Ultrasonography in Cardiac Arrest

Marios Ioannides MD, MSc
Cardiologist
Nicosia General Hospital
Cyprus

Critical Care Medicine
Society of Critical Care Medicine

Crit Care Med. 1975 Jan-Feb;3(1):5-7.

Cardiac function determined by echocardiogram.

Shors CM.

Abstract

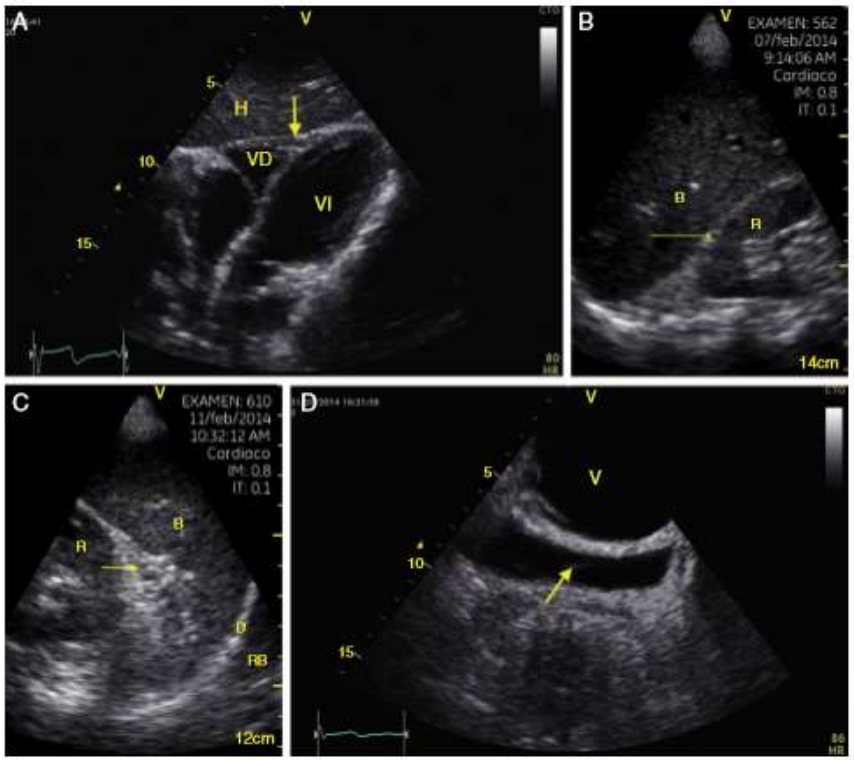
Echocardiographic analysis with a strip recorder gives an accurate assessment of cardiac function, easily obtainable at the bedside of the critically ill. Ejection fraction and velocity of circumferential fiber shortening (Vcf) are the two most accurate measurements of cardiac function. The diameter of the minor axis of the left ventricle is measured in systole (Ds) and diastole (Dd). Systolic volume is (Ds)-3, diastolic volume is (Dd)-3, ejection fraction is (Dd)-3-(Ds)-3 divided by (Dd)-3, Vcf is Dd-Ds divided by Dd times LVET.

J Trauma. 1999 Mar;46(3):466-72.

Focused Assessment with Sonography for Trauma (FAST): results from an international consensus conference.

Scalea TM[1], Rodriguez A, Chiu WC, Brenneman FD, Fallon WF Jr, Kato K, McKenney MG, Nerlich ML, Ochsner MG, Yoshii H.

REV COLOMB ANESTESIOL. 2015;43(4):321-330



Pericardial

Perihepatic

Perisplenic

Pelvic

The Journal of **TRAUMA**® *Injury, Infection, and Critical Care*

Hand-Held Thoracic Sonography for Detecting Post-Traumatic Pneumothoraces: The Extended Focused Assessment With Sonography For Trauma (EFAST)

American College of Emergency Physicians®

ADVANCING EMERGENCY CARE

POLICY STATEMENT

Appr

European Heart Journal – Cardiovascular Imaging (2013) **14**, 1–11
doi:10.1093/ehjci/jes193

