Ultrasound
Pericardial Effusion

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Clinical Case

Pt presents speaking partial sentences saturations 78%, confused

What do you do?
Table 2. Causes of Hemodynamic Collapse That Can Be Potentially Diagnosed Using Echocardiography from the Subcostal Window and Their Expected Findings

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Expected findings</th>
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</thead>
<tbody>
<tr>
<td>Hypovolemic shock</td>
<td>Significantly reduced end-diastolic chamber size</td>
</tr>
<tr>
<td></td>
<td>“Kissing” ventricular walls during systole</td>
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<tr>
<td>Pulmonary embolism</td>
<td>Clot in transit (in IVC, RA, RV, and/or main PA)</td>
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<td></td>
<td>Signs of RV strain:</td>
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<tr>
<td></td>
<td>Dilated RV</td>
</tr>
<tr>
<td></td>
<td>RV free wall hypokinesis or akinesis ± apical sparing</td>
</tr>
<tr>
<td></td>
<td>Signs of RV pressure overload:</td>
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<tr>
<td></td>
<td>“D-shaped” LV in short axis during systole</td>
</tr>
<tr>
<td></td>
<td>Dilated, noncollapsible IVC</td>
</tr>
<tr>
<td>Systolic failure</td>
<td>Significantly reduced contraction</td>
</tr>
<tr>
<td></td>
<td>Significantly reduced ejection fraction</td>
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<tr>
<td>Tamponade</td>
<td>Pericardial effusion</td>
</tr>
<tr>
<td></td>
<td>Right atrial systolic (^a) collapse</td>
</tr>
<tr>
<td></td>
<td>Right ventricular diastolic (^a) collapse</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
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</tbody>
</table>

IVC = inferior vena cava; RA = right atrium; RV = right ventricle; PA = pulmonary artery; LV = left ventricle.

\(^a\) Refers to cardiac cycle.

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Hand-Held Echocardiography in the Management of Cardiac Arrest

Achikam Oren-Grinberg, MD,* Gaurav Gulati,* Lior Fuchs, MD,* and Duane S. Pinto, MD, MPH†
The heart of the matter: Utility of ultrasound of cardiac activity during traumatic arrest

Elizabeth L. Cureton, MD, Louise Y. Yeung, MD, Rita O. Kwan, MD, MPH, Emily J. Miraflor, MD, Javid Sadjadi, MD, FACS, Daniel D. Price, MD, and Gregory P. Victorino, MD, FACS, Oakland, California

Assessment of Cardiac Ultrasonography in Predicting Outcome in Adult Cardiac Arrest

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Review

CLINICAL INTEGRATED ULTRASOUND OF THE THORAX INCLUDING CAUSES OF SHOCK IN NONTRAUMATIC CRITICALLY ILL PATIENTS. A PRACTICAL APPROACH

Roberto Copetti,*, Paolo Copetti,*, and Angelika Reissig¹

*Emergency Department, Latisana General Hospital, Latisana, Italy; and ¹Department of Pneumology and Allergology, Medical University Clinics I, Friedrich-Schiller University, Jena, Germany

(Received 15 June 2011; revised 18 November 2011; in final form 22 November 2011)
C.A.U.S.E.: Cardiac arrest ultra-sound exam—A better approach to managing patients in primary non-arrhythmogenic cardiac arrest

Caleb Hernandez, Klaus Shuler, Hashibul Hannan, Chionesu Sonyika, Antonios Likourezos, John Marshall

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Figure 8 Flow diagram demonstrating use of C.A.U.S.E. protocol in patients with cardiac arrest.
Pericardial effusion?

Global contractility of left ventricle?

Relative size of right ventricle to left ventricle?
Back to the pump
Effusion around the pump
Video

Perera P. "http://www.sound-bytes.tv"
Perera P. "http://www.sound-bytes.tv"
Effusion around the pump

Grades

Small less than 10 mm

Moderate 10–15 mm

Large greater than 15 mm
Video

Descending Aorta

Perera P.  "http://www.sound-bytes.tv"
Video Perera P.  
"http://www.sound-bytes.tv"

Parasternal Long Axis-Pleural Effusion

Descending Aorta

Perera P.  "http://www.sound-bytes.tv"
Video

Descending Aorta

Perera P. "http://www.sound-bytes.tv"
Video

Perera P. "http://www.sound-bytes.tv"
Perera P. "http://www.sound-bytes.tv"
Video

Perera P.  "http://www.sound-bytes.tv"
Perera P. "http://www.sound-bytes.tv"
Effusion around the pump

Tamponade or not?

Hallmark: RV free wall inversion, best recognized during diastole

Right atrial inversion during systole (more common and early finding)

Increased respiratory variation of mitral or aortic inflow velocities (greater than 25%)

Dilated inferior vena cava with decreased inspiratory collapse

ASE Committee Recommendations. Am Soc Echocardiography.
Effusion around the pump – tamponade
Perera P.  "http://www.sound-bytes.tv"
Perera P. "http://www.sound-bytes.tv"
Effusion around the pump

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ASE Committee Recommendations. Am Soc Echocardiography.

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