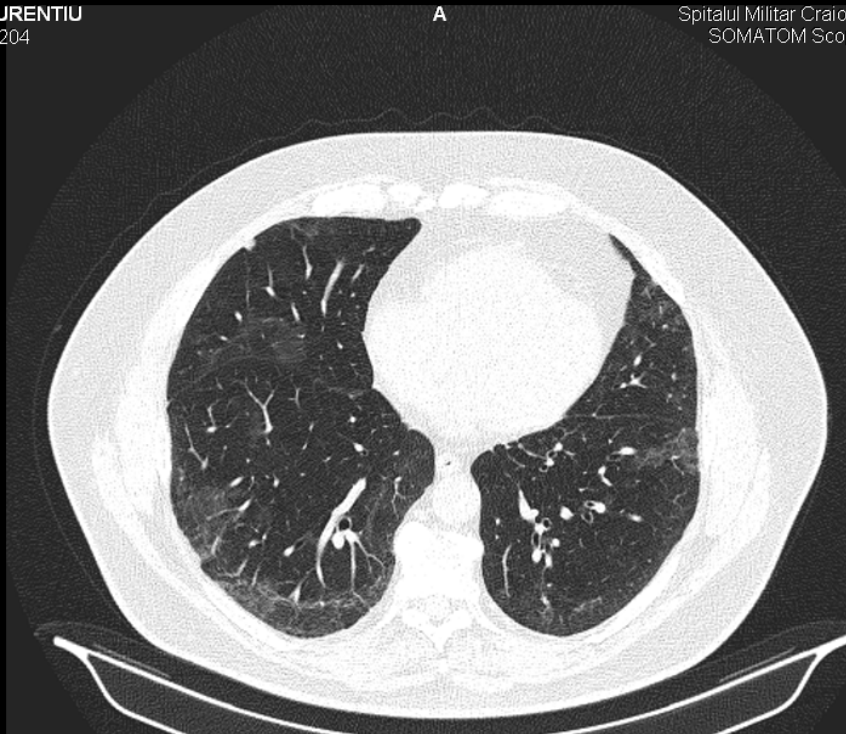
Study 2

12/22/2020

9:51:16 AM

121 IMA

Spitalul Militar Craiova
SOMATOM Scop



Bilaterala



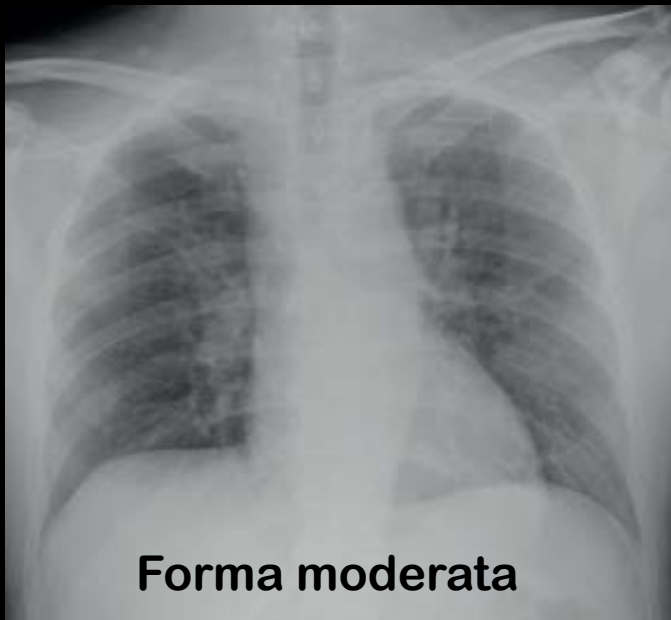
LSD

Imagistica

Indicatii controversate:

- Rx-CP
- CT toracic (nativ)
- US pulmonara

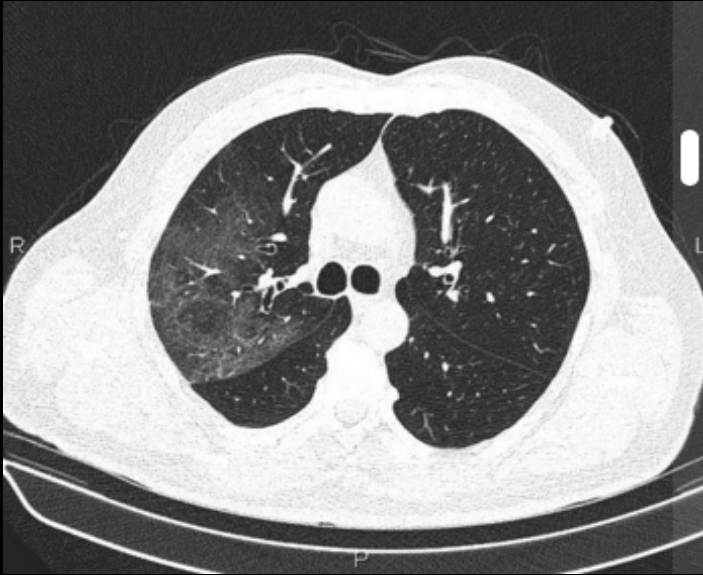
Rx-CP



CxR is used more frequently than CT in USA

Multifocal bilateral pulmonary opacities are nonspecific
but most characteristic of COVID-19 PNM

CT toracic (nativ)



High Sb. (88-97%)
Low Sp. (<25%)

Ground-Glass Opacities (patchy)
Crazy paving
Reverse Halo Sign (organized PNM)
DAD-Diffuse Alveolar Damage (ARDS)
Consolidations
Pleural effusion (3-5%)
Bilateral>Unilateral



Chest CT Severity score
(low/mild/high)

CT normal la debut

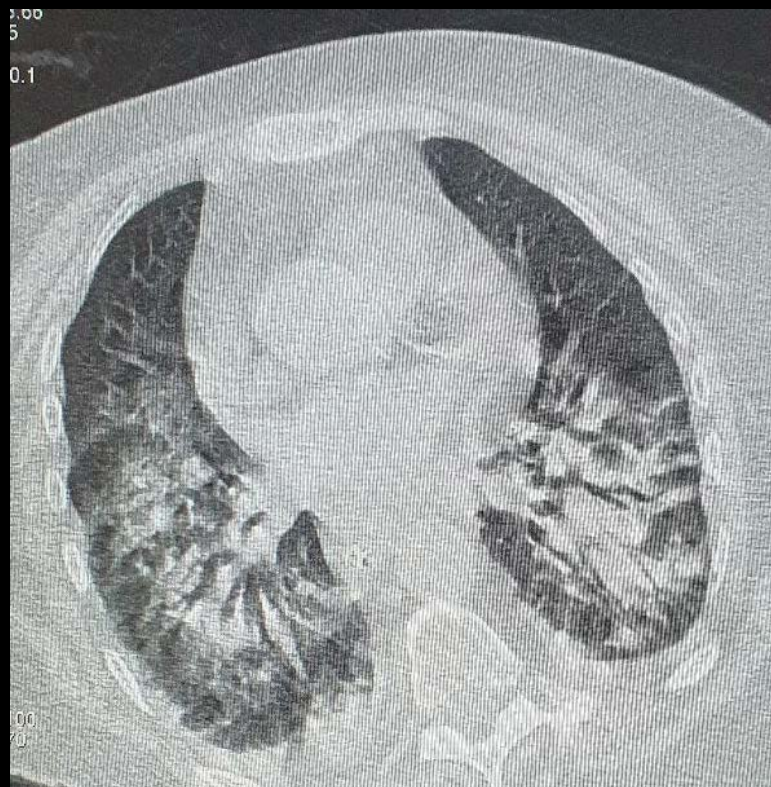


V. Lucia, 51 ani

Febra 38C, frisoane - 2 zile

SpO2 98%-Ag rapid SARS-Cov 2= POZITIV

ARDS-ATI



F. Maria, 72 ani

CT: condensari pneumonice bilaterale cu bronhograma aerica
prezenta dupa tentativa de IOT