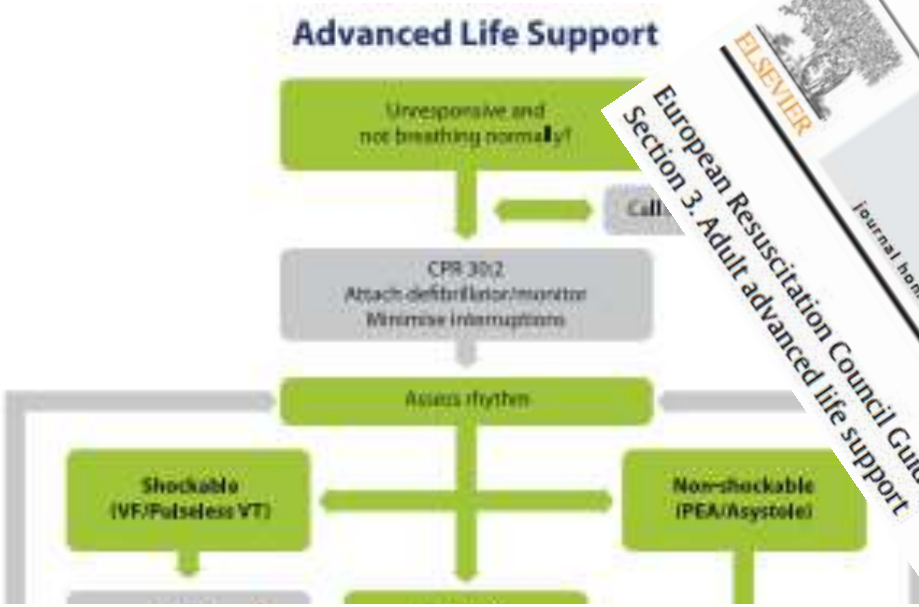
RECOMMENDATIONS nes

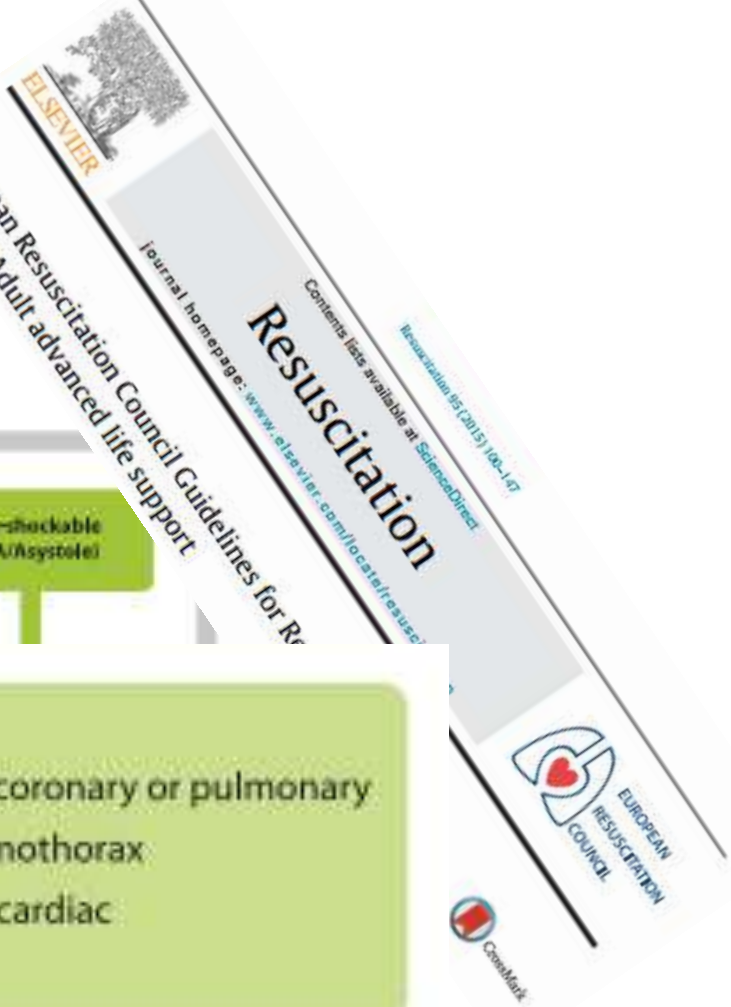
Emergency echocardiography: the European Association of Cardiovascular Imaging recommendations

Aleksandar N. Neskovic[1]*, Andreas Hagendorff[2], Patrizio Lancellotti[3], Fabio Guarracino[4], Albert Varga[5], Bernard Cosyns[6], Frank A. Flachskampf[7], Bogdan A. Popescu[8], Luna Gargani[9], Jose Luis Zamorano[10], and Luigi P. Badano[11], on behalf of the European Association of Cardiovascular Imaging[†]

Resu

Focused Echocardiography in Emergency Life Support





TREAT REVERSIBLE CAUSES

Hypoxia	Thrombosis – coronary or pulmonary
Hypovolaemia	Tension pneumothorax
Hypo-/hyperkalaemia/metabolic	Tamponade – cardiac
Hypothermia/hyperthermia	Toxins

CONSIDER

- Ultrasound imaging
- Mechanical chest compressions to facilitate transfer/treatment
- Coronary angiography and percutaneous coronary intervention
- Extracorporeal CPR

