EPAT
Emergency Physicians Association of Turkey

Sono School

Dispneik hastada USG kullanımı

Uz. Dr. Arif Karagöz
İzmir Çiğli Bölge Eğitim Hastanesi
ATUDER Acil Görüntüleme Çalışma Grubu
SonoSchool Genel Koordinatörü

Dispne nedir?

- Dispne ya da nefes darlığı kişinin güçlükle nefes alıp vermesi halidir, yani nefes almada zorlanma demektir.
- Subjektif bir yakınmadır.
- Her zaman patolojik olmayabilir (ağır egzersiz, gebelik…)

- Dispne tanısı asıl fizik muayene ile, en önemli olarak da inspeksiyon ile konur.
- Sat O2 ***değildir!!!***
- PaO2 ***değildir!!!***
- Solunum hızı *değildir!!!* (her taşipne dispne değildir)
- Subjektif bir ***hava açlığı hissi***dir…

Point-of-care ultrasonografi

- **Point-of-care ultrasound** refers to the use of portable ultrasonography at a patient's bedside for diagnostic (e.g., symptom or sign-based examination) and therapeutic (e.g., image-guidance) purposes.

Dispne sebepleri

Causes of Dyspnoea

System	Acute dyspnoea	Chronic exertional dyspnoea
Cardiovascular system	**Acute pulmonary oedema**	**Chronic CCF** Myocardial ischaemia
Respiratory system	**Acute severe asthma** **Acute exacerbation COPD**	**COPD** **Chronic asthma**
	Pneumothorax, **Pulmonary embolus** ARDS	Chronic pulmonary thromboembolism , Large pleural effusion
	Pneumonia Lobar collapse	Bronchial carcinoma Lymphatic carcinomatosis
	Inhaled foreign body (especially in a child) Laryngeal oedema (e.g. anaphylaxis)	ILD: sarcoidosis, fibrosing alveolitis, extrinsic allergic alveolitis, pneumoconiosis
Others	Metabolic acidosis	Severe anaemia
	Hyperventilation	Obesity

- Problem sebebi bulmakta
- Tanı ne kadar doğru ve ne kadar çabuk konursa tedavi o kadar kolaylaşmakta
- Aksi??
- Geciken tedavi….
- Yanlış tedavi….

Peki elimizde ne var???

- Anamnez???
- Fizik muayene- steteskop???
- PA Akciğer grafisi???
- Laboratuar testleri???

European Journal of Emergency Medicine. 22(6):440–443, DEC 2015
DOI: 10.1097/MEJ.0000000000000258, PMID: 25715019
Issn Print: 0969-9546
Publication Date: 2015/12/01

Print

Stethoscope versus point-of-care ultrasound in the differential diagnosis of dyspnea: a randomized trial

Behzat Özkan;Erden Ünlüer;Pinar Akyol;Arif Karagöz;Mehmet Bayata;Haldun Akoğlu;Orhan Oyar;Ayşe Dalli

Causes of Dyspnoea

System	Acute dyspnoea	Chronic exertional dyspnoea
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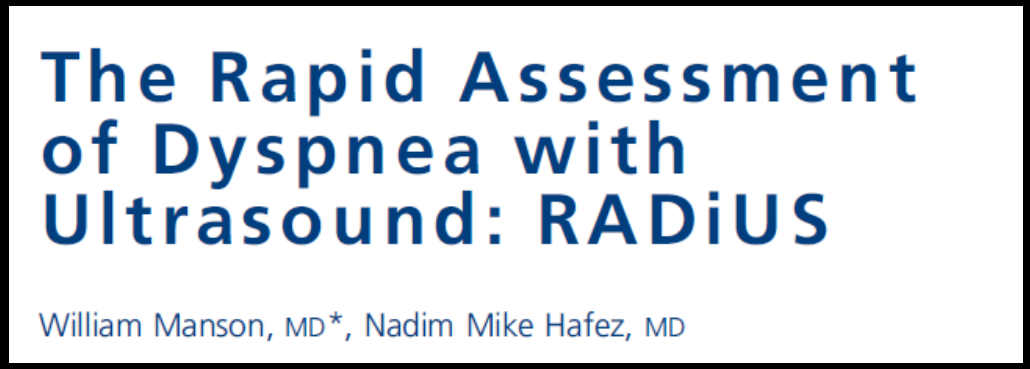
Dispne ayırıcı tanısında kullanılan POCUS uygulamaları

- **1.** Yatakbaşı kardiyak usg
- **2.** Usg ile VCİ değerlendirme
- **3.** Akciğer usg
- 4. Yatakbaşı usg ile DVT taraması
- 5. Diyafragma usg



1. Dispneik hastada kardiyak usg

- EF iyi / düşük??
- RV boyutu??
- Perikardial effüzyon / tamponad?
- Başka bir patoloji??

1. Düşük EF?

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WestJEM
Integrating Emergency Care With Population Health

West J Emerg Med. 2014 Mar; 15(2): 221–226.
doi: 10.5811/westjem.2013.9.16185

PMCID: PMC3966449
PMID: 24672616

Visual Estimation of Bedside Echocardiographic Ejection Fraction by Emergency Physicians

Erden E. Ünlüer, MD,* Arif Karagöz, MD,* Haldun Akoğlu, MD,† and Serdar Bayata, MD*

SAEM Academic Emergency Medicine
Official Journal of the Society for Academic Emergency Medicine

Original Research Contribution | Free Access

An Alternative Approach to the Bedside Assessment of Left Ventricular Systolic Function in the Emergency Department: Displacement of the Aortic Root

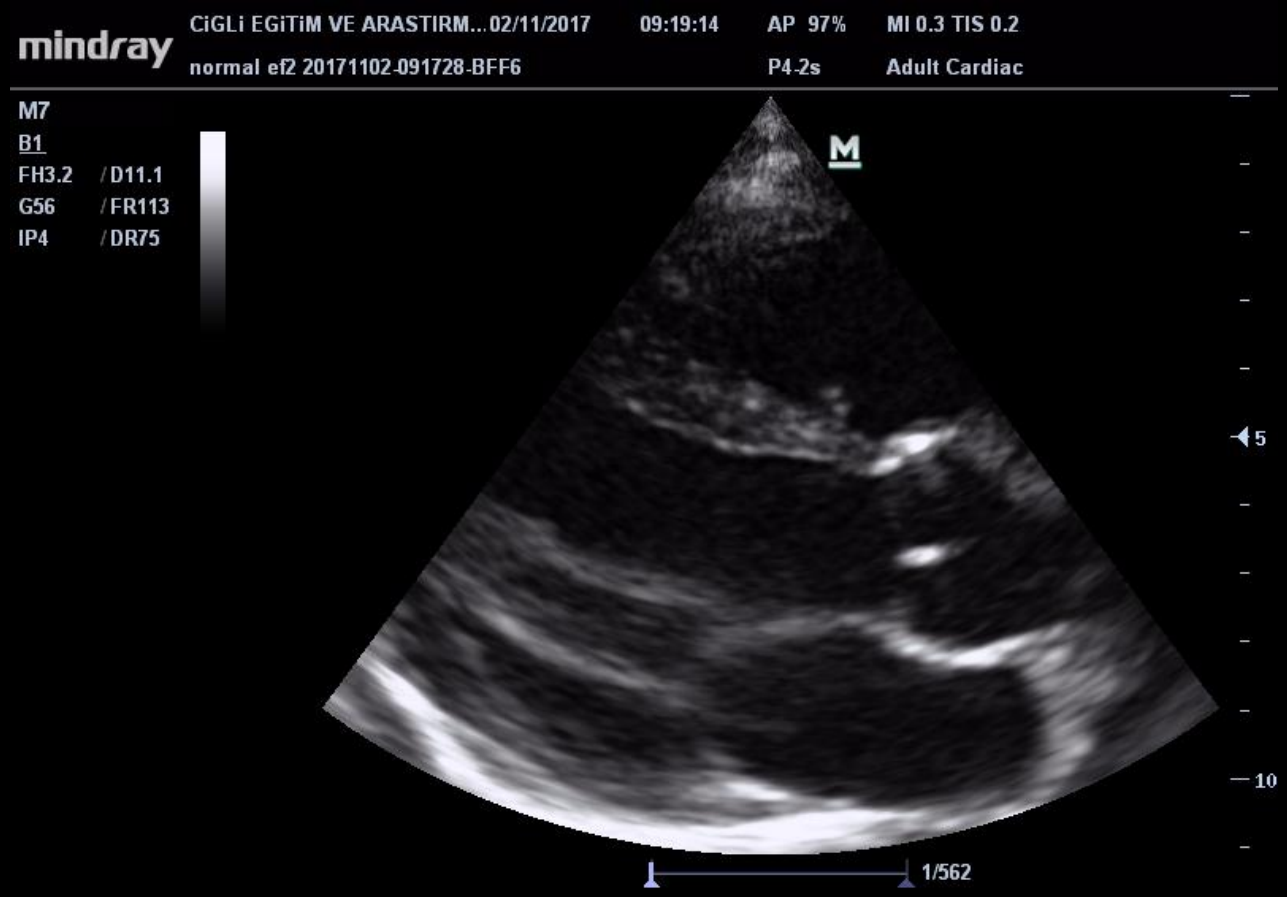
Erden Erol Ünlüer MD, Arif Karagöz MD, Serdar Bayata MD, Haldun Akoğlu MD

