

中文題目：模仿下壁心肌梗塞的腸缺血疾病

英文題目：Case report: Intestinal Ischemia Mimicking Inferior Wall ST-segment Elevation Myocardial infarction

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1. Introduction

Epigastric pain is a common complaint in the emergency department (ED) globally. Common causes include medical conditions, such as peptic ulcer disease, pancreatitis, cholecystitis, and intestinal ischemia.

In differential diagnosis, inferior wall myocardial infarction is one of the fatal conditions that needs emergency intervention for better outcome and quality of life. Unfortunately, when there is epigastric pain, it is difficult to differentiate inferior wall myocardial infarction from other possible causes. In our case, when the patient presented to the ED with a complaint of epigastric pain with a history of cardiovascular disease and the first electrocardiogram revealed ST-segment elevation in the inferior leads, cardiac intervention was arranged immediately notwithstanding laboratory data.

However, ST-segment elevation not only happens in acute myocardial infarction but also in other conditions. We herein present a case of intestinal ischemia mimicking inferior wall ST-segment elevation myocardial infarction.

2. Case presentation

A 72-year-old woman who was brought by her family to the ED with a complaint of sudden onset of epigastric pain with dyspnoea in the early morning. She had a past history of insignificant coronary artery disease, valvular heart disease, hypertension, congestive heart failure, and rheumatoid arthritis. Her triage vital signs revealed her body temperature to be 36.7°C, heart rate 113 beats per minute, respiratory rate 20 per minute, and blood pressure 139/90 mmHg. Saturation was around 90% under non-rebreathing mask use. She denied having tarry/bloody stool. Physical examination revealed bilateral coarse crackles in her breathing with mild wheezing, a soft abdomen without tenderness, rebound pain, or muscle guarding. She had pitting oedema of bilateral limbs. Her electrocardiogram revealed sinus tachycardia with right bundle-branch block and inferior lead ST elevation (Fig. 1A). A blood sample was then obtained for analysis. Her chest x ray result showed cardiomegaly with mild congestion. Considering her condition and her past medical history, the provisional diagnosis was acute ST-segment elevation myocardial infarction (STEMI) of the inferior wall with acute decompensated heart failure. Before transferring the patient to

the cardiac catheterization room for primary percutaneous intervention, intubation was performed. Related risk and mortality rate were informed to the patient's family.

However, cardiac angiography result showed insignificant coronary artery disease (Fig. 1B, 1C). She was then transferred to the intensive care unit (ICU) for further evaluation of the precipitating factor of acute decompensated heart failure and the reason for the epigastric pain.

In the ICU, epigastric pain was not relieved and the ST-segment elevation was still noted. Laboratory tests revealed creatine phosphokinase of 231 U/L and cardiac troponin I of 0.48 ng/L. Thrombocytopenia (102000/uL), elevated C-reactive protein (0.5mg/dL), and creatinine level (1.44mg/dL) were also observed. Electrolytes were normal. Empirical antibiotics were then used for suspected sepsis. Unfortunately, her condition deteriorated. Her blood pressure dropped during the ensuing period and the nurse found that her abdomen was distended. Inotropic agents were then used for suspected septic/cardiogenic shock. KUB image study was then arranged to determine the reason for the distended abdomen. The image study showed pneumatosis intestinalis (Fig. 2A); the impression was intestinal ischemia with necrosis. A general surgeon was consulted immediately for abdominal exploration.

The surgical result showed ischemic change from the proximal jejunum to the ascending colon (Fig.2B, 2C) with odour ascites. After informing the family that the prognosis was not good, the surgery was terminated without bowel resection as desired by the family. The consent for Do Not Resuscitate was signed. The patient died after a few hours

3. Discussion

We encountered a case of a 72-year-old female patient with ischemic bowel with dilated loop mimicking inferior wall ST-segment elevation myocardial infarction.

Electrocardiography (ECG) is an important, non-invasive and convenient tool in detecting acute myocardial infarction in the emergency department. However, ECG abnormalities resembling myocardial ischemia/infarction may be induced by extra-cardiac problems.¹ To the best of our knowledge, intestinal ischemia did not have definite ECG findings. Some cases have been reported regarding the relationship between intestinal ischemia and ST-segment elevation,²⁻⁴ but the exact mechanism was not explained. The possible mechanism of ST-segment elevation in our patient was also unclear, but one possible cause was suspected, i.e., the right coronary artery was compressed by

the dilated bowel. Direct mechanical compression to the heart causing ischemic change in ECG is rare, but it is described by Kamimura et al,³ Sonoda et al,⁴ Asada et al,⁵ Chen et al⁶ earlier. In their cases, coronary artery stenosis was not found, and the symptoms resolved after nasogastric tube suction. In our case, ischemic change of the bowel resulted in the dilated loop that might have also caused direct compression of the right coronary artery. The rare presentation of ischemic bowel indicates diagnostic pitfalls that can be made, leading to totally different treatment plans. It was also a challenge for the emergency physician to render adequate treatment.

In conclusion, this case indicates the effect of extra-cardiac structures on the heart with resultant ST-segment changes. Physicians should keep this differential diagnosis in mind if a definite lesion is not found on coronary angiography in patients with ST-segment elevation

4. Learning points

- ST-segment elevation can be present in more situations than only myocardial infarction. Several conditions can mimic an acute myocardial infarction but may not benefit from a revascularization strategy
- Knowledge and awareness of the non-AMI causes of ST segment elevation is important to help diagnose these patients that might benefit from other treatment than urgent revascularization