Βέβαιη Διάγνωση με Παρακλινικές Μεθόδους

TREAT REVERSIBLE CAUSES

- Hypoxia
- Hypovolaemia
- Hypo-/hyperkalaemia/metabolic
- Hypothermia/hyperthermia
- Thrombosis – coronary or pulmonary
- Tension pneumothorax
- Tamponade – cardiac
- Toxins

TREAT REVERSIBLE CAUSES

Hypovolaemia

Thrombosis – coronary or pulmonary

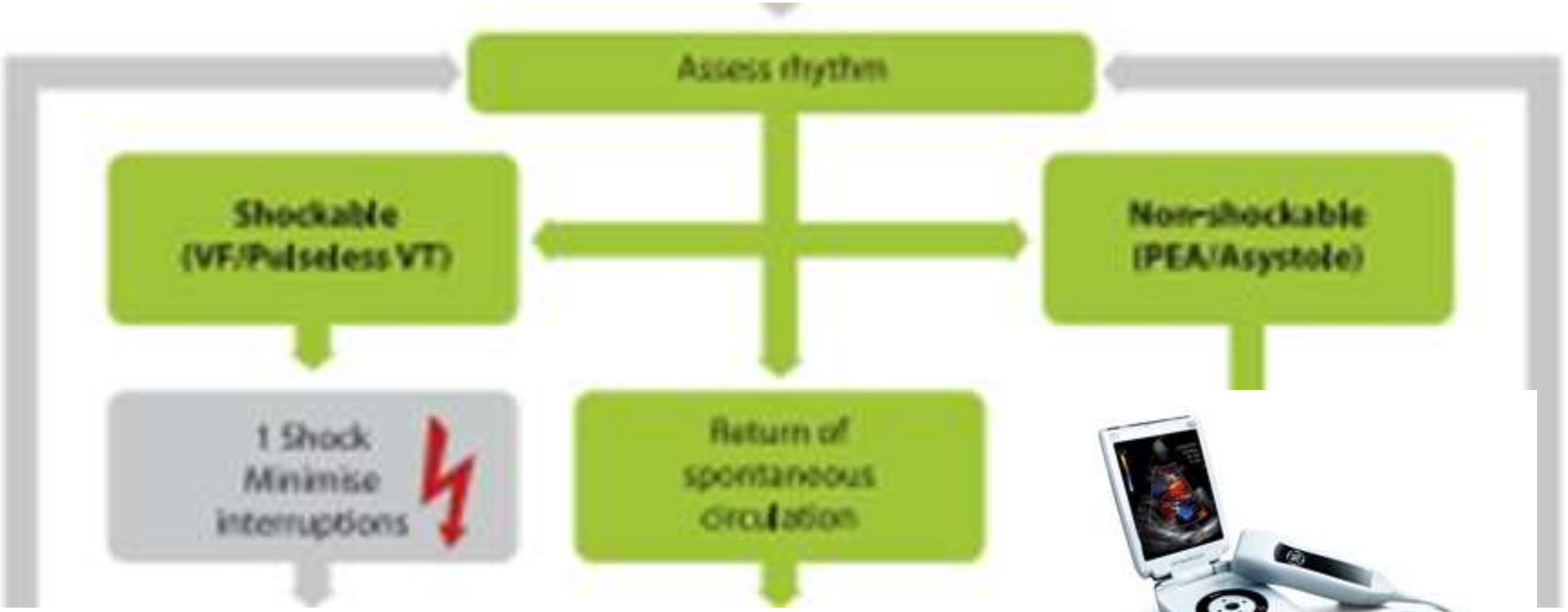
Tension pneumothorax

Tamponade – cardiac

Αναστρέψιμες αιτίες PEA
(με βάση τη συχνότητα)