Original article

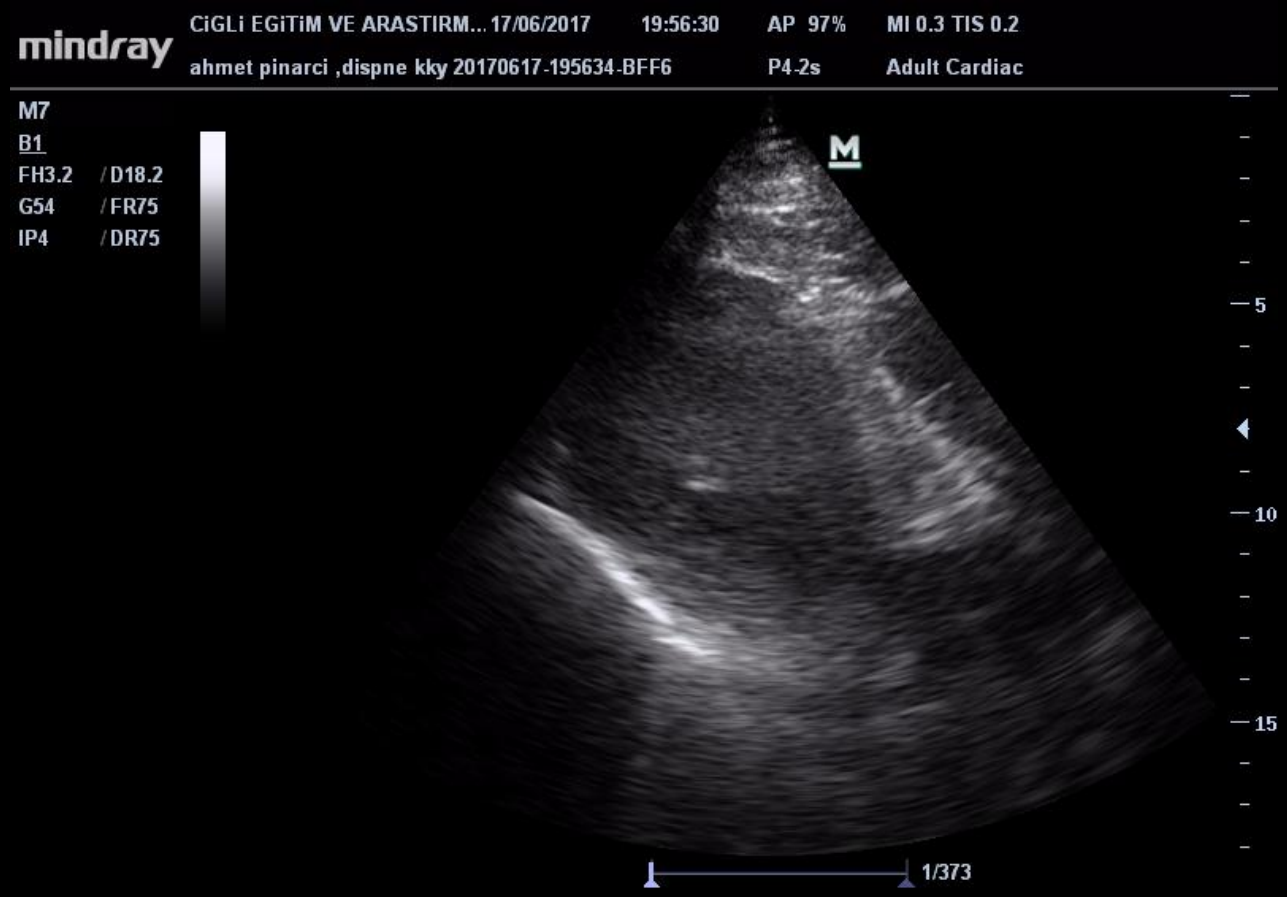
Limited bedside echocardiography by emergency physicians for diagnosis of diastolic heart failure

Erol Erden Ünlüer[1], Serdar Bayata[2], Nursen Postaci[2], Murat Yeşil[2], Özcan Yavaşi[1], Pınar Hanife Kara[1], Nergis Vandenberk[1], Serhat Akay[1]

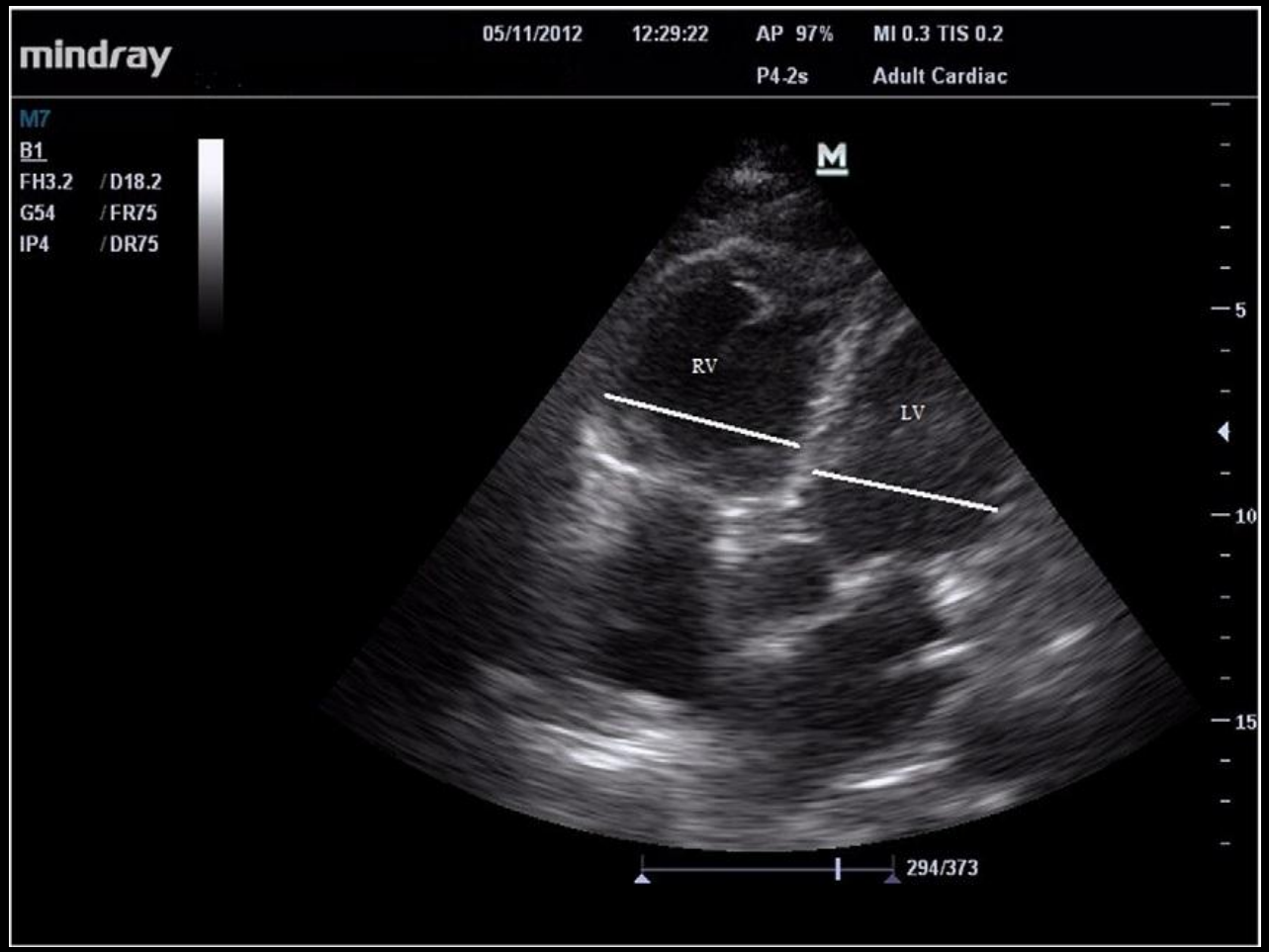
Normal ef


mindray
CiGLi EGiTiM VE ARASTIRM...02/11/2017
09:19:14
AP 97%
MI 0.3 TIS 0.2
normal ef2 20171102-091728-BFF6
P4-2s
Adult Cardiac
M7
B1
FH3.2 /D11.1
G56 /FR113
IP4 /DR75
M
5
10
1/562