Traumatism toracic

Contuzie pulmonara vs Covid-19



US pulmonara

Indicatii consacrate:

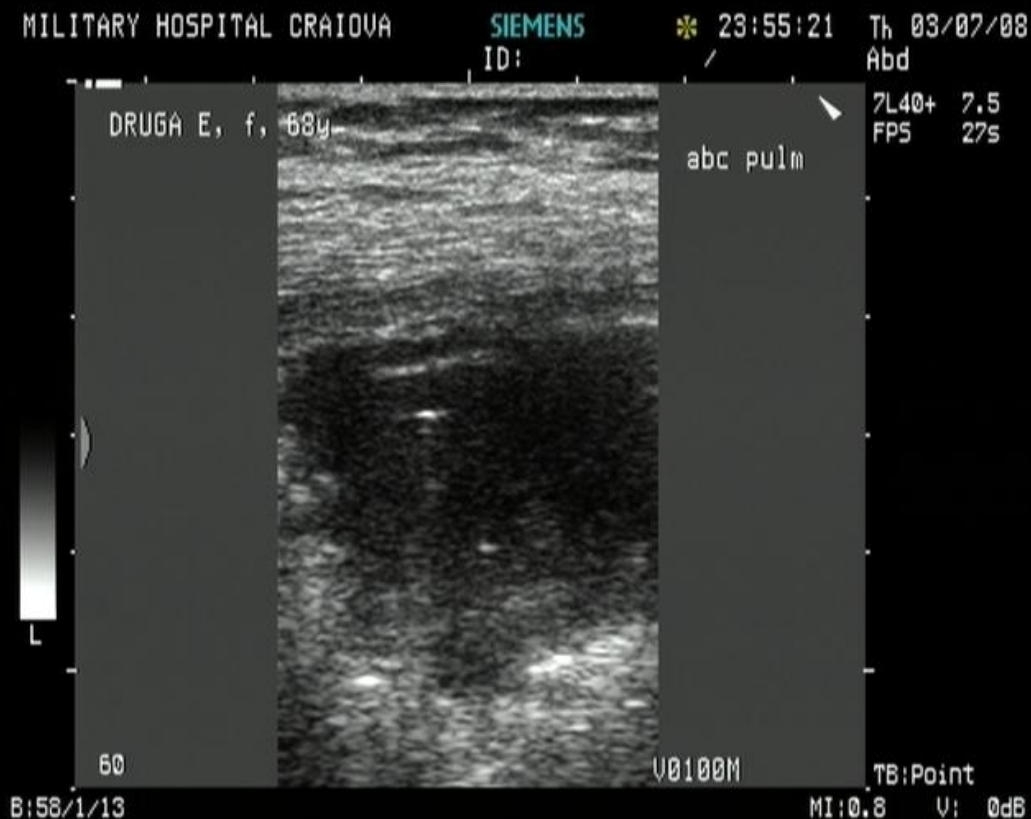
- pleurezie
- toracenteza
- abces pulmonar
- PNTx
- tumori periferice
- PNM segmentara
- atelectazie
- TEP



Neo br-pulm



Abces pulmonar



Meta-pleurezie neo

MILITARY HOSPITAL CRAIOVA

SIEMENS

16:22:43

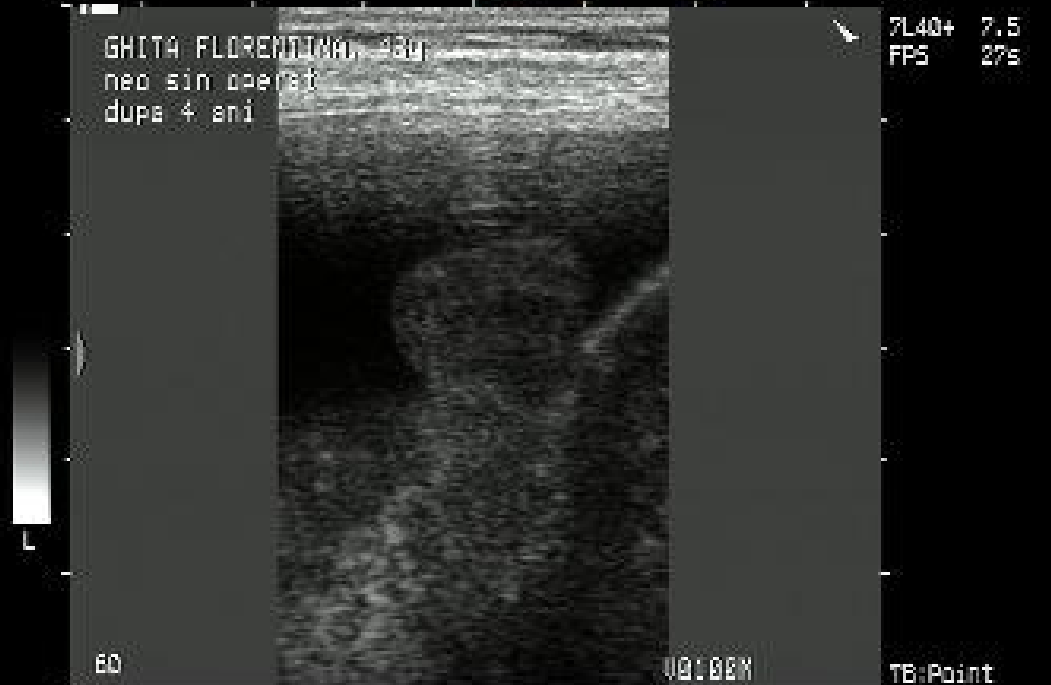
Th 31/07/14

ID:

