Myocardial InfRactions: Don’t Miss the Big One

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University of Miami
Prehospital 12 leads

- Too often limited to “Chest Pain/Pressure”
- EDs & EMS learned to add the obvious:
  - Epigastric pain
  - “Molestia”
  - “Indigestion”
  - Post ROSC
- But if anyone’s protocols are still limited, consider 12 leads in lots more “atypicals”
83 yr old man with syncope

- Awake & alert, BP & P ok but looked pale
- No chest pain or SOB
- 3 lead NSR
- Did the 12 lead:

![ECG Image]
“Anxiety reaction”

- Middle aged ______ with sticking chest pain, very anxious. RR28. Hx anxiety on xanax.

- Does it matter how I fill in the blank?

- YES, DO THE 12 LEAD AND TREAT THE PATIENT per CP protocol.
76 yr old woman with syncope

Takotsubo
Stress-induced cardiomyopathy
52 yr old man with “feels bad”

- Hx HTN, no taking meds for “a few days”
- Progressive “feeling bad” over 2-3 days, now feels like he’s going to die
- No CP or SOB but looks crappy

Sometimes you find a different “Big One”
One of those OMG moments...

- “Umm, Doc, we’re sending you a 12 lead as a Cardiac Consult:”

I love being able to transmit 12 leads!!
Calcium, bicarb given
49 yr old woman with Hiccups

<table>
<thead>
<tr>
<th>Patient Info</th>
<th>Values</th>
<th>Observations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>49 yr</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>Room</td>
<td>MER</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td>Loc:28</td>
<td></td>
</tr>
<tr>
<td>Heart Rate (BPM)</td>
<td>97</td>
<td>Normal sinus rhythm</td>
</tr>
<tr>
<td>PR Interval (ms)</td>
<td>134</td>
<td>Left axis deviation</td>
</tr>
<tr>
<td>QRS Duration (ms)</td>
<td>92</td>
<td>Left anterior hemiblock</td>
</tr>
<tr>
<td>QT/QTc (ms)</td>
<td>374/474</td>
<td>Abnormal ECG</td>
</tr>
<tr>
<td>P-R-T Axes</td>
<td>75 -42 -47</td>
<td>I PERSONALLY REVIEWED THIS FILM / RECORDING AND THE RESIDENT'S FINDINGS, AND AGREED WITH THE FINAL REPORT</td>
</tr>
</tbody>
</table>

Technician: JMP
Test ind: R/O MI

DEPARTMENT: HEART STATION

Referred by: Confirmed by: AGUSTIN CASTELLANOS
Case Report

Hiccups as the only symptom of non–ST-segment elevation myocardial infarction


The Tooth, the Whole Tooth, and Nothing But the Tooth: Can Dental Pain Ever Be the Sole Presenting Symptom of a Myocardial Infarction? A Systematic Review.

Jalali N¹, Vilke GM², Korenevsky M¹, Castillo EM², Wilson MP²
Elderly, women, diabetics...

57 yr old woman called 911 for vomiting several times, not feeling well today. No CP, SOB, or epig pain

- PHx HTN on med, no DM, no CAD
- VS OK, actively vomiting, not diaphoretic
- Transported to ED
Oops

ED EKG:

But even our EMS protocols didn’t call for 12 ld in the field
CP in Age < 35

- 33 yr old male with CP

- Cath Lab: Active coronary spasm
38 yr old Haitian woman:

- 2 weeks post partum after 8\textsuperscript{th} child
- Severe “pain all over,” mostly chest and epigastric
- Anxious, histrionic, language barrier
- Tachypneic, tachycardic, clear lungs
Peripartum Cardiac Disease

BUT WHY??
ZERO cardiac risk factors for atherosclerosis
Peripartum women are at ↑ risk of ACS and MI and...
Coronary Artery Dissection!!

- **Spontaneous CA Dissection:**
  - Arterial wall layers can separate
  - Occludes lumen so no distal flow, but NOT CAD

- **Pathophysiology ???**
  - Hormonal changes in connective tissue
  - Hemodynamic changes vs. hypercoagulable vs. autoimmune response

- **Prehospital care same as any STEMI**

- **Outcomes:**
  - May heal spontaneously, cause MI or sudden death; high mortality without Rx (cath, stents)
But age 11?

11 year old boy collapses at football practice:

- Lying on the ground, awake but agitated, cool and sweaty skin
- BP 82/palp, P 106, RR 24, O2 sat 97% RA
- Monitor: sinus tach
- Airway, lungs normal
- Treatment?
Transmitted 12 lead to ED, Pedi Cardiologist in ED w echo
No STE but + troponin, cardiogenic shock with low EF
Cath: Congenital absence of part of prox LCA, CABG done
Reproducible CP

22 yr old man, severe left chest pain for one day, hurts to take a deep breath. Athletic, lifts weights

• Exam and VS normal except for
• Point tenderness at 4th rib to left of sternum
• Dx by MD: Costochondritis
• Rx Local anesthetic injection into rib
• Pain gone, went home, plan ibuprofen
But...

- Cardiac arrest a few hrs later
- Autopsy: 3 cm long total LAD occlusion
- Diagnosis: Coronary Vasculitis
- Main medical error: No 12 lead done (should’ve done one thinking pericarditis)
Young patients with CP: MIs

- Obesity, hypertension, diabetes
- Cocaine, amphetamines
- Coronary bridging (cardiac muscle on top on an artery)
- Congenital abnormalities of coronary arteries
- Genetic/familial hyperlipidemia
- Chest trauma, myocardial contusions
- Late pregnancy to 2 months post partum
- Vasculitis, arteritis
- Sickle cell disease

*No nitro unless abnormal 12 lead, but do the 12 lead*
57 yr old man with crushing chest pain
STEMI / ACS: Be Prepared

- Put the defib pads on!
- Keep the patient on the cardiac monitor, and monitor the monitor
1 min later, seizure

Did this 4 times in ED. Total L main. Did well
So...do 12 leads to look for ACS:

- **Syncope (unless active bleeding)**  
  - May also find long QT, delta waves, other clues

- **Acute onset SOB (without hx asthma/COPD)**  
  - May also find signs of pulm embolus

- Unexplained diaphoresis

- Sudden onset weak & dizzy

- Abd pain above navel in age >35 (or CAD risk)

- “Don’t feel well” and has “THE LOOK”
So feel free to do 12 leads!

- **GIVE A COPY TO ED**
  - Whether normal or not
  - Whether they want it or not
  - Put a name on it

- **For STEMI / ACS patients**
  - Transport with defib pads on!
  - If no CP or CHF, give the aspirin, hold the nitro