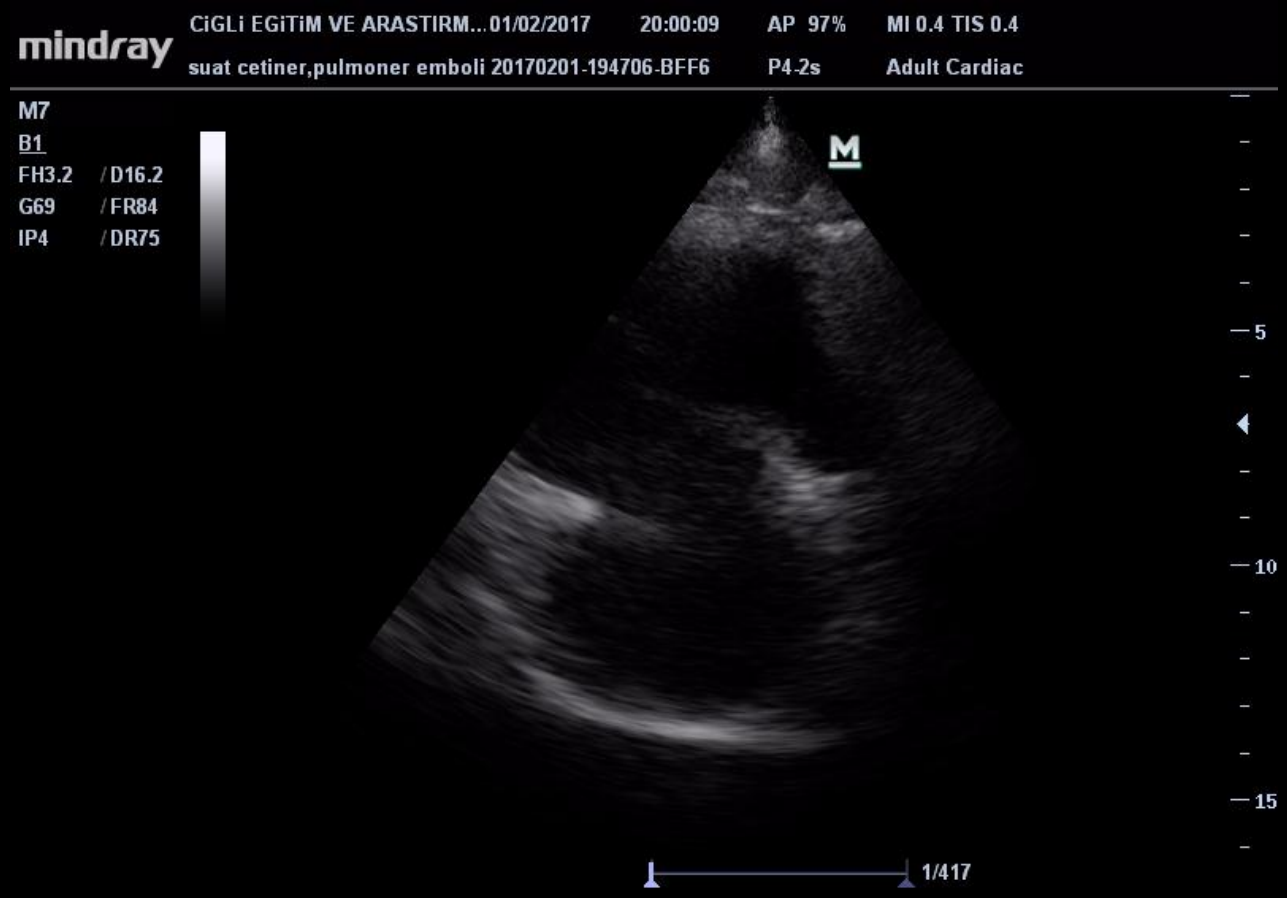
Düşük EF


mindray
CiGLi EGiTiM VE ARASTIRM... 17/06/2017 19:56:30 AP 97% MI 0.3 TIS 0.2
ahmet pinarci ,dispne kky 20170617-195634-BFF6 P4-2s Adult Cardiac
M7
B1
FH3.2 / D18.2
G54 / FR75
IP4 / DR75
M
5
10
15
1/373

2. Dilate RV?


mindray
05/11/2012
12:29:22
AP 97%
MI 0.3 TIS 0.2
P4-2s
Adult Cardiac
M7
B1
FH3.2 /D18.2
G54 /FR75
IP4 /DR75
M
RV
LV
5
10
15
294/373

D Sign


mindray
CiGLi EGiTiM VE ARASTIRM... 01/02/2017 20:00:09 AP 97% MI 0.4 TIS 0.4
suat cetiner,pulmoner emboli 20170201-194706-BFF6 P4-2s Adult Cardiac
M7
B1
FH3.2 / D16.2
G69 / FR84
IP4 / DR75
M
5
10
15
1/417

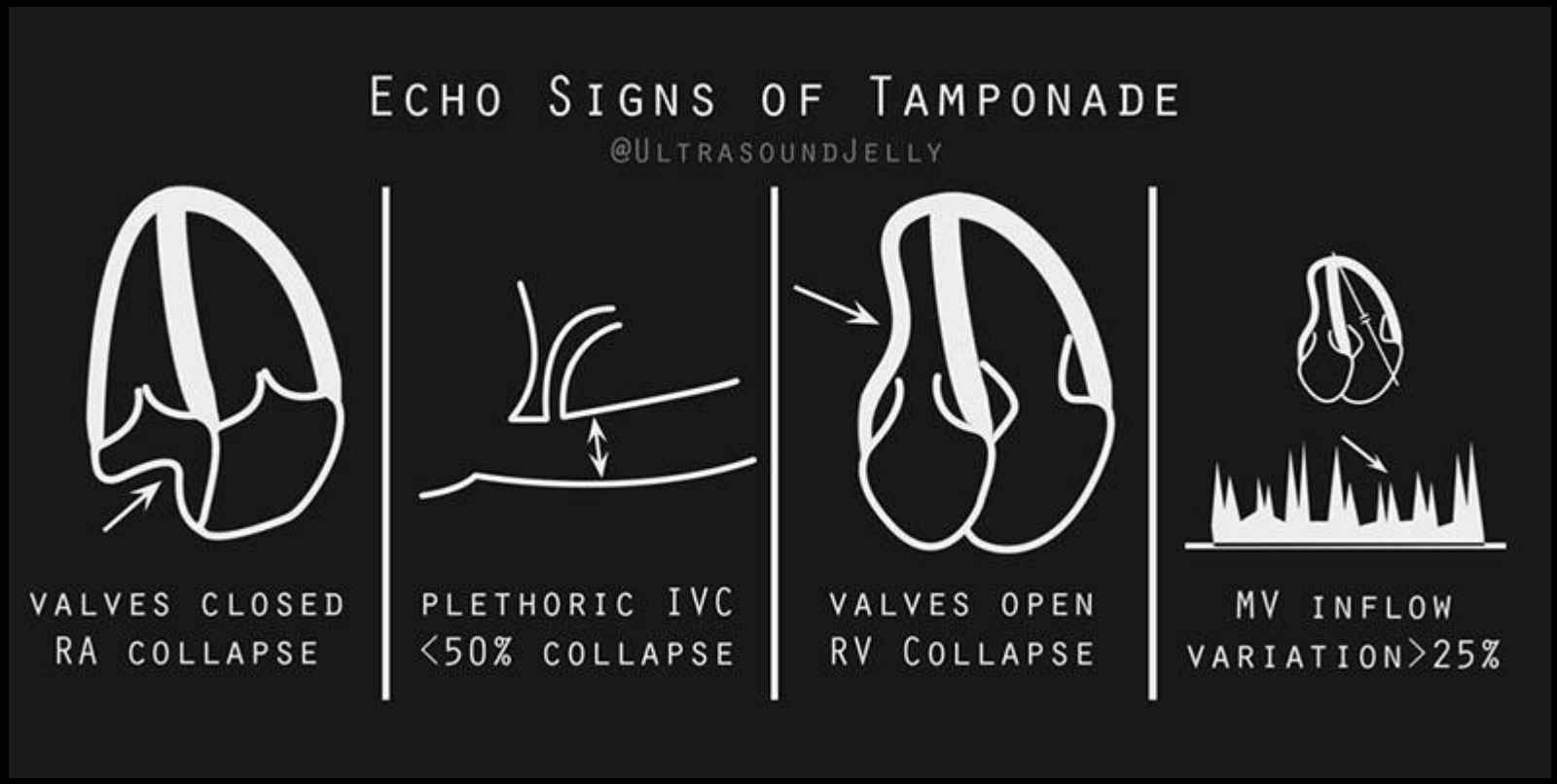
The American Journal of Emergency Medicine
Volume 31, Issue 4, April 2013, Pages 719-721

Brief Report

Red flag in bedside echocardiography for acute pulmonary embolism: remembering McConnell's sign ☆

Erden Erol Ünlüer MD [a], Güldehen Özmen Senturk MD [a], Arif Karagöz MD [a], Yasemin Uyar MD [a], Serdar Bayata MD [b]

3. Perikard tamponadı??



USG ile VCİ değerlendirme

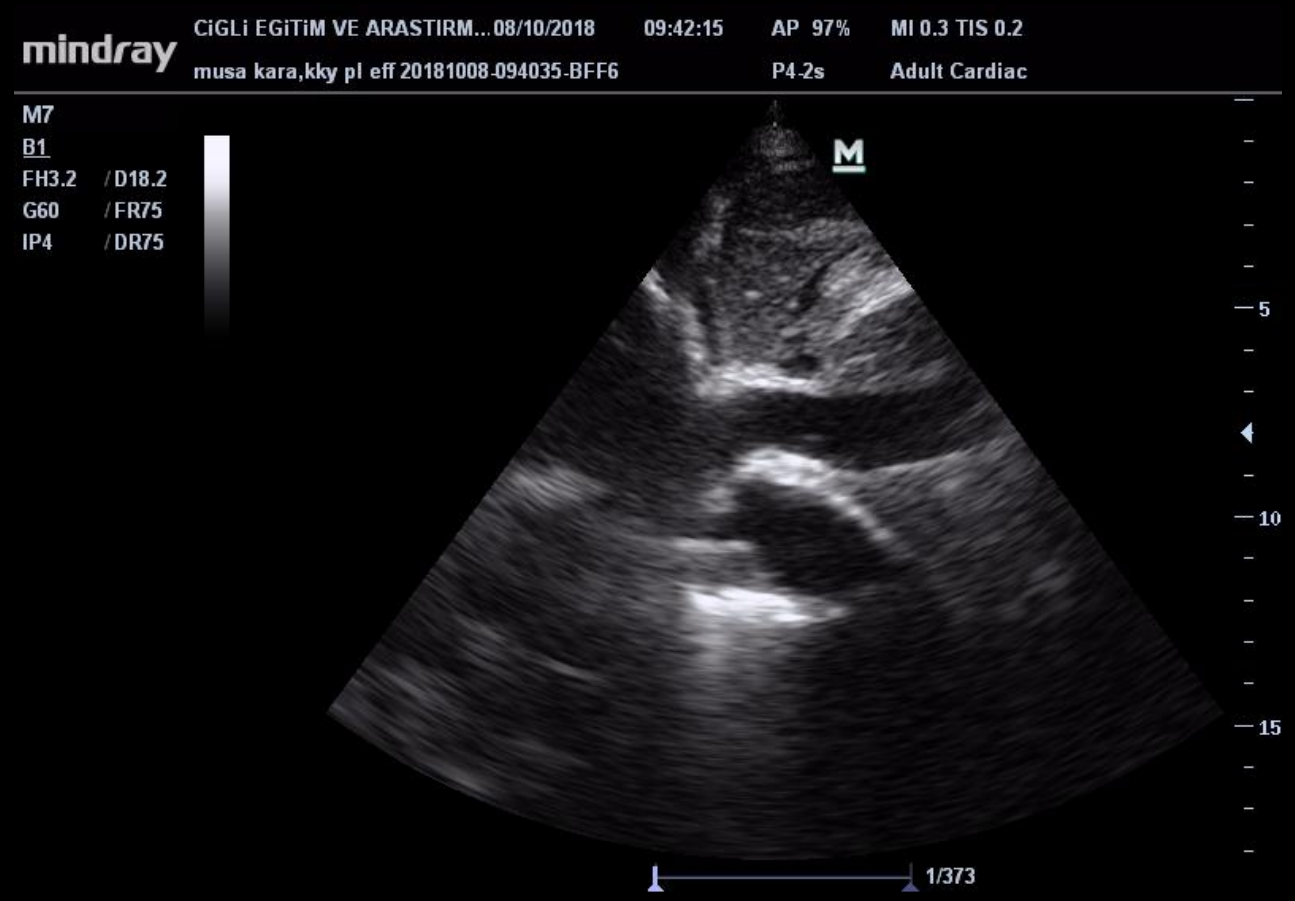
- VCİ çapı ve kollapsibilite indeksi entübe olmayan hastada volüm durumu ve RV basıncı;
- Entübe hastada sadece volüm durumu hakkında fikir verir

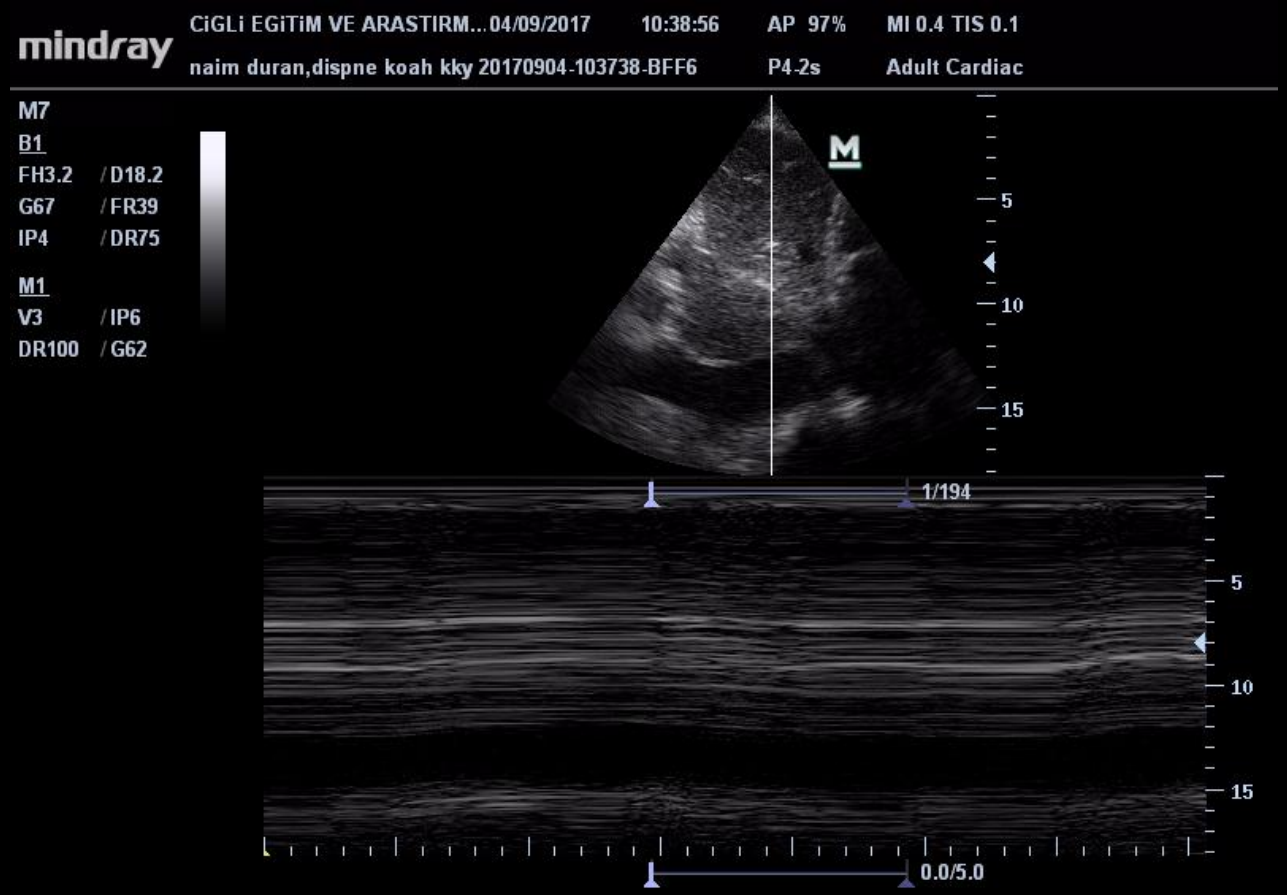
IVC v CVP

Correlation Between IVC Diameter Plus CI and CVP		
IVC Max Diameter (cm)	**CI**	**CVP (mmHg)**
< 1.5	100% (total collapse)	0-5
1.5-2.5	> 50%	6-10
1.5-2.5	< 50%	11-15
> 2.5	< 50%	16-20
> 2.5	0% (no collapse)	>20

IVC v CVP

Correlation Between IVC Diameter Plus CI and CVP		
IVC Max Diameter (cm)	**CI**	**CVP (mmHg)**
< 1.5	100% (total collapse)	0-5
1.5-2.5	> 50%	6-10
1.5-2.5	< 50%	11-15
1.5-2.5	< 50%	16-20
> 2.5	0% (no collapse)	>20


mindray
CiGLi EGiTiM VE ARASTIRM...08/10/2018
09:42:15
AP 97%
MI 0.3 TIS 0.2
musa kara,kky pl eff 20181008-094035-BFF6
P4-2s
Adult Cardiac
M7
B1
FH3.2 / D18.2
G60 / FR75
IP4 / DR75
M
5
10
15
1/373


mindray
CiGLi EGiTiM VE ARASTIRM...04/09/2017 10:38:56 AP 97% MI 0.4 TIS 0.1
naim duran,dispne koah kky 20170904-103738-BFF6 P4-2s Adult Cardiac
M7
B1
FH3.2 / D18.2
G67 / FR39
IP4 / DR75
M1
V3 / IP6
DR100 / G62
M
5
10
15
1/194
5
10
15
0.0/5.0

