AMSER Case of the Month: March 2020

Impaired Consciousness

Norhan Shamloul, MS4
Drexel University College of Medicine
Windy Matich, MD
Matthew Hartman, MD
Allegheny Health Network
Patient Presentation

• 30 year old female with PMH complete heart block s/p pacemaker, tricuspid valve endocarditis, IV drug abuse, acute septic pulmonary embolism found unresponsive in her home by EMS
• Per EMS, it was unclear how long the patient had been unresponsive
• Drug paraphernalia was noted to be present near the patient
• Patient was in pulseless electrical activity (PEA) and CPR was initiated
• Patient received 9 mg Epinephrine, 1 mg Atropine, 1 mg Bicarb on the field
• Return of spontaneous respiration (ROSC) achieved
• No intact neurological reflexes
Pertinent Labs

• ABG:
  • pH, Blood Gas: 7.011
  • PACO$_2$: 46.9 mmHg
  • PO$_2$ Arterial: 209.0 mmHg
  • %HBO$_2$: 95.8
  • Carboxyhemoglobin: 0.6%

Cardiac Enzymes:

- Troponin T: 7.78 ng/ml
What Imaging Should We Order?
ACR Appropriateness Criteria

American College of Radiology
ACR Appropriateness Criteria®
Acute Mental Status Change, Delirium, and New Onset Psychosis

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Appropriateness Category</th>
<th>Relative Radiation Level</th>
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<tbody>
<tr>
<td>CT head without IV contrast</td>
<td>Usually Appropriate</td>
<td>⭐⭐⭐</td>
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<tr>
<td>MRI head without IV contrast</td>
<td>Usually Appropriate</td>
<td>O</td>
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<tr>
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<tr>
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This imaging modality was ordered by the ER physician.
Findings (unlabeled)

Normal CT (2 months earlier)
Findings: (labeled)

Partial effacement of the ventricles

Diffuse cerebral edema with effacement of cerebral sulci
Findings from a companion case (unlabeled)

At the level of the skull base.
Case 2: Increased ICP due to Anoxic injury

Findings: Effacement of the suprasellar cistern, sulcal effacement. Indicating herniation at the level of the skull base.
Final Dx:

Anoxic Brain Injury
Case Discussion (1-3 slides)

• Non-Contrast Head Computed Tomography (CT) demonstrated diffuse loss of gray-white differentiation compatible with severe cerebral edema

• Associated mass effect including effacement of cerebral sulci, partial but near complete effacement of the basal cisterns, partial effacement of the ventricles, uncal and transtentorial herniation
Anoxic – Ischemic Brain Injury

• Most often results from insults such as cardiac arrest (as in this case), head trauma, vascular catastrophe, poisoning (drug overdose)

• Many patients will expire without recovering awareness

• Cerebral edema and transtentorial herniation is a feared and deadly complication
References:

