

Learning Objectives

- Wellens syndrome (WS) is a type of unstable angina that indicates high grade left anterior descending coronary artery (LAD) stenosis and necessitates prompt intervention to prevent myocardial infarction.
- Electrocardiography (ECG) findings include biphasic or symmetrically inverted T waves in the precordial leads. EKG has a specificity of 89% for diagnosing WS.
- Other conditions that can mimic WS are important to consider avoiding diagnostic delays.

Case presentation

A 58-year-old man with a medical history of hypertension and bioprosthetic valve placement presented to the emergency department with complaints of dyspnea at rest associated with paroxysmal nocturnal dyspnea and orthopnea.

On admission, his vital signs were remarkable for an elevated blood pressure of 177/79 mmHg. Cardiovascular exam showed a 2/6 diastolic murmur on the left sternal border. Blood analyses revealed elevated troponin-I 0,18 ng/ml (normal range 0-0,03 ng/ml). ECG showed new deep T wave inversions in anterolateral leads from V2 to V6 (figure 1).

At this time, acute myocardial infarction with non-ST elevation was suspected. The patient had a left heart catheterization due to concerns for Wellens pattern on ECG, which showed severe aortic regurgitation (AR) and non-obstructive coronary artery disease (figure 2). A transesophageal echocardiography confirmed a bioprosthetic aortic valve dehiscence associated with a dilated aortic root with severe aortic regurgitation (figure 3).