Abd

GHITA FLORENTINA, 48y
neo sin operat
dupa 4 ani

7L40+ 7.5
FPS 27s



8:53/1/18

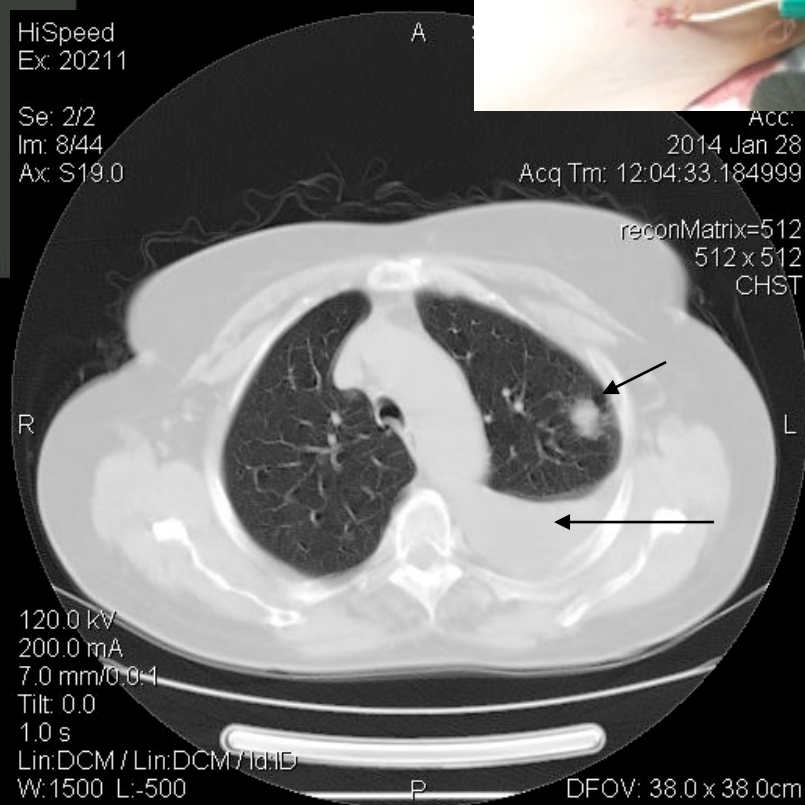
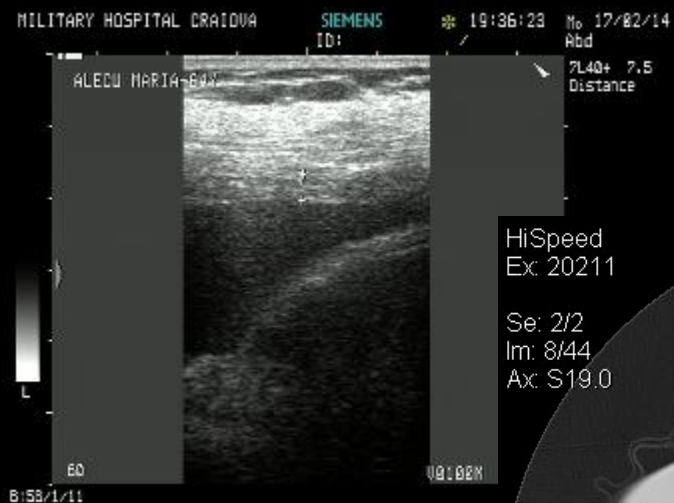
00:00N

MI:0.8 U: 0dB

ED

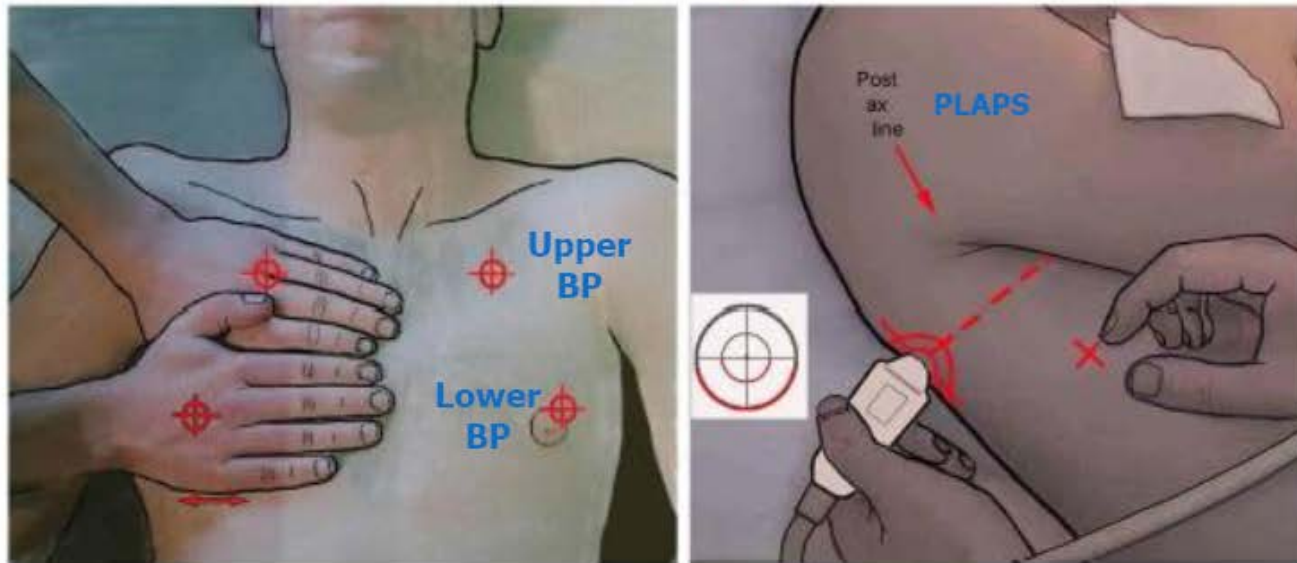
TB:Point

Drenaj percutan



LUS approach standardization

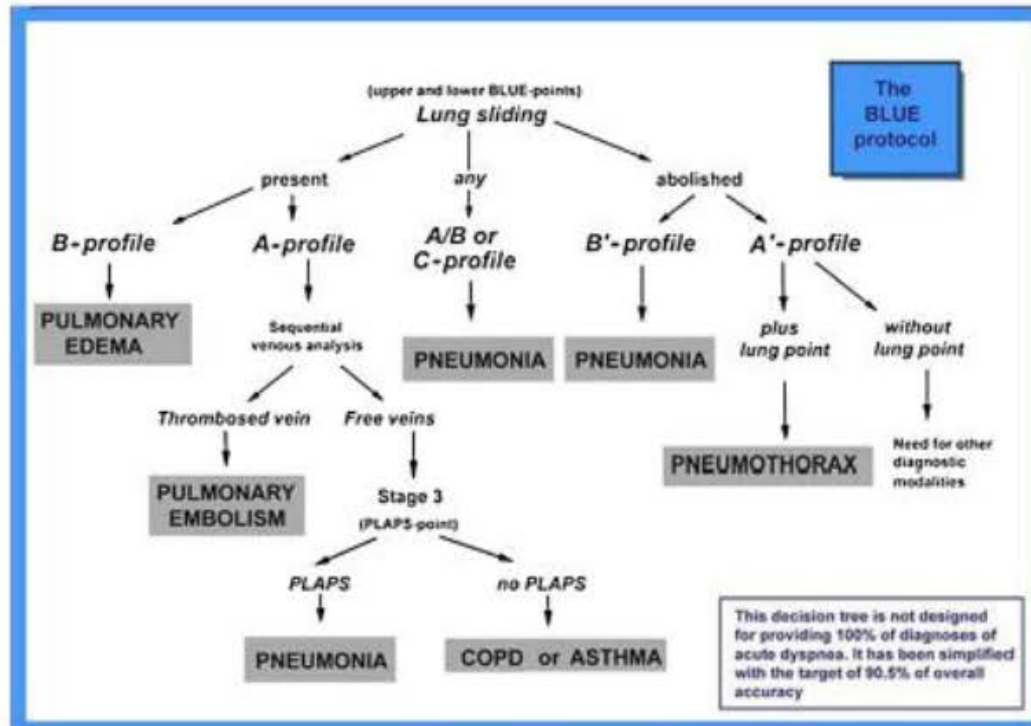
The blue points



Each point shows a standardized area for a given disorder

Lichtenstein D, *Curr Opin Crit Care* 2014;20:315-322

The BLUE Protocol Decision Tree



Lichtenstein D, *Chest* 2008;134:117-125

US pulmonara in Covid-19

- Nu necesita aparatura de ultima generatie
- Transductorul liner, convex, sectorial
- Cateva setari (gain, depth, zoom)
- Programul: Abdomen