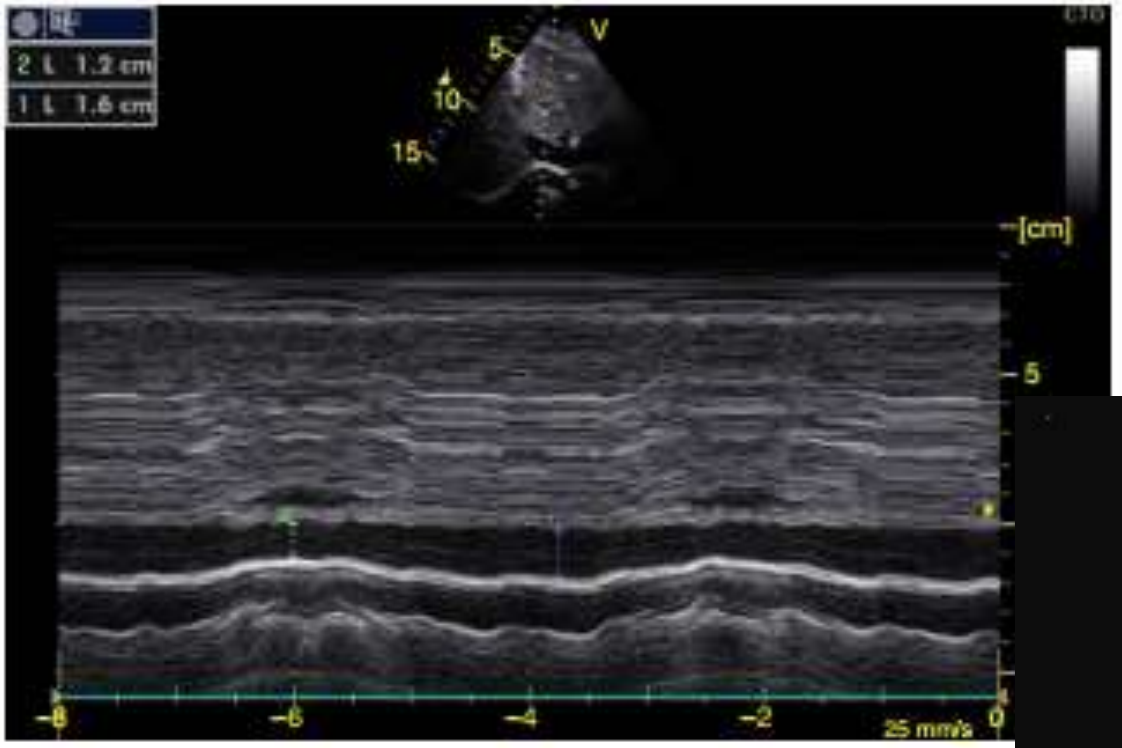
1 Hypoxia
2 Hypovolaemia
3 The obstructive three (3Ps)
  I Pneumothorax (tension)
  II Pericardial tamponade
  III Pulmonary emboli, air emboli, amniotic fluid emboli
4 Miscellaneous three (EMD)
  I Electrolyte and metabolic disturbance
  II Massive hypothermia
  III Drugs and toxins