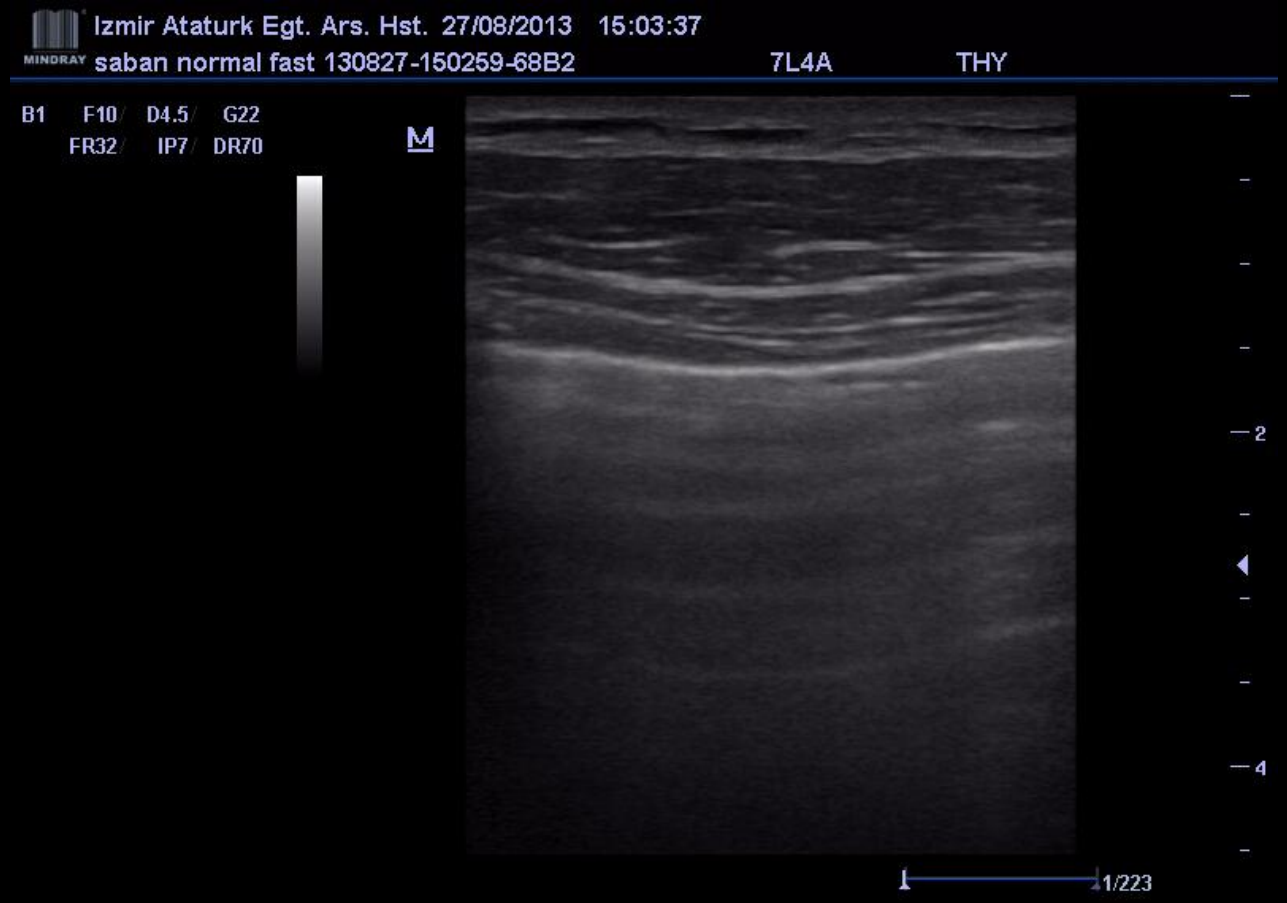
2. Dispneik hastada akciğer usg

- Dokuyu değil, artefaktları görür ve yorumlarız
- Dokuyu görebiliyorsak patolojik…
- Plevral aralıkta hava? Sıvı?
- BLUE protocol

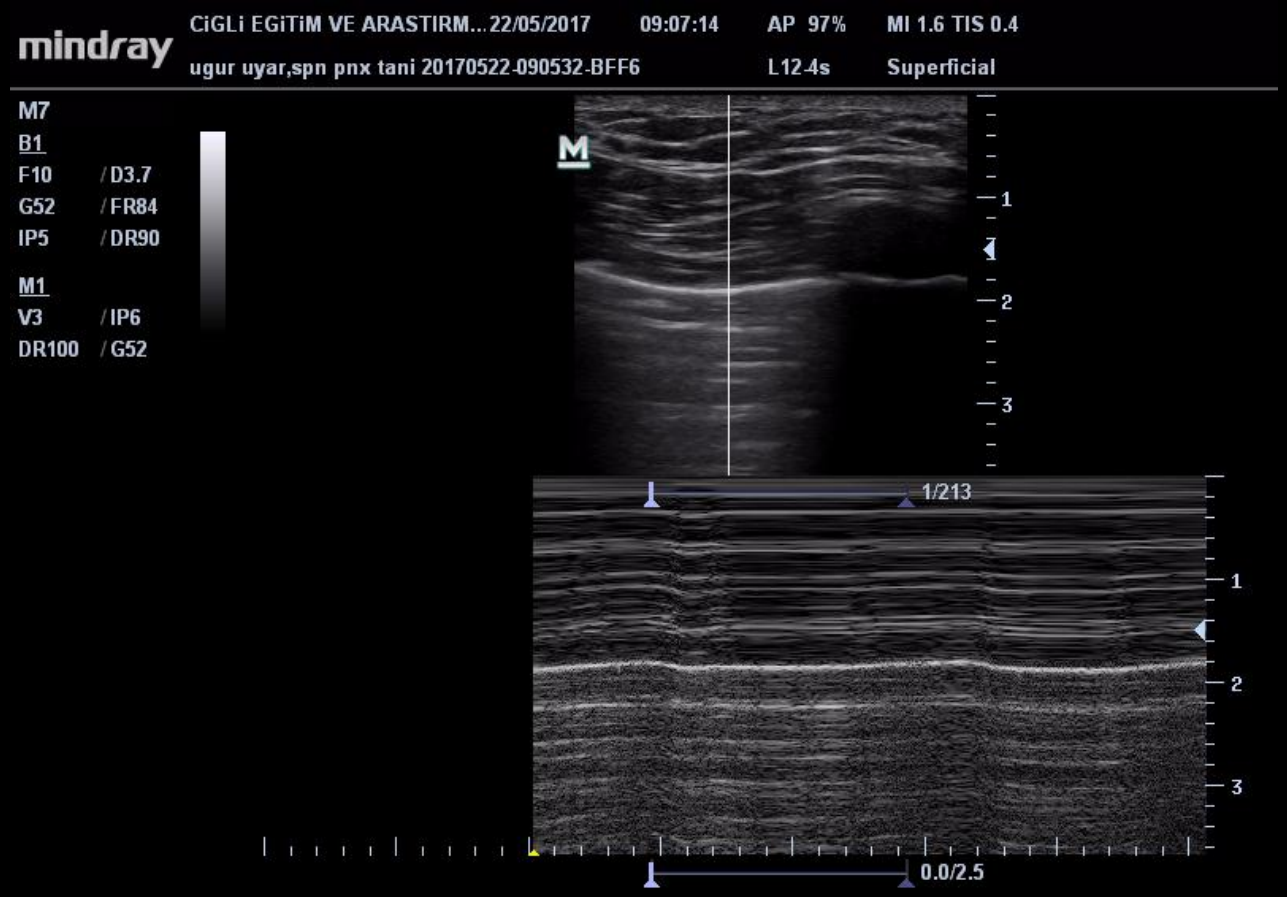
BLUE protocol

- Her iki hemitoraksta standart 4 nokta
- Plevral patolojiler yüzeyel, kolay tanınır
- Neredeyse tüm parankimal patolojiler üzerindeki plevrada bulgu verir