Figures

figure 1

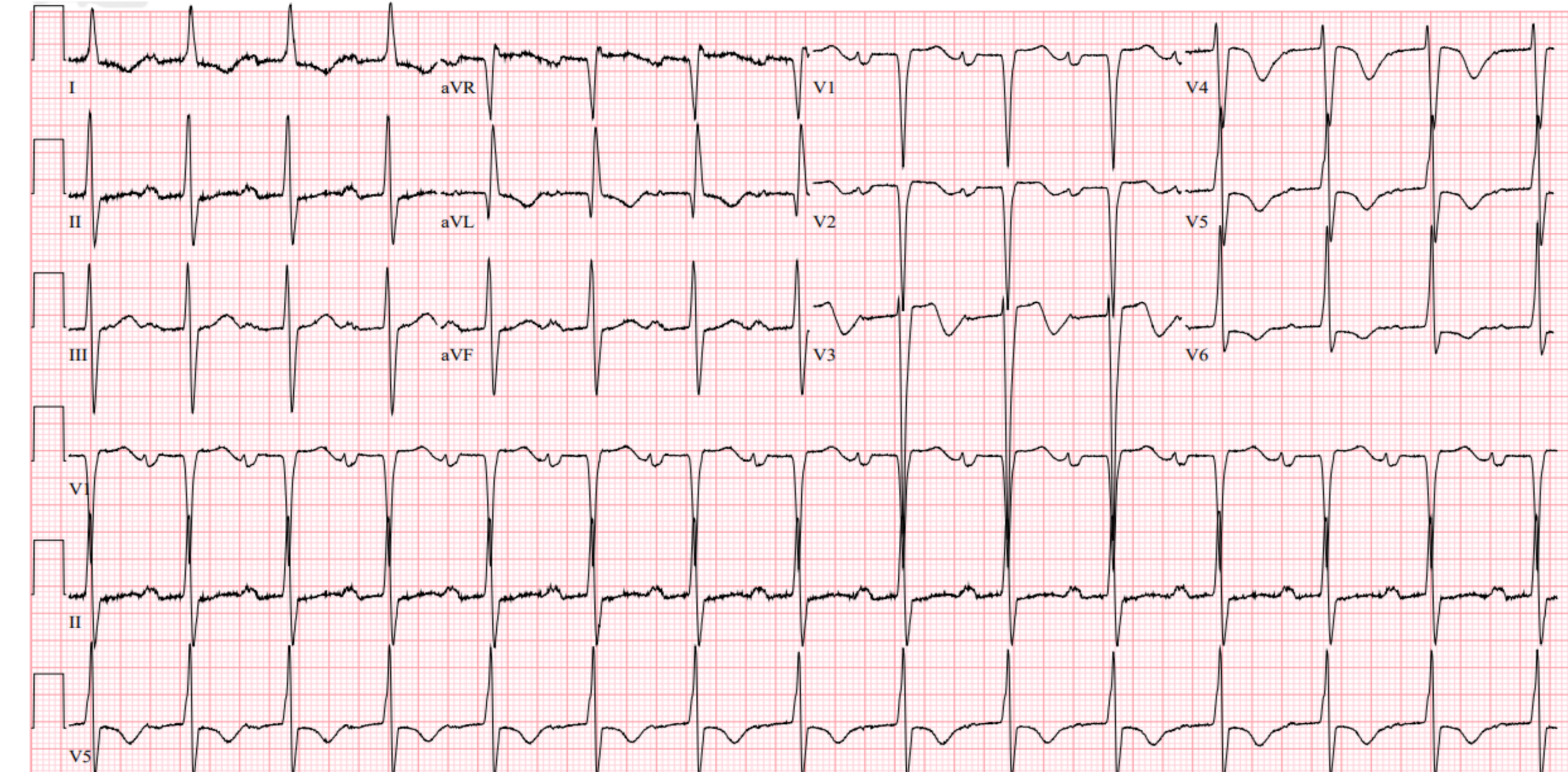


Figure 2

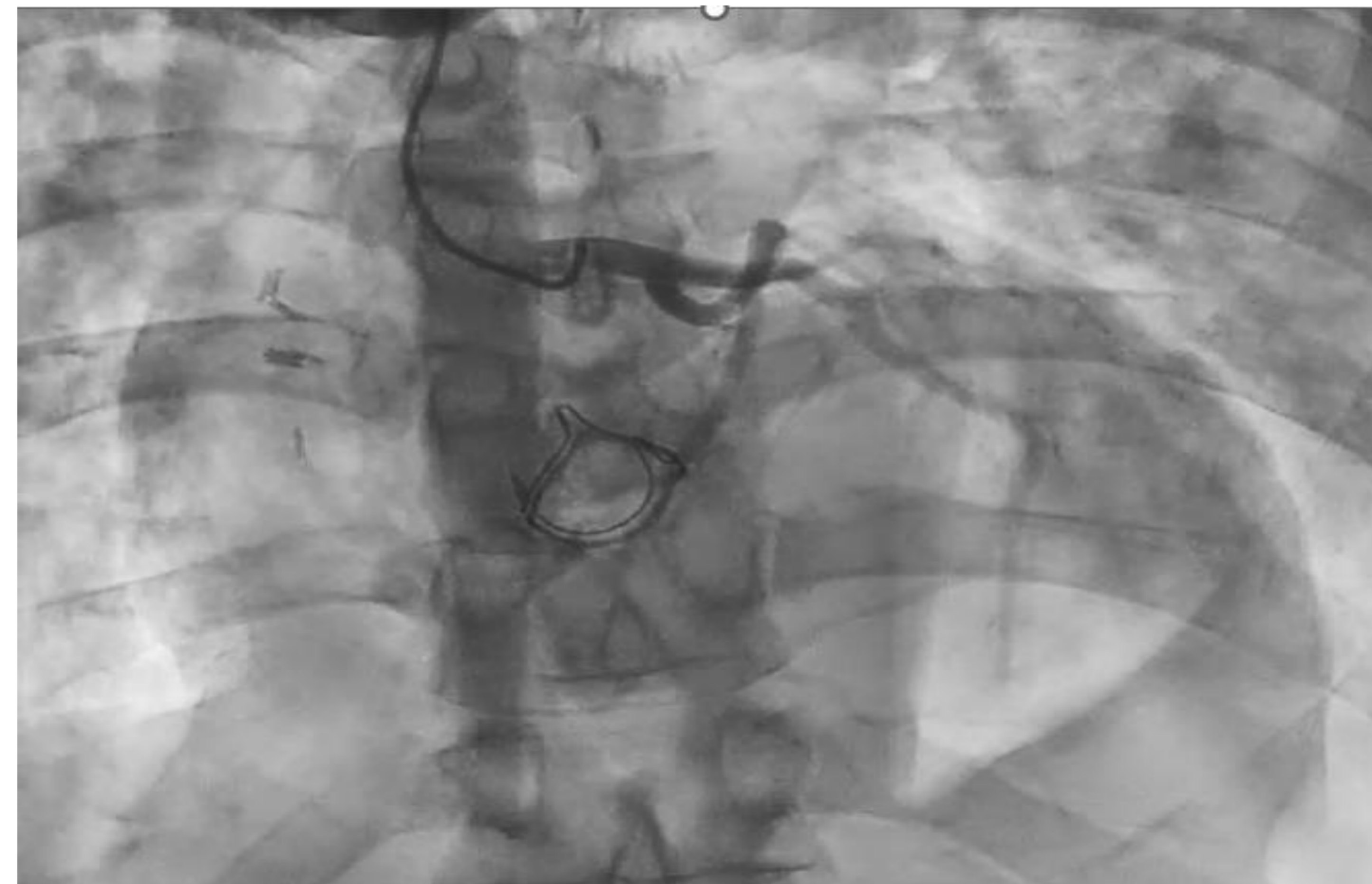
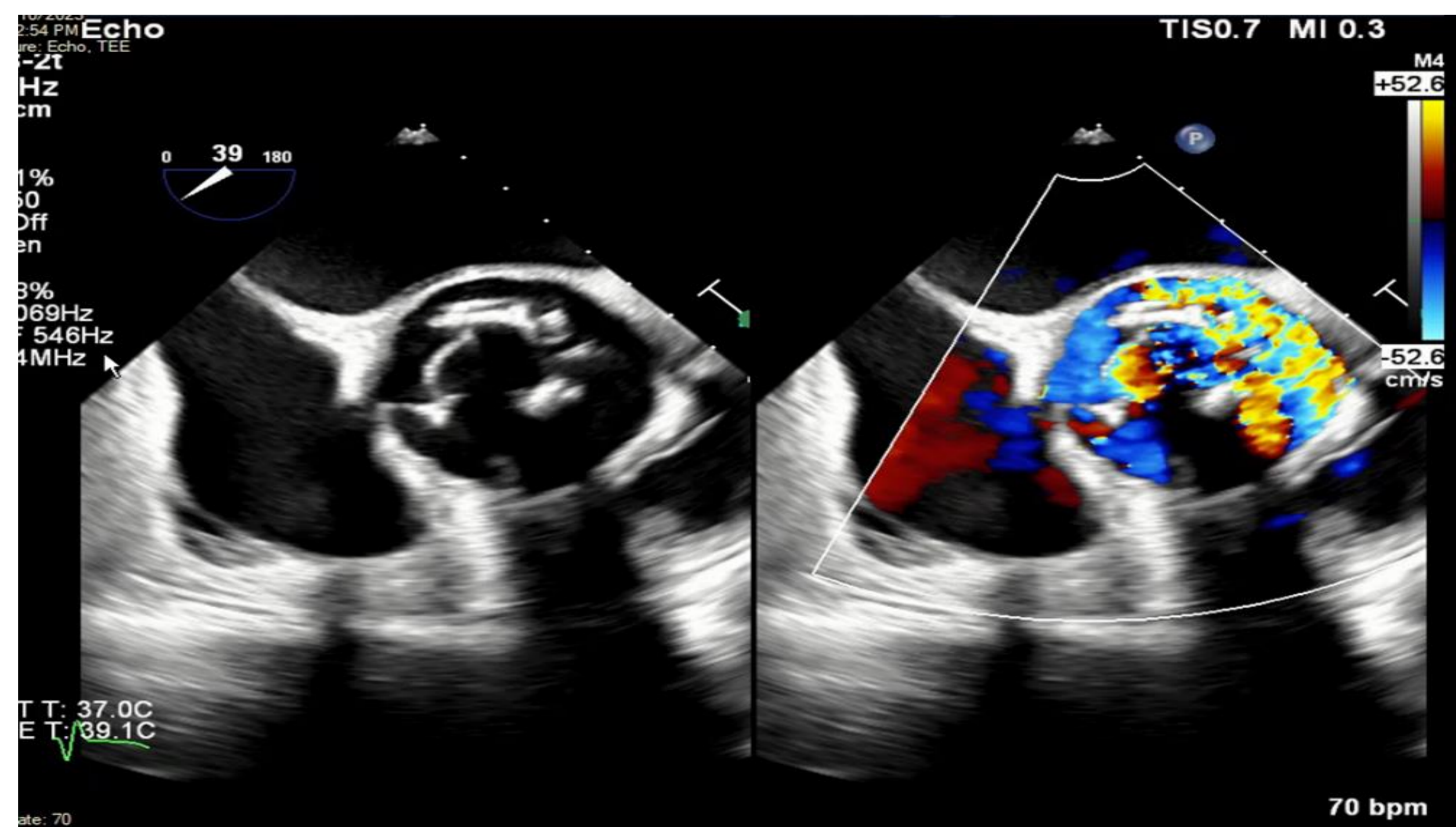


Figure 3



Discussion

- EKG changes suggestive of Wellens syndrome do not always indicate its presence.
- Pseudo-Wellens syndrome can be associated with coronary spasm from cocaine use, heavy marijuana use, acute cholecystitis, myocardial bridge due to external coronary artery compression, left myocardial hypertrophy and aortic valve regurgitation.
- In our case, it is plausible that the ECG changes were secondary to myocardial ischemia as a result of acute AR. This could lead to an abrupt rise of the left ventricular diastolic pressure, and a sudden drop of the aortic diastolic pressure, both leading to an overall decrease in the coronary perfusion pressure.

Conclusion

A differential diagnosis of Wellens syndrome, including aortic valve regurgitation, should be considered when evaluating abnormal ECG in at-risk patients. This can prompt to the appropriate diagnostic work-up and avoid diagnostic delays.

References

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