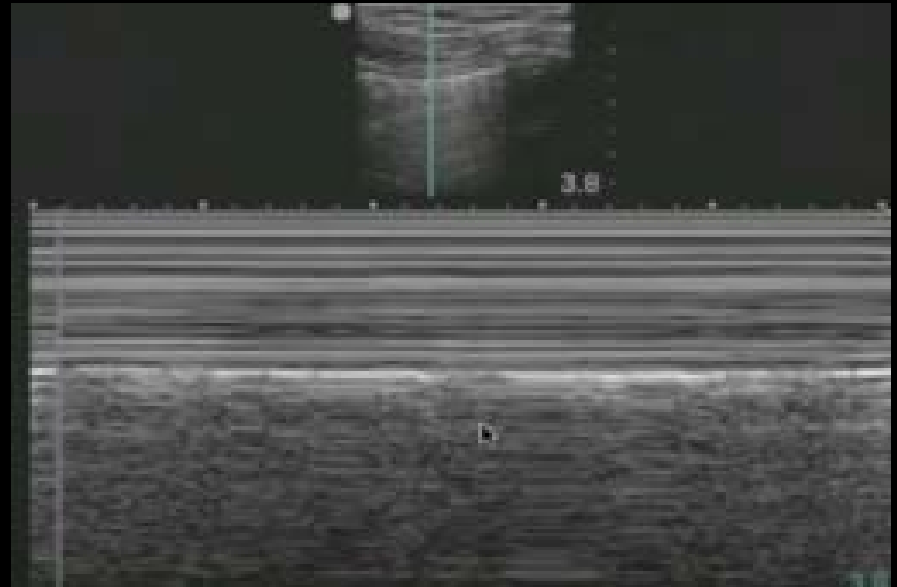


B-Mode US

B-mode

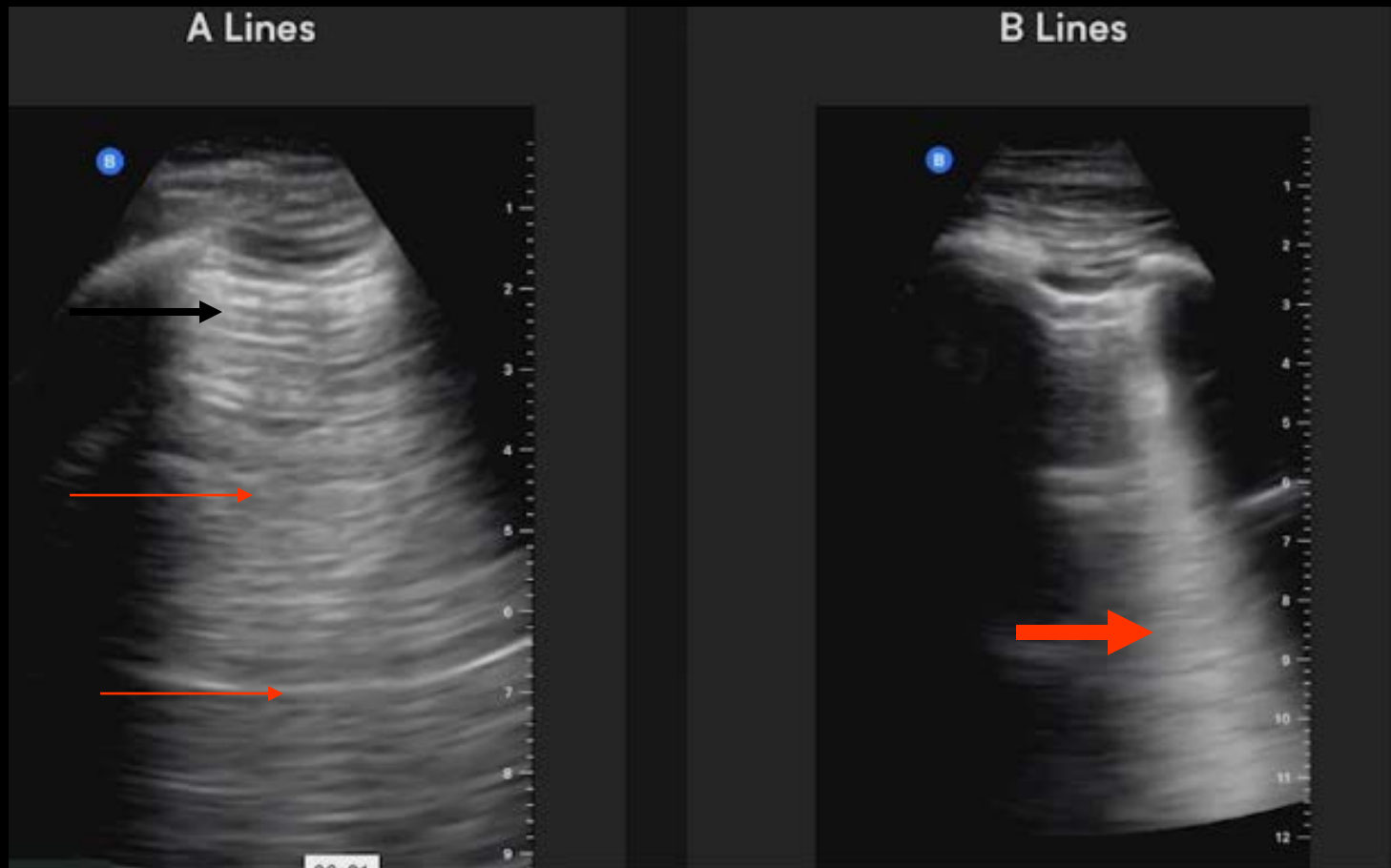


M-mode



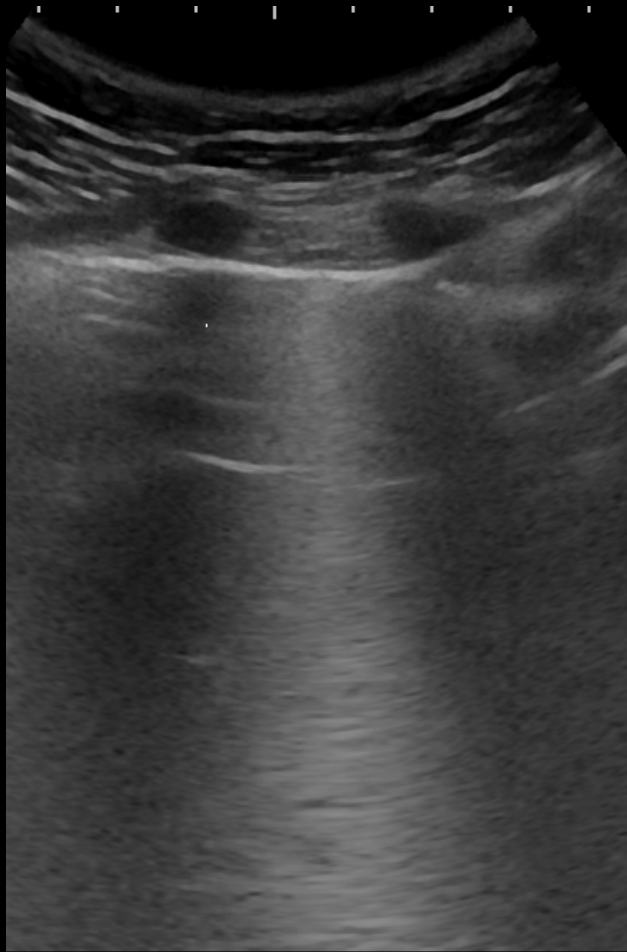
Pleural line
Lung sliding

A-lines vs B-lines



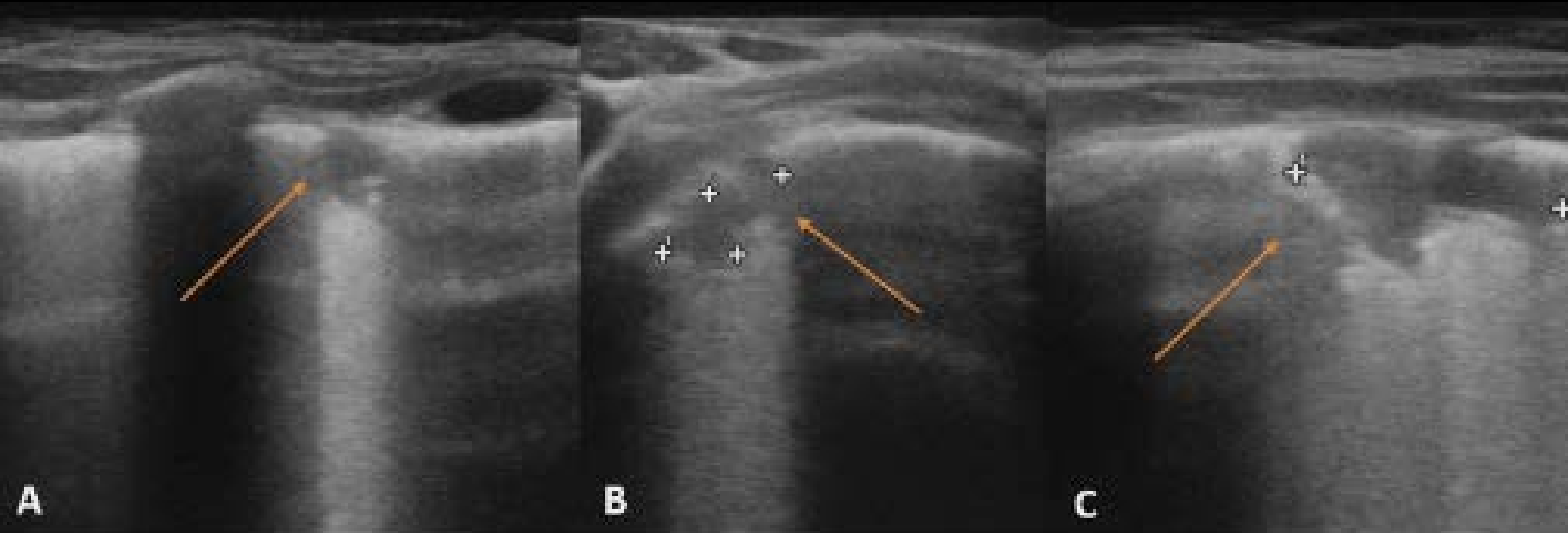
Bazata pe ARTERFACTE DE REVERBERATIE

Semnul farului



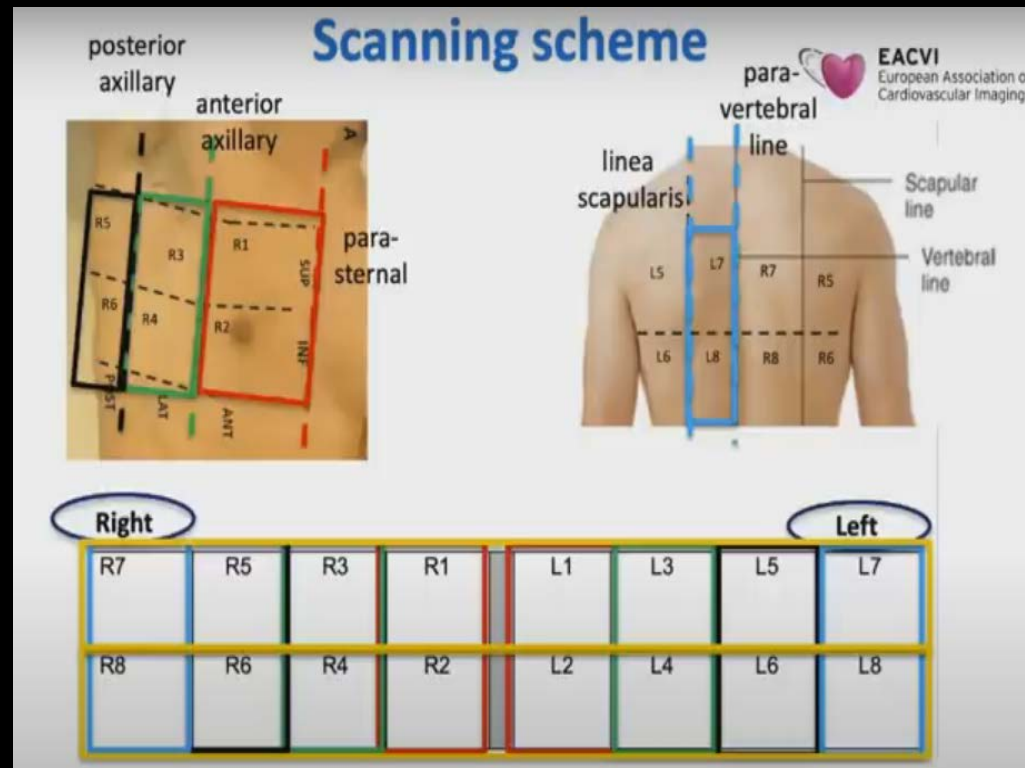
Se deplaseaza cu respiratia

Consolidari subpleurale



Scor de severitate (0p-3p)

- Util in evaluarea prognostica
- Monitorizarea terapeutica



Lung ultrasound findings in a 64-year-old woman with COVID-19

Adam Thomas MD BHSc, Greg Haljan MD, Anish Mitra MD MPH

■ Cite as: *CMAJ* 2020 April 14;192:E399 doi: 10.1503/cmaj.200414; early-released March 31, 2020

A 64-year-old female health care worker developed a sore throat and productive cough, which were followed by nausea, vomiting and exertional dyspnea over 1 week in March 2020. She had no travel history or obvious sick contacts, but had interacted with patients in an outpatient clinic. She presented to the hospital after outpatient viral polymerase chain reaction (PCR) testing was positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus responsible for coronavirus disease 2019 (COVID-19). On presentation she was febrile (38.7°C) and hypoxic (peripheral oxygen saturation [SpO₂] 88% on room air), but appeared comfortable. Bibasilar crackles were heard on auscultation, and her chest radiograph showed bilateral infiltrates. A lung ultrasound was obtained when the patient presented to hospital, 10 days after symptom onset, and showed multifocal B-lines, pleural thickening and subpleural consolidation (Figure 1). The patient was admitted to hospital, received supportive care, and her volume status was tightly regulated. She initially required 6 L/min O₂ via nasal cannula, but 6 days after admission her oxygen requirements