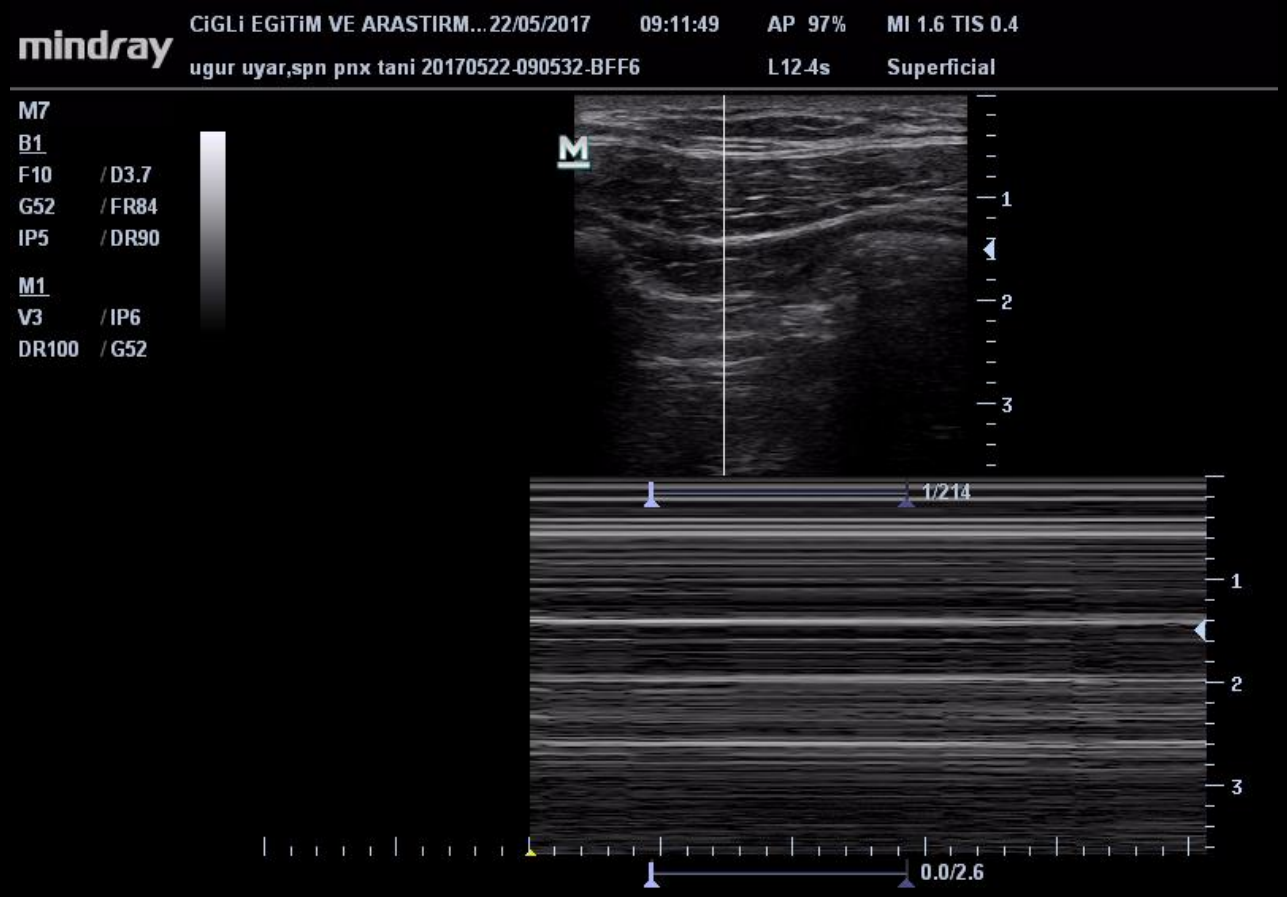
Lung sliding+ A çizgileri



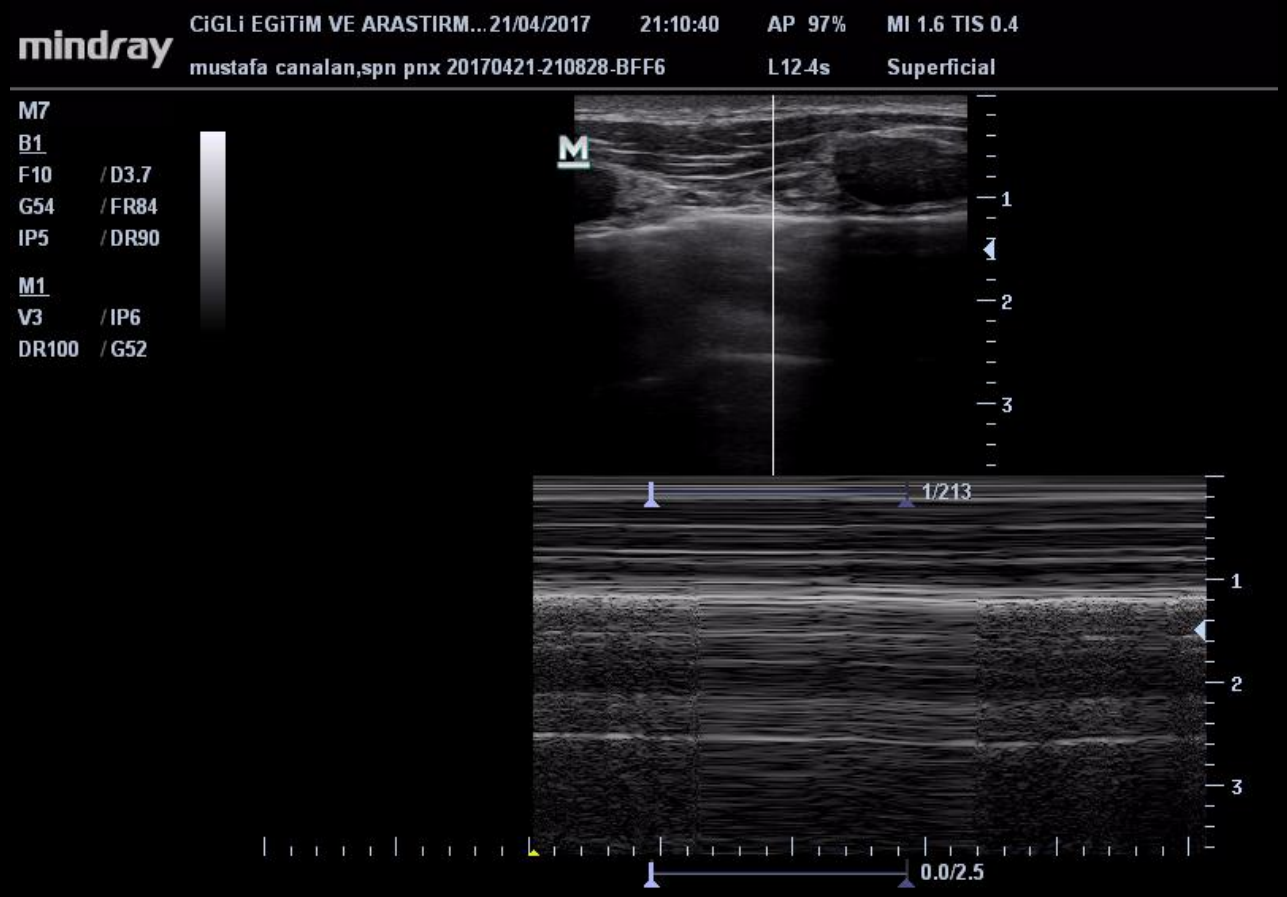
Seashore sign



Lung sliding kaybı (Barcode sign)



Lung Point


mindray
CiGLi EGiTiM VE ARASTIRM... 21/04/2017 21:10:40 AP 97% MI 1.6 TIS 0.4
mustafa canalan,spn pnx 20170421-210828-BFF6 L12-4s Superficial
M7
B1
F10 / D3.7
G54 / FR84
IP5 / DR90
M1
V3 / IP6
DR100 / G52
M
1
2
3
1/213
1
2
3
0.0/2.5

Interventional Medicine & Applied Science, Vol. 6 (3), pp. 133–136 (2014) CASE REPORT

Bedside ultrasonographic diagnosis of pneumothorax

ERDEN EROL ÜNLÜER*, ARIF KARAGÖZ

Hindawi Publishing Corporation
Case Reports in Medicine
Volume 2013, Article ID 861787, 3 pages
http://dx.doi.org/10.1155/2013/861787

Hindawi

Case Report

A Deadly Complication of Superficial Muscular Needle Electromyography: Bilateral Pneumothoraces