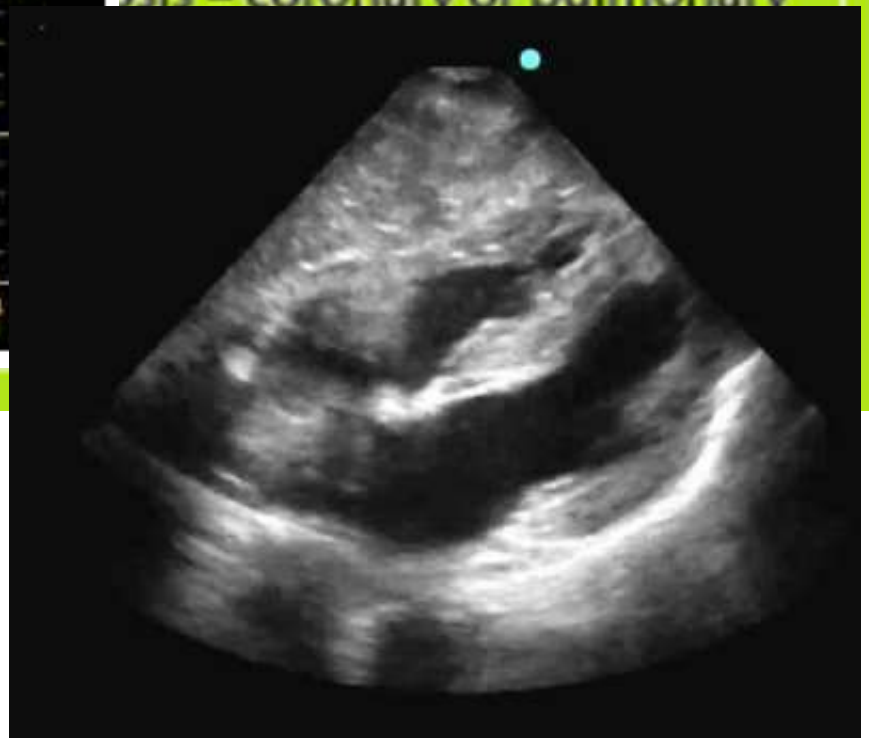
Resuscitation 37 (1998) 51



Υπερηχο στα 10 δευτερόλεπτα ελέγχου παλμού

Υποογκαιμία





Θρόμβωση

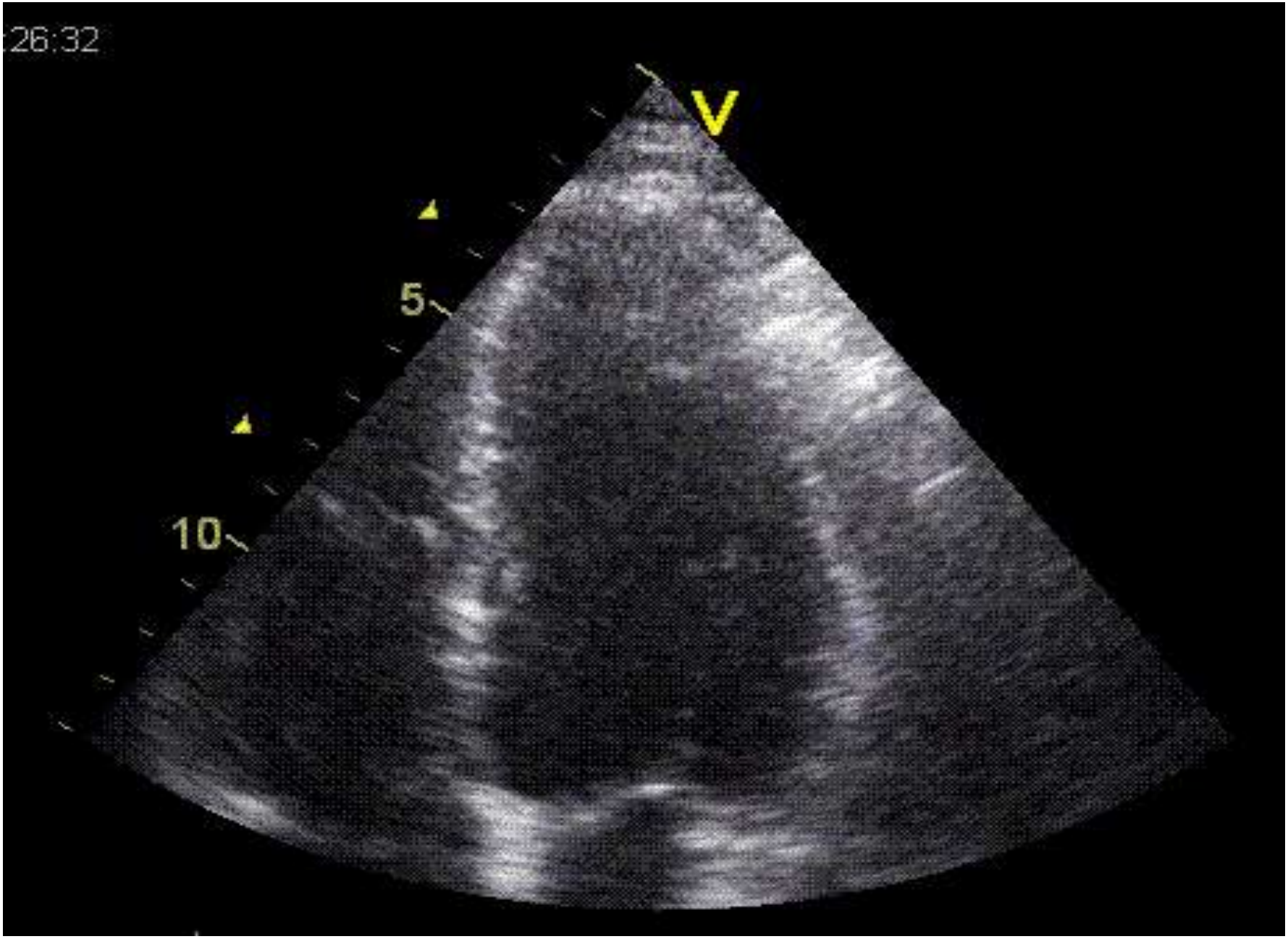
TREAT REVERSIBLE CAUSES

Hypovolaemia

Thrombosis – coronary or pulmonary

Tension pneumothorax

Tamponade – cardiac


26:32
V
5
10

Θρόμβωση

TREAT REVERSIBLE CAUSES

Hypovolaemia

Thrombosis – coronary or pulmonary

Tension pneumothorax

Tamponade – cardiac

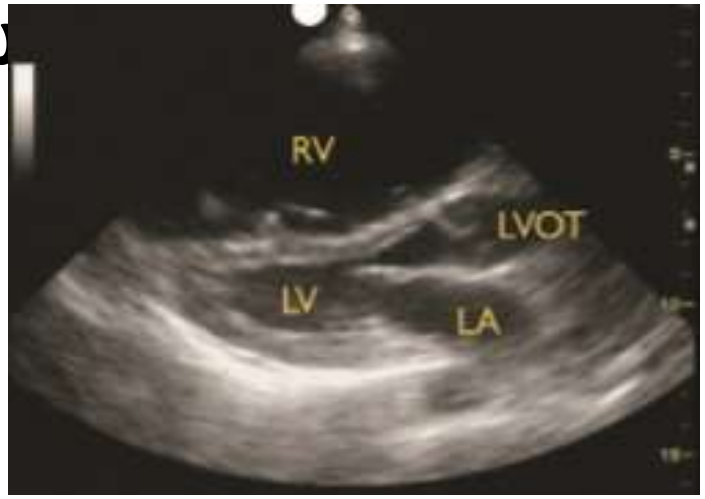
Hindawi Publishing Corporation
Critical Care Research and Practice
Volume 2012, Article ID 503254, 14 pages