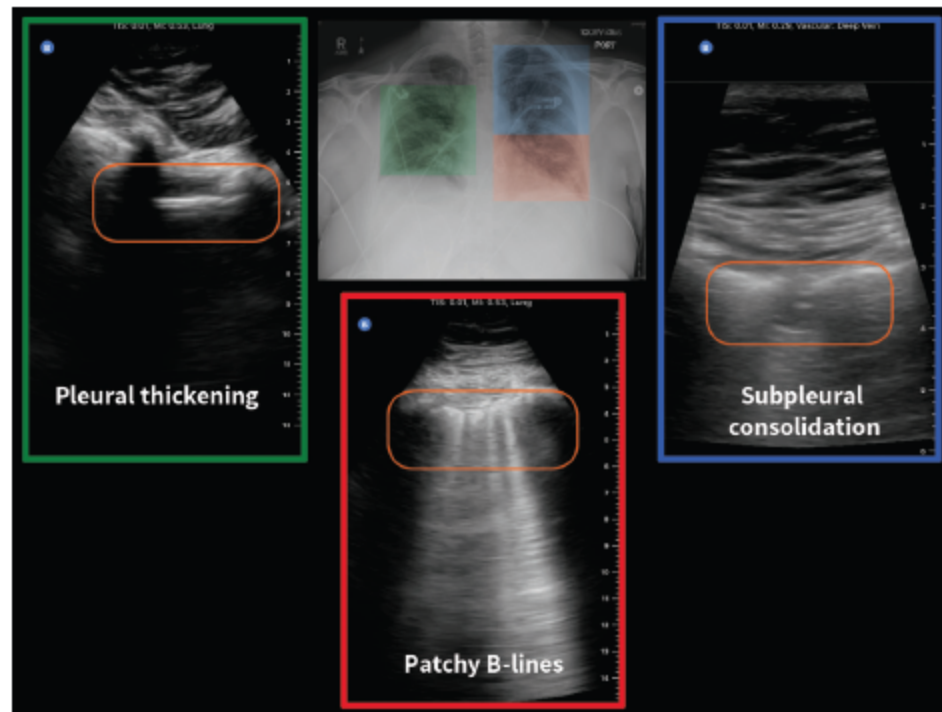


Figure 1: Lung ultrasound of a 64-year-old female health care worker with no travel history, on day 10 after symptom onset. The lung point-of-care ultrasound shows pleural thickening (right lung: green box); subpleural consolidation, also known as “skip lesion” (left upper lung: blue box); and multifocal B-lines (left lung: red box). The chest radiograph shows bilateral infiltrates.

Point-of-Care Lung Ultrasound findings in novel coronavirus disease 2019 pneumonia: a case report during

D. BUONSELLI
K. DE GAETANO

¹Department of
A. Gemelli IRCCS
²Università Cattolica
Rome, Italy
³Medicina d'Urgenza
⁴Department of

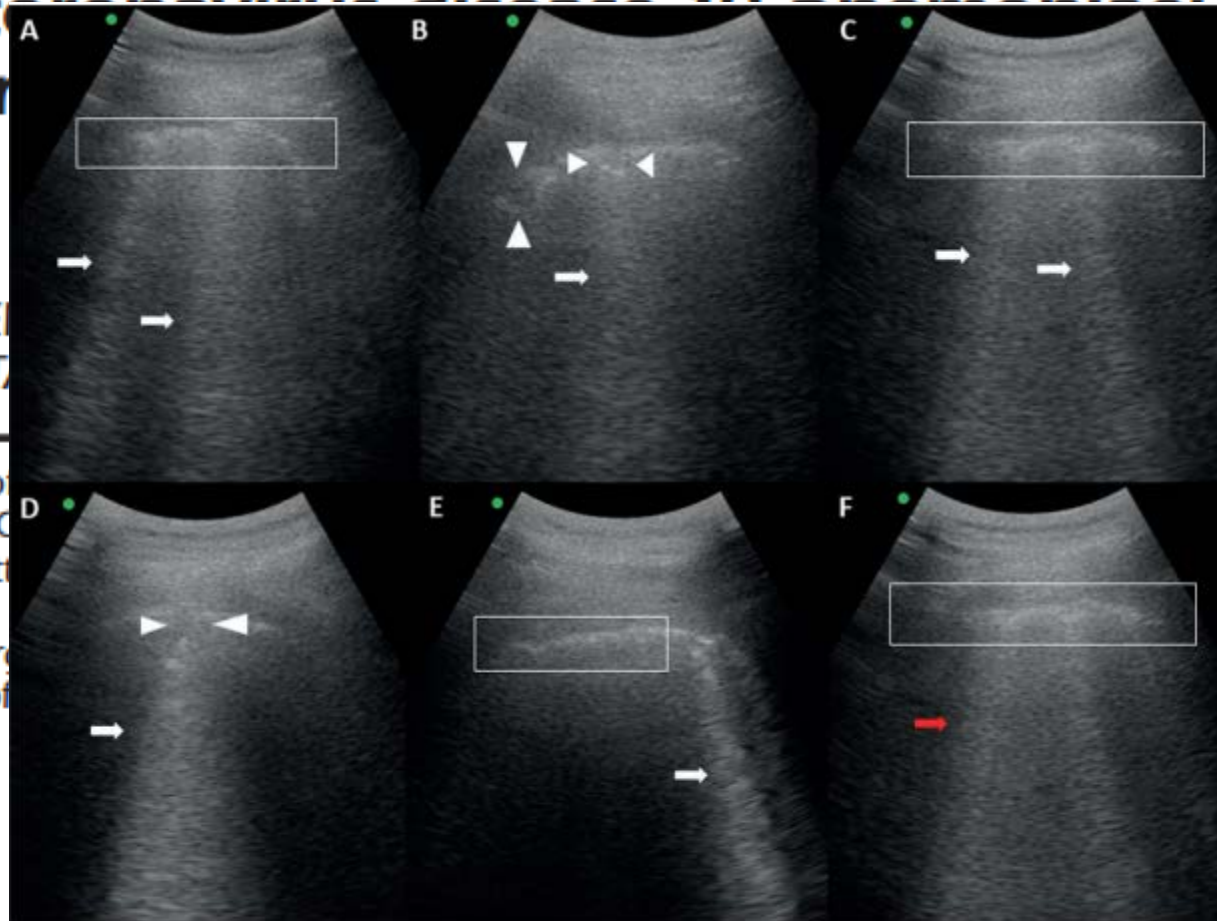


Figure 3. Lung ultrasound findings in a patient with confirmed nCoV-19 infection. Lung ultrasound shows pleural line irregularities (within the white boxes, figures A-C-E-F), thick irregular vertical artifacts (white arrows, figures A-B-C-D-E), subpleural consolidations (white arrowheads, figure B-D) and areas of white lung (red arrow, figure F).