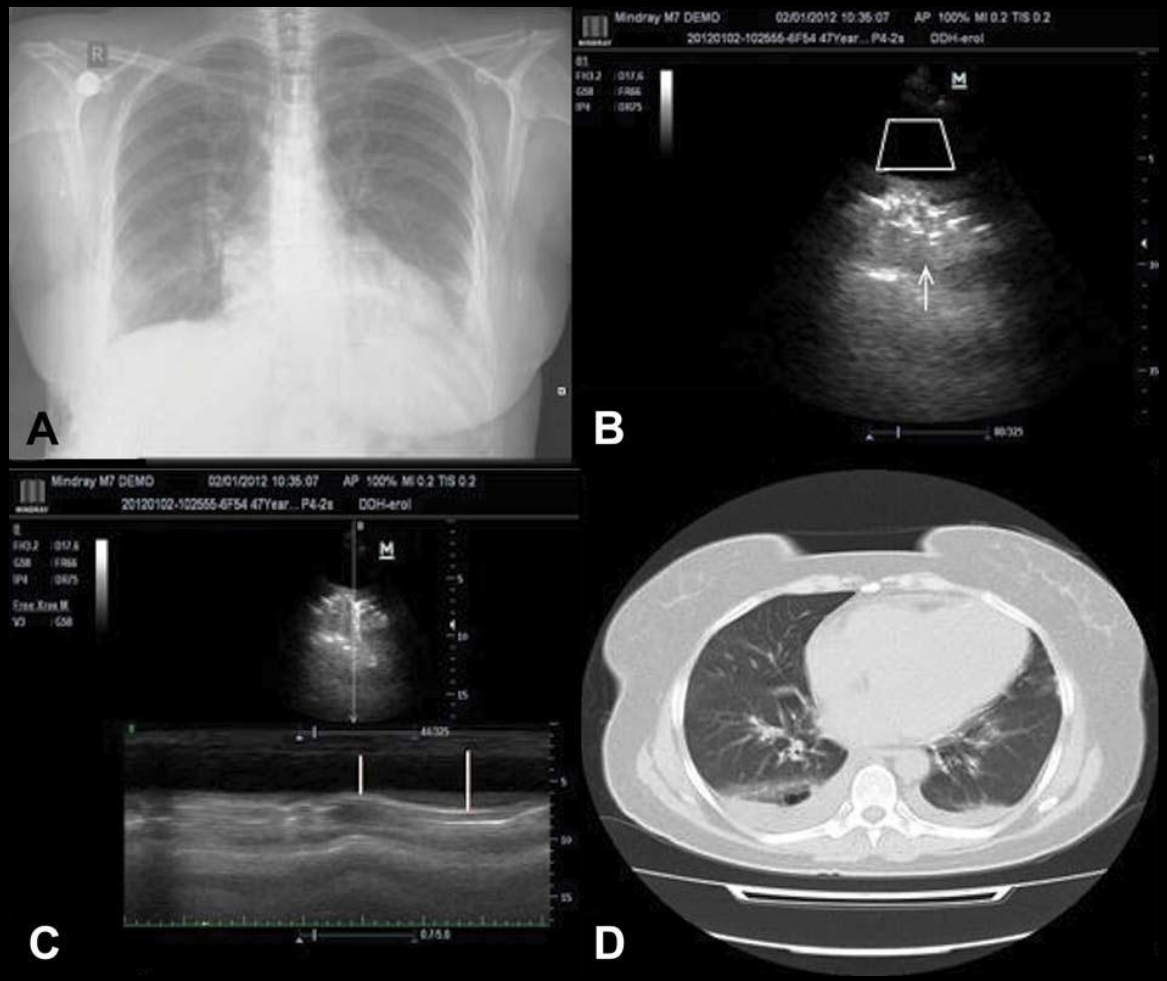
Erden Erol Ünlüer, Pınar Yeşim Akyol, Arif Karagöz, and Serkan Bılgın

ORIGINAL RESEARCH

Effectiveness of Bedside Lung Ultrasound for Clinical Follow-Up of Primary Spontaneous Pneumothorax Patients Treated With Tube Thoracostomy

Arif Karagöz, MD, Erden Erol Ünlüer, MD,† Onur Akçay, MD,‡ and Emine Kadioğlu, MD§*

