Abdominal STEMI: Ileus Presenting as Acute Coronary Syndrome

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CASE PRESENTATION

A 53-year-old female was admitted to neurosurgery for planned L5-S1 and L5-S1 spine fusion with drain placement. The patient's past medical history was significant for VATER syndrome with multiple congenital vertebral abnormalities and a previous T1 to T7 bony fusion for congenital hemivertebra scoliosis. The patient tolerated surgery well with no operative complications. She was progressing well with an expected post-op course until post-op day 5 when the patient developed sudden-onset severe chest pain with associated nausea and diaphoresis. Chest pain was substernal, and was described as a pressure-like sensation, and radiating down the left arm. Pain was not reproducible with palpation or position changes and improved with sublingual nitroglycerin. The patient also endorsed several days of abdominal discomfort but was clear in delineating it from her chest pain.

On exam, the patient was ill-appearing and uncomfortable. Her heart rate ranged from 105–115 bpm, abdomen was moderately distended and mildly tender to palpation. An EKG obtained demonstrated significant ST elevations in the inferolateral leads (**Figure 1**). Troponin was drawn shortly after the onset of chest pain and only minimally elevated. A bedside echocardiogram exhibited normal left ventricular function with no clear wall-motion abnormalities. The patient was taken emergently for a coronary angiogram. No angiographically significant disease was observed. Additionally, there was no evidence of coronary vasospasm or spontaneous coronary artery dissection seen during catheterization (**Figures 2,3**).

Figure 1. Initial EKG with inferolateral ST elevations.

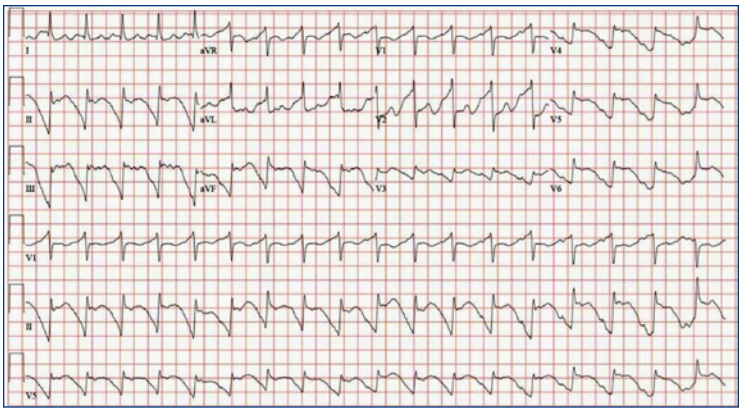


Figure 2. Coronary angiogram of the left anterior descending and left circumflex artery, no angiographically significant coronary artery disease visualized.

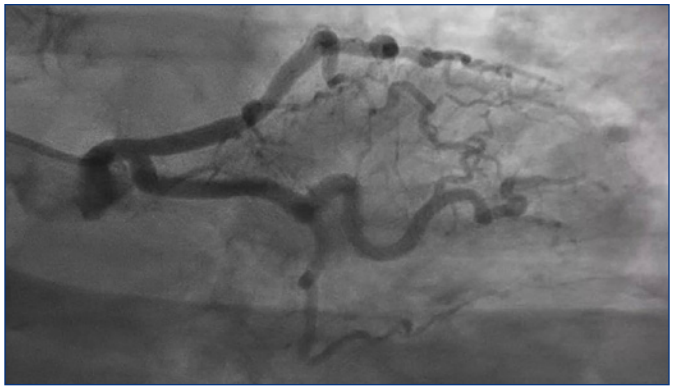
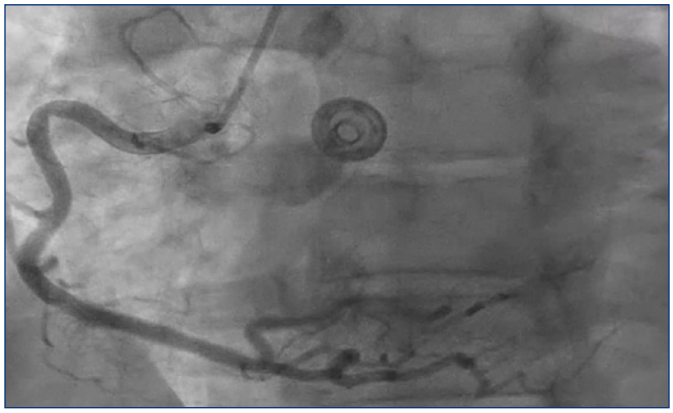


Figure 3. Coronary angiogram of the right coronary artery, no angiographically significant coronary artery disease visualized.