We suggest clinicians facing the nCoV-19 outbreak to use and evaluate the role of lung ultrasound in patients with nCoV-19.

universitario
IRCCS, Rome,
Italy
5, Rome, Italy

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

Luigi Vetrugno MD^{1,2} | Tiziana Bove MD^{1,2} | Daniele Orso MD¹ |
Federico Barbariol MD² | Flavio Bassi MD² | Enrico Boero MD³ |
Giovanni Ferrari MD⁴ | Robert Kong MD, FRCA, EDIC⁵

Caz clinic

V. Florin, 50 ani

febra 38C,

cefalee intensa,

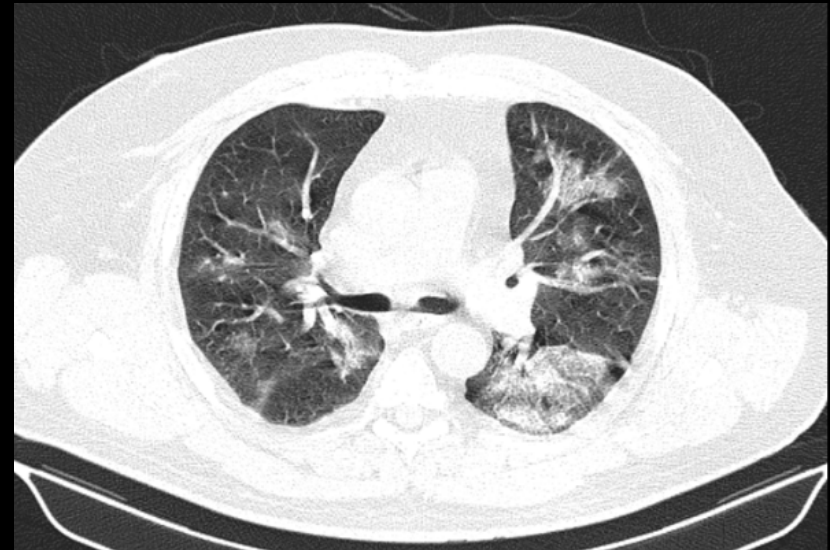
transpiratii nocturne

tuse rara-seaca,

toleranta redusa la efort

TGO 67 UI/L, TGP 61UI/L

CRP: 13 mg/dL



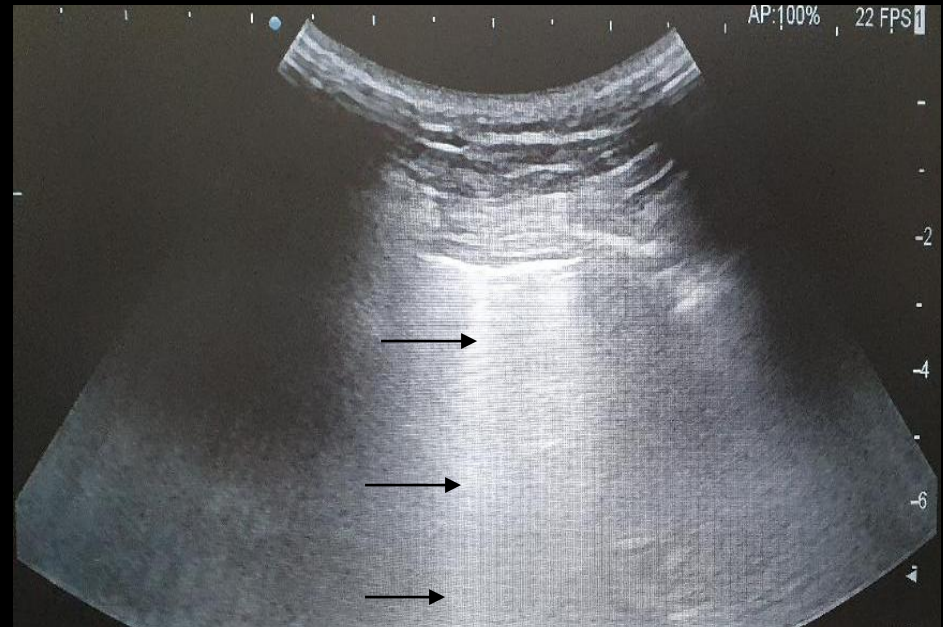
Diagnostic diferencial

- Alte viroze respiratorii
- Alte af. interstiiale
- Staza pulmonara
- Fibrozele pulmonare

