

ST SEGMENT IN LEAD A VR IN ACUTE INFERIOR MYOCARDIAL INFARCTION

Pages with reference to book, From 365 To 366

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Abstract

Inferior myocardial infarction is frequently associated with ST segment depression in the chest leads. In such a clinical setting it may be useful to examine lead aVR. If ST segment depression in chest leads is associated with ST elevation lead aVR, these precordial changes are probably not reciprocal but due to associated anterior subendocardial ischemia infarction : (JPMA 35: 365, 1985).

INTRODUCTION

Anterior ST segment depression frequently occurs with inferior acute myocardial infarction (AMI) and is associated with greater global and regional left ventricular dysfunction,^{1,2} and a higher incidence of hospital and late complications and the presence of significant left coronary Artery disease³. ST segment depression can be anterior wall subendocardial ischemia or infarction, or a reciprocal change of inferior or posterior wall injury. To distinguish between the two, it is useful to examine lead aVR the so-called "intracavitary" lead. If lead aVR shows ST segment elevation, the ST depression in the anterior precordial leads is probably due to subendocardial ischemia or infarction. We present the following case study as an illustration.

CASE STUDY

A 63 years old male was admitted for the evaluation of his unstable angina. He had previously suffered inferior myocardial infarction. His resting electrocardiogram showed Q-waves in II, III and aVF and T-wave changes in aVL, V4, V5 and V6. On master two step exercise test ST was depressed significantly from V2-V6. ST depression was also seen in IT, III and aVF. Simultaneously ST in aVR was elevated (Fig-I).

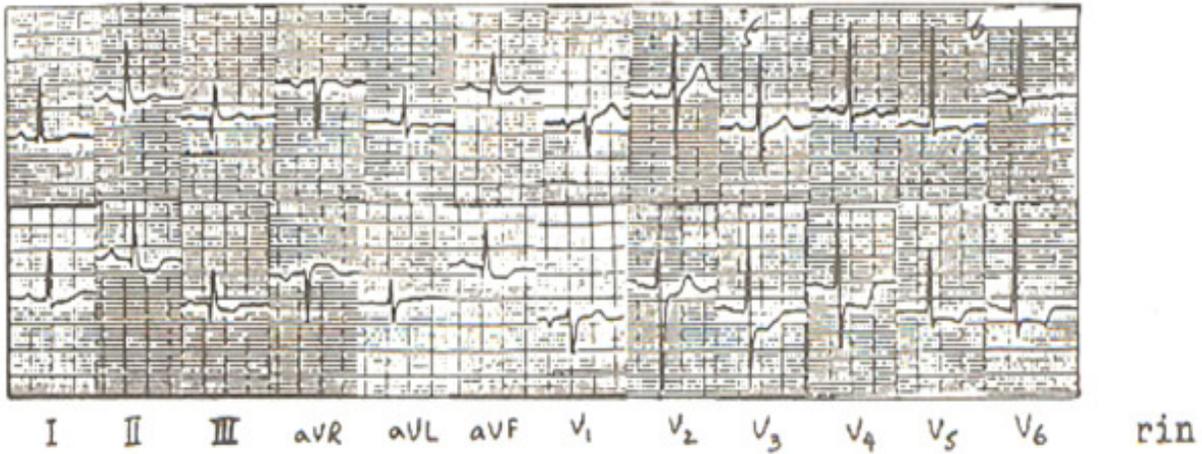


Fig. 1. Electrocardiogram before (upper panel) and after exercise (lower panel). Post exercise electrocardiogram shows ST elevation in lead aVR and ST depression in chest leads.

Coronary angiographic findings showed total occlusion of right coronary artery in segment 1, left anterior descending segment 7 was also totally occluded and there was subtotal occlusion of left circumflex artery. Thallium-201 stress test using single photon emission computed tomography (SPECT) •showed perfusion defect in inferior, anterior and antero-septal segments. The defect in anterior and antero-septal segments was “filled in.” on delayed imaging indicating that it was reversible ischemia (Fig-2).

Pre-operative

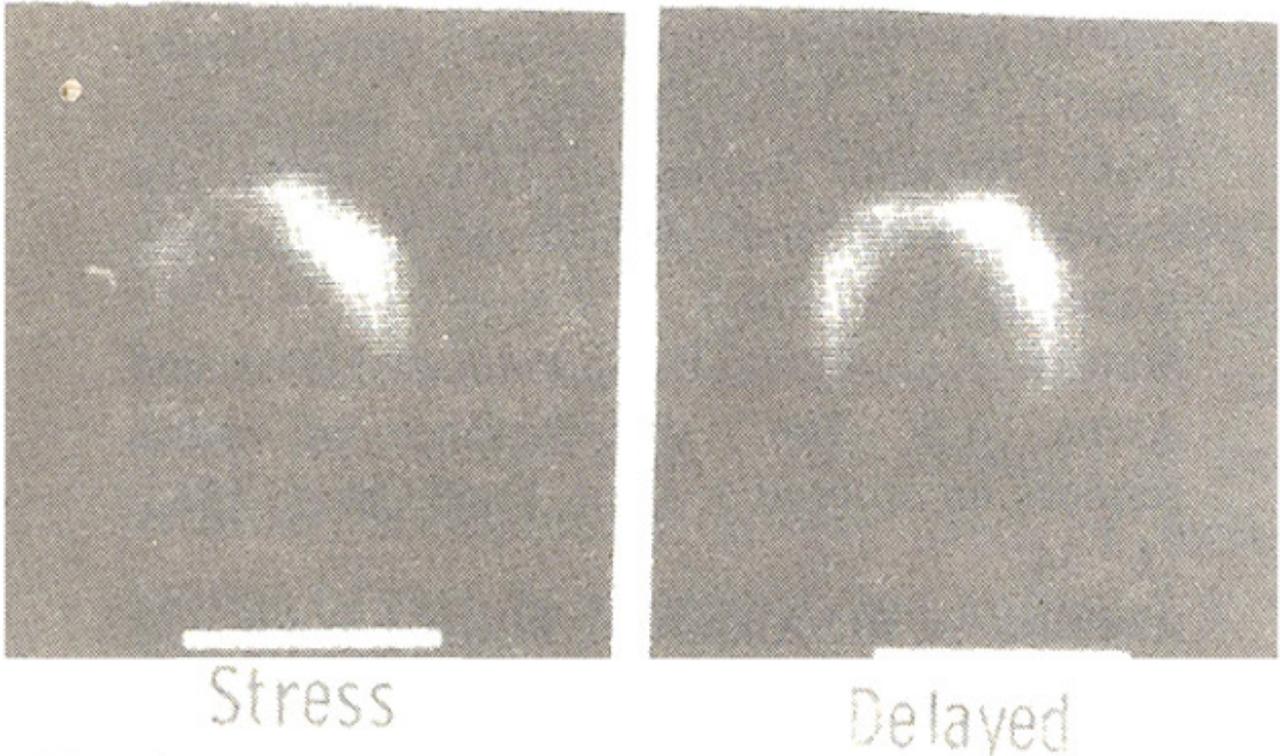


Fig. 2. Stress and delayed ECT images (short axis) showing fixed perfusion defect in the inferior segment and reversible ischemia in anteroseptal and anterior segments.

After one month of Aorto coronary by pass surgery the perfusion defects seen earlier in anterior and antero-septal segment were not visualised in the post operative state, only a fixed perfusion defect was seen in the inferior segment on a repeat thallium-201 stress test (Fig-3).