The patient continued to have active chest pain, prompting a further work-up. A bedside X-ray (**Figure 4**) and CT of the chest and abdomen identified an ileus pressing on the myocardium (**Figure 5**). A nasogastric tube was placed with immediate output of five liters of brown bilious fluid. Her chest pain completely resolved within one hour of NG tube placement. A repeat EKG the following morning demonstrated resolution of ST elevations (**Figure 6**). The rest of the patient's hospital course was uneventful, and bowel function eventually returned, and she was discharged home.

Figure 4. Bedside abdominal X-ray demonstrating dilated bowel measuring up to 42.9 mm.

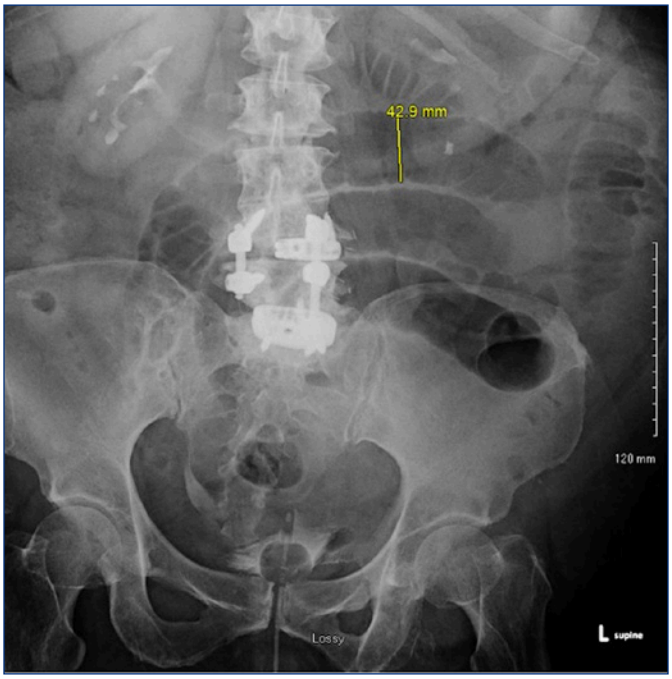


Figure 5. CT Chest demonstrating gastric distention pressing on the inferior aspect of the myocardium.

Figure 6. EKG following NG tube placement and resolution of chest pain, no significant ST elevation present.

DISCUSSION

Ileus mimicking ST-segment elevation myocardial infarction is an uncommon presentation of a common disease process. Our knowledge is limited solely to case reports.[1-4] However, we believe abdominal distention can precipitate the characteristic signs and symptoms of myocardial infarction. Abdominal distension, commonly observed in conditions such as bowel obstruction and ileus, can exert pressure on neighboring organs within the thoracic cavity, including the heart. The heart, nestled within the confines of the pericardial sac, is susceptible to compression from gastrointestinal structures when intra-abdominal pressure increases. Mechanical compression can impair microvascular coronary blood flow and cause myocardial ischemia. Further complicating the diagnosis, myocardial compression can elicit electrocardiographic changes consistent with atherothrombotic myocardial infarction, including ST-segment elevation and T-wave abnormalities. Electrocardiogram changes typically manifest in the inferior leads, aligning with the portion of the heart that comes into contact with the abdomen.[1-2] Additionally, similar to pancreatitis, it is theoretically possible for bowel inflammation in contact with the myocardium to elicit angina-like chest pain and ST changes on an EKG.[5] However, in this case, high intra-abdominal pressure is likely playing a greater role. Other STEMI mimickers to consider are myocarditis, pericarditis, coronary vasospasm, traumatic brain injury, ventricular aneurysm, and stress-induced cardiomyopathy. Recognizing the potential for extra-cardiac pathophysiology to masquerade as acute coronary syndromes allows providers to better evaluate and care for their patients presenting with cardiac complaints.

References

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Disclosures

The authors have nothing to disclose.

Funding

No grants, contracts, or other forms of financial support were obtained or used for this case report.

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