F, 79 ani, dispnee

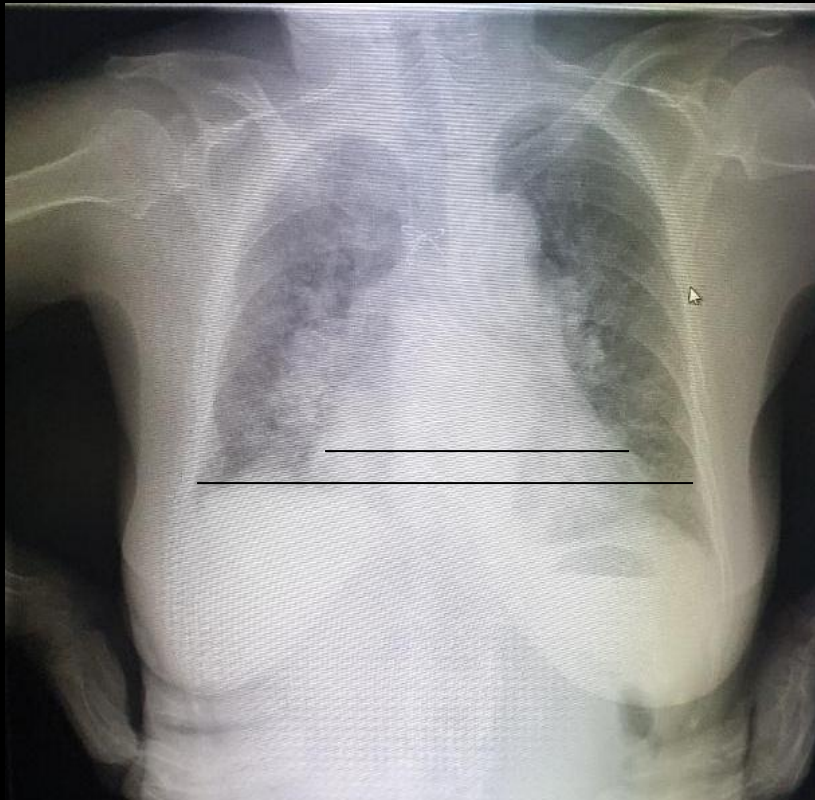
US

- Protezare Mi-Ao
- Fi.A cronica
- ICC

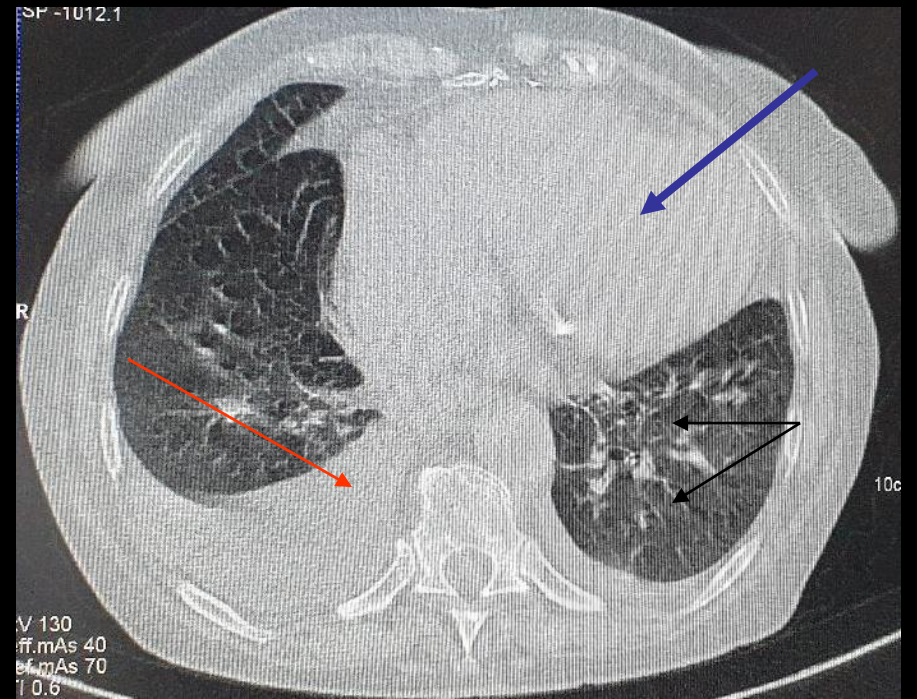


Radiology

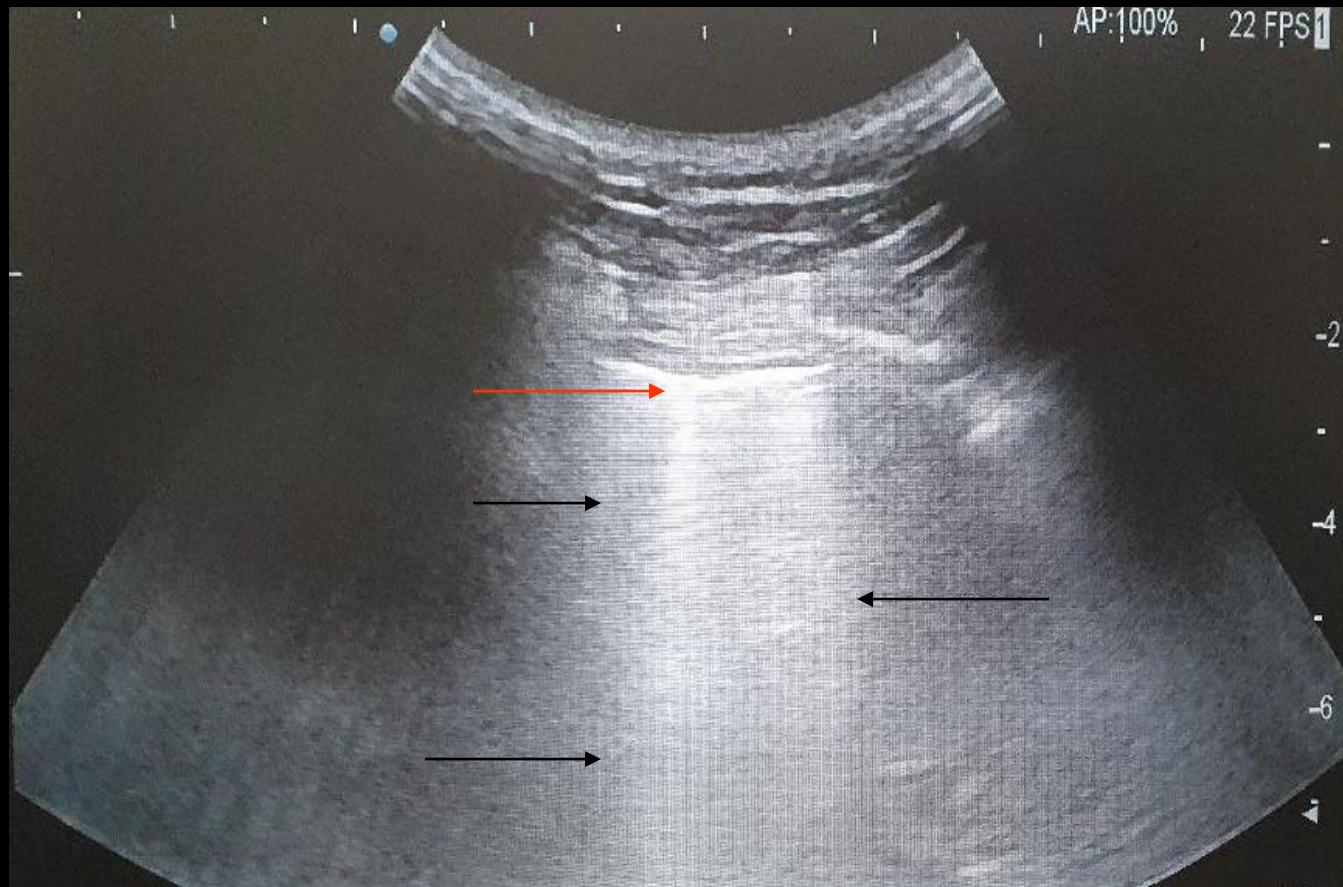
Rx CP



CT



Staza vs Covid-19?



IgM si IgG Ab-neg, rt-PCR-neg
NT-proBNP 2052 ng/mL

Dupa 5 zile...

- Furosemid
- Nitrat
- Digoxin
- ...etc.



A profile

Edem pulmonar

Positive Zone

≥ 3 b-lines

Pulmonary Edema

≥ 2 zones/side



Fibroza pulmonara



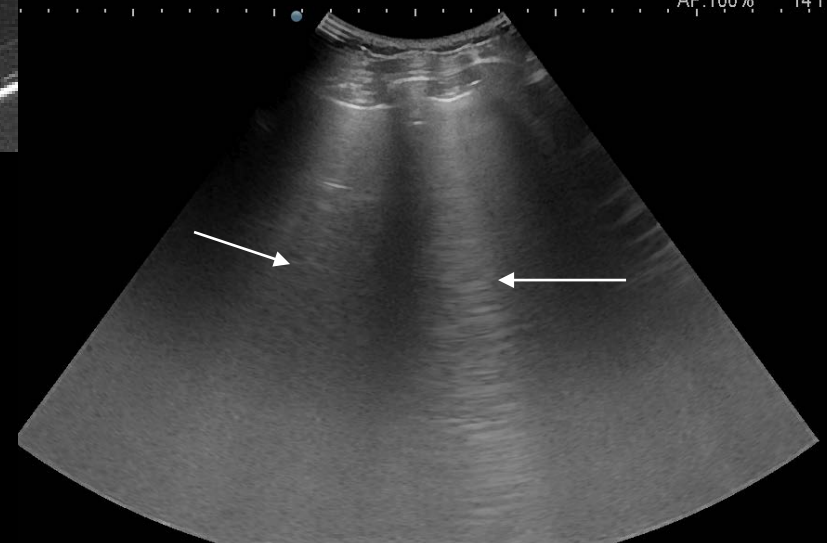
SPITALUL MILITAR CRAIOVA

:219560728

:F

29-O
11

AP:100% .14 F



T Maria, 66 ani
Tuse, dispnee, fatigabilitate
Ag Covid-19: NEGATIV

Concluzii

Normal Lung

COVID-19 Lung Findings
Example 1

COVID-19 Lung Findings
Example 2

COVID-19 Lung Findings
Skip Lesion

COVID-19 Lung Findings
Consolidation

Source: www.butterflynetwork.com/covid-19