doi:10.1155/2012/503254

Πνευμονική Εμβολή

- **5% των καρδιακών ανακοπώ**

  63% PEA

  32% ασυστολία



- **Η θρομβόλυση διπλασιάζει ROSC**

C.A.U.S.E.: Cardiac arrest ultra-sound exam—
A better approach to managing patients in primary non-arrhythmogenic cardiac arrest☆

Resuscitation (2008) 76, 198—206

Πνευμοθώρακας

TREAT REVERSIBLE CAUSES

Hypovolaemia

Thrombosis – coronary or pulmonary

Tension pneumothorax

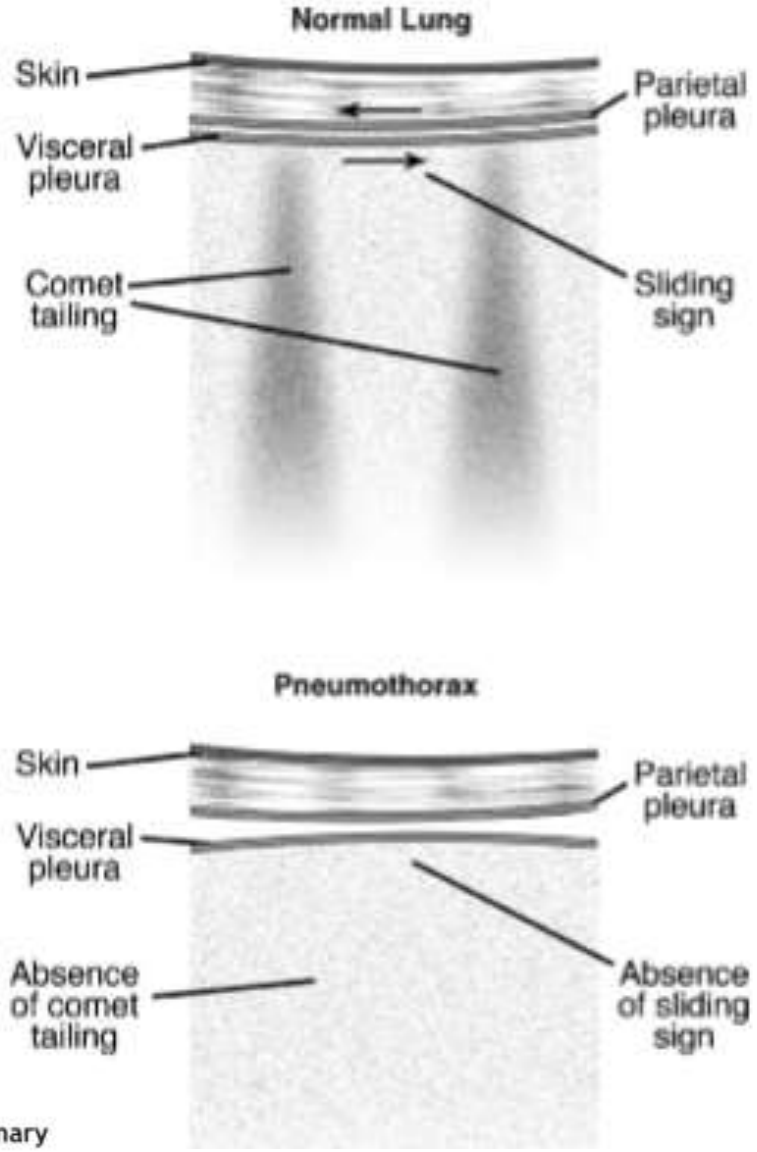
Tamponade – cardiac

Πνευμοθώρακας υπό τάση

- 5% σε μεγάλα τραύματα
- U/S: Ευαισθησία 90%, Ειδικότητα 100%
- U/S: 3 λεπτά εφαρμογή,CXR: 20 λεπτά εφαρμογή