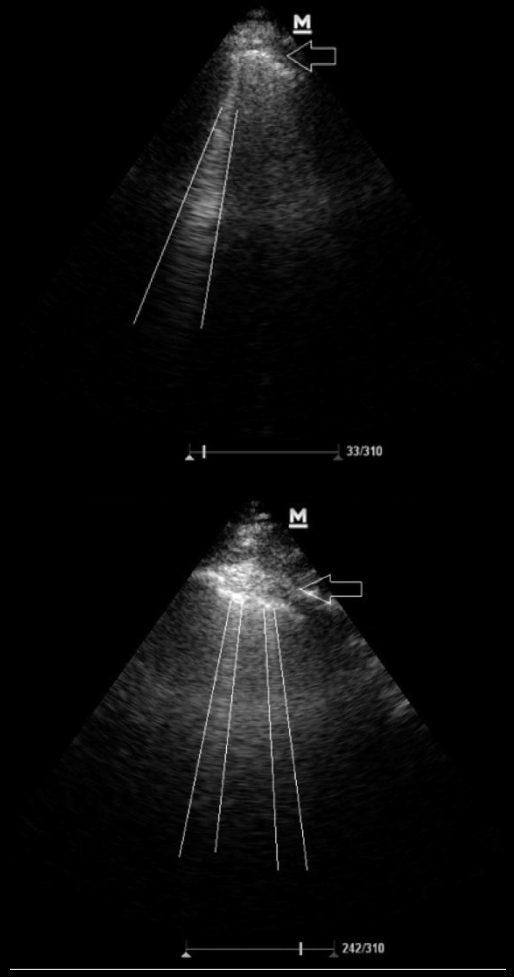
Plevral efüzyon



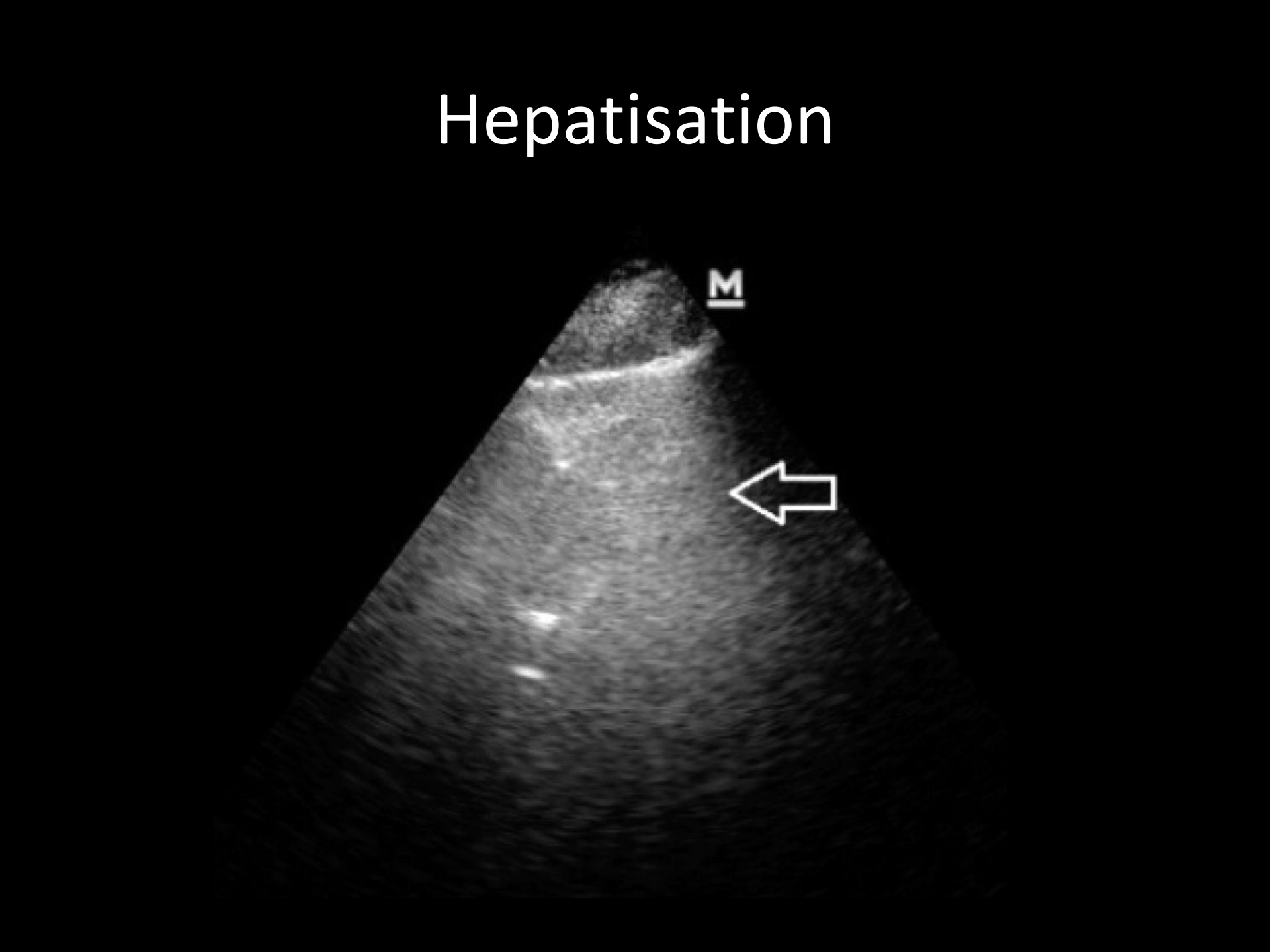
Konsolidasyon

- Shred sign
- Hepatisation
- Air bronchograms

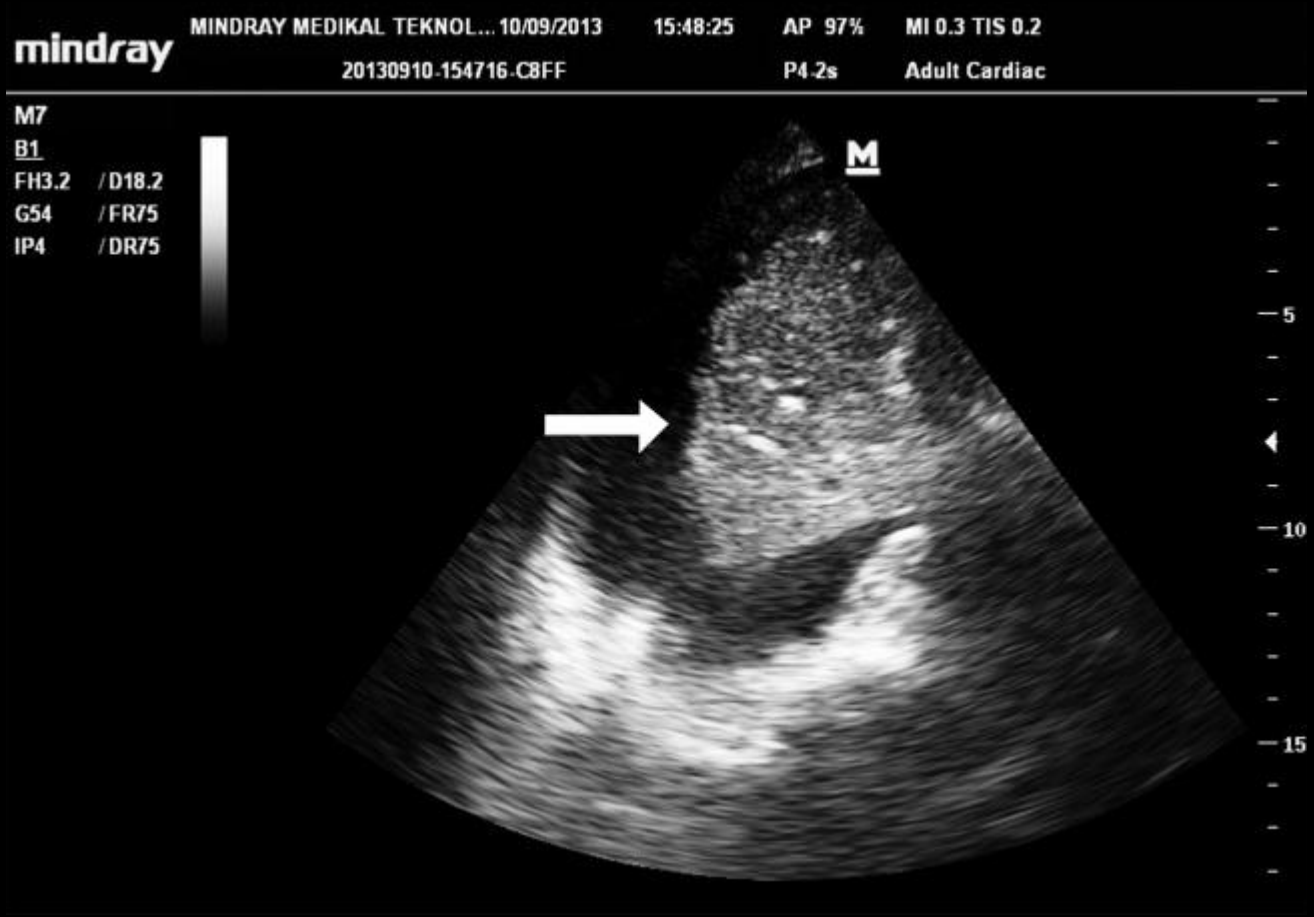
Shred sign

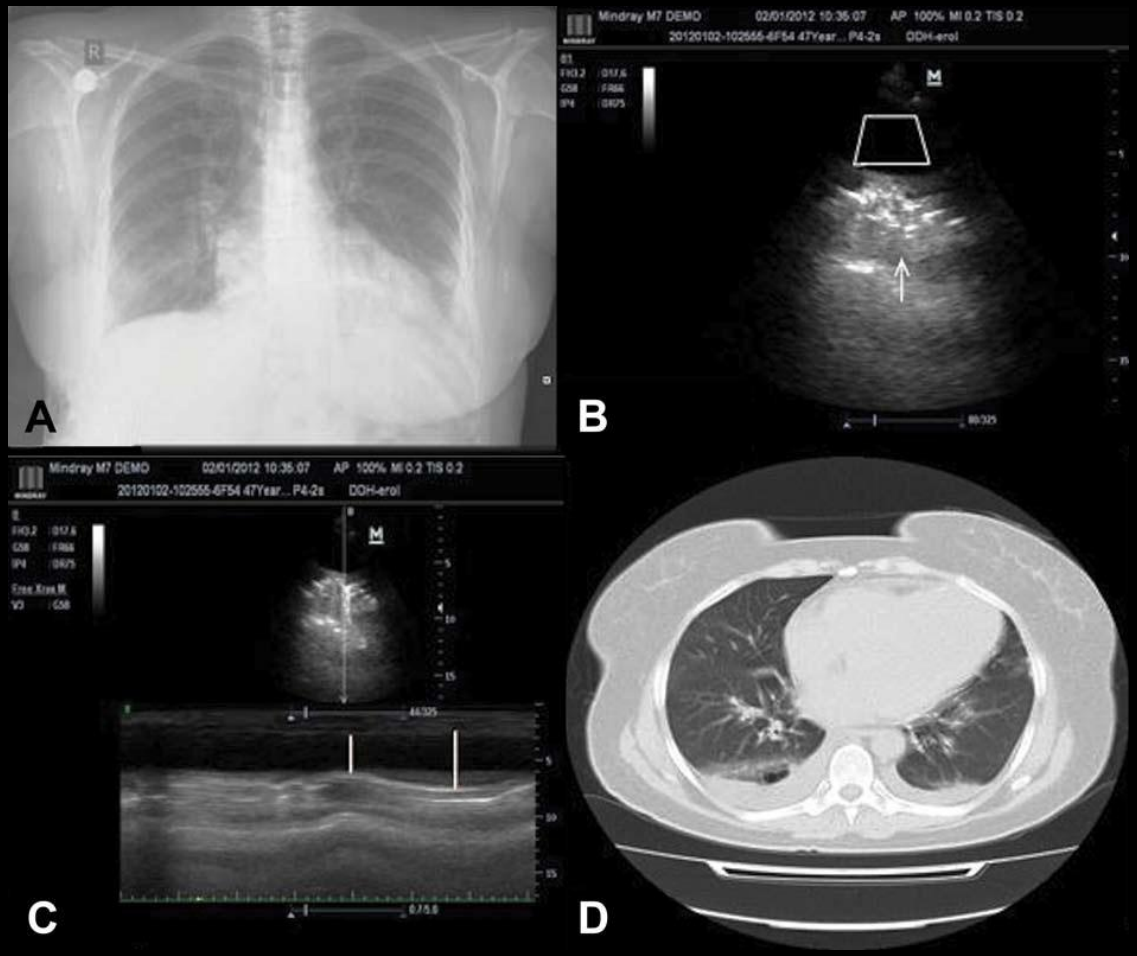


Hepatisation



Air Bronchogram




A
B
C
D
Mindray M7 DEMO
02/01/2012 10:35:07
AP 100% MI 0.2 TIS 0.2
20120102-102555-6F54 47Year... P4-2s
DOH-erol

Hong Kong Journal of Emergency Medicine

Bedside lung ultrasonography for diagnosis of pneumonia

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EE Unluer, A Karagoz, GO Senturk, M Karaman, KH Olow, S Bayata

Interventional Medicine & Applied Science, Vol. 6 (4), pp. 175–177 (2014) CASE REPORT

Bedside lung ultrasound versus chest X-ray use in the emergency department

ERDEN EROL ÜNLÜER*, ARIF KARAGÖZ

Interventional Medicine & Applied Science, Vol. 6 (1), pp. 40–42 (2014) CASE REPORT

A dynamic sign of alveolar consolidation in bedside ultrasonography: Air bronchogram

ERDEN EROL ÜNLÜER*, ARIF KARAGÖZ

International Emergency Nursing
Volume 22, Issue 4, October 2014, Pages 226-231

Lung ultrasound by emergency nursing as an aid for rapid triage of dyspneic patients: a pilot study

Erden Erol Ünlüer [a], Arif Karagöz [a], Orhan Oyar [b], Nergiz Vandenberk [a], Sevda Kiyançiçek [a], Figen Budak [a]

Yatakbaşı usg ile DVT tanısı

- Kompresyon testi (popliteal+ femoral ven)
- Özellikle unstabil hastada RV dilatasyonu da eşlik ediyorsa => doğrudan tedavi…

USG ile diyafram disfonksiyonu tanısı

- Diyaframın solunum hareketi sırasında sagital planda hareket miktarı (normal inspirium:1.08-2.6 cm; derin inspiriumda 6.55-9.21 cm) ve,
- Kalınlığındaki değişiklik (%20) ölçülerek disfonksiyon tanısı konur.
- Yeni bir teknik...

Özet

- USG, acil serviste dispneik hastaya yaklaşımda tanı doğruluğunu arttırır, tanı zamanını kısaltır.
- Bütün yatakbaşı USG uygulamalarında olduğu gibi, dispne için de ultrasonografi, tanı koyma sürecinin bir parçası olarak kullanılmalıdır.
- *Resmin kendisi değildir, yapbozun bir parçasıdır.*

https://www.sonoturkey.com

Uygulamalar Hızlı erişim için yer işaretlerinizi buraya, yer işareti çubuğuna yerleştirin. Yer işaretlerini şimdi içe aktarın...

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TEŞEKKÜRLER