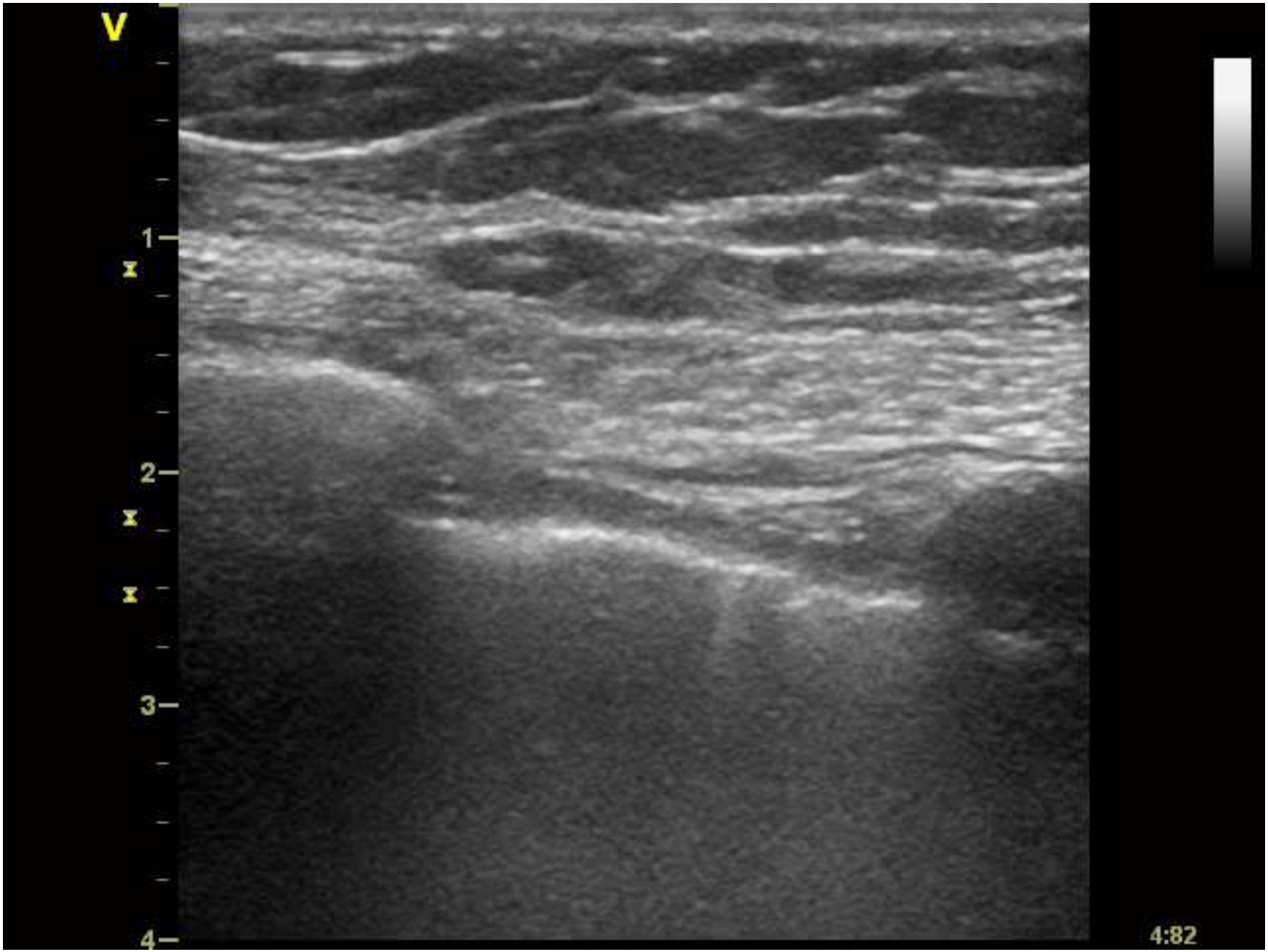
Resuscitation (2008) 76, 198–206

Πνευμοθώρακας υπό τάση



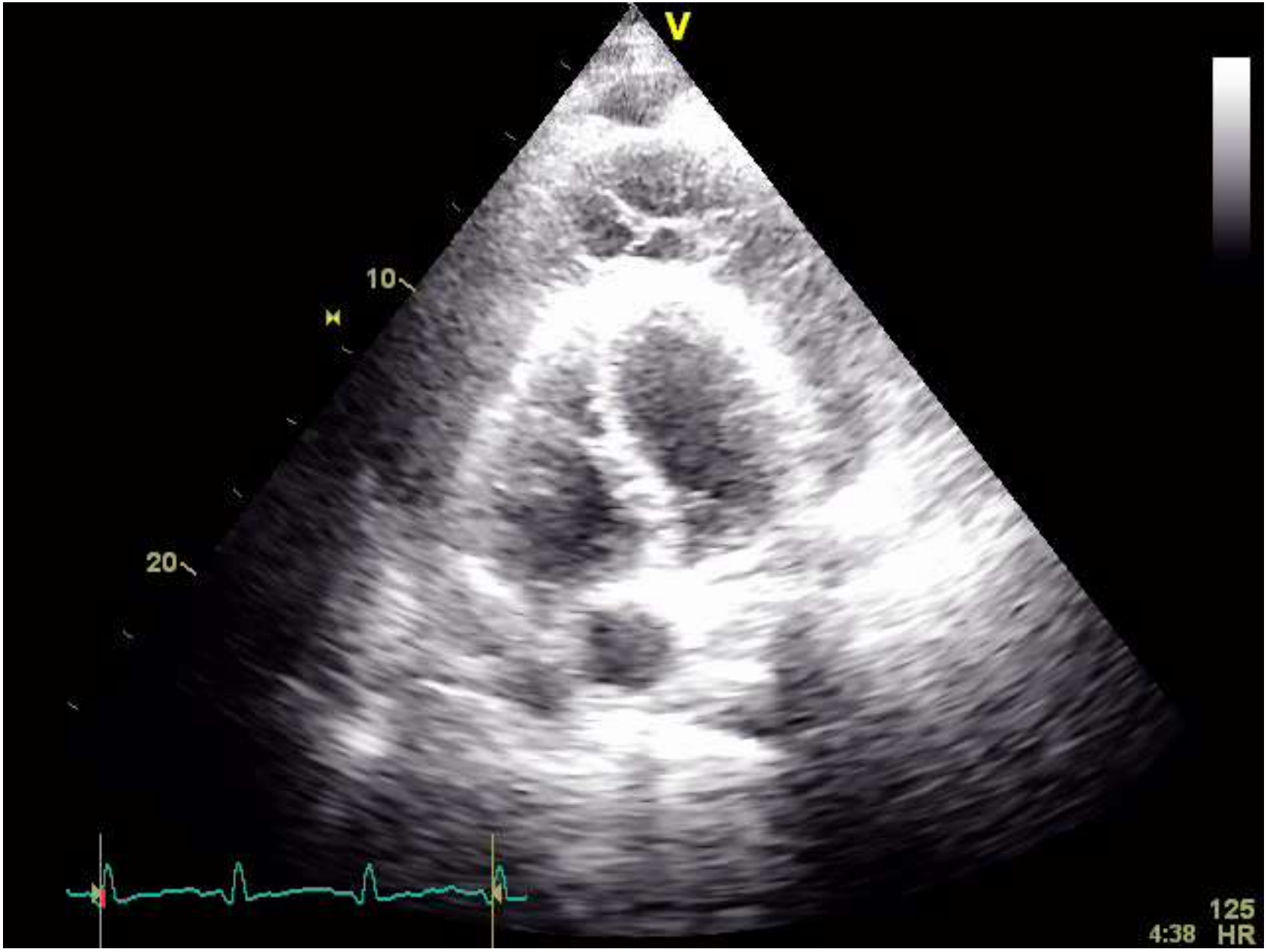
C.A.U.S.E.: Cardiac arrest ultra-sound exam—
A better approach to managing patients in primary non-arrhythmogenic cardiac arrest☆

Resuscitation (2008) 76, 198–206


V
1
2
3
4
4:82

Επιπωματισμός

Hindawi Publishing Corporation
Critical Care Research and Practice
Volume 2012, Article ID 503254, 14 pages
doi:10.1155/2012/503254


V
10
20
125
4:38 HR

Εκπαίδευση

Resuscitation 81 (2010) 1534–1539

Contents lists available at ScienceDirect

Resuscitation

journal homepage: www.elsevier.com/locate/resuscitation

Clinical paper

Peri-resuscitation echocardiography: Training the novice practitioner☆

Susanna Price[a,1], Hendrik Ilper[b,1], Shahana Uddin[c], Holger V. Steiger[d], Florian H. Seeger[e], Sebastian Schellhaas[b], Frank Heringer[f], Miriam Ruesseler[f,g], Hanns Ackermann[h], Gabriele Via[i], Felix Walcher[f,g,1], Raoul Breitkreutz[b,f,j,*,1]

I see with sound....

What's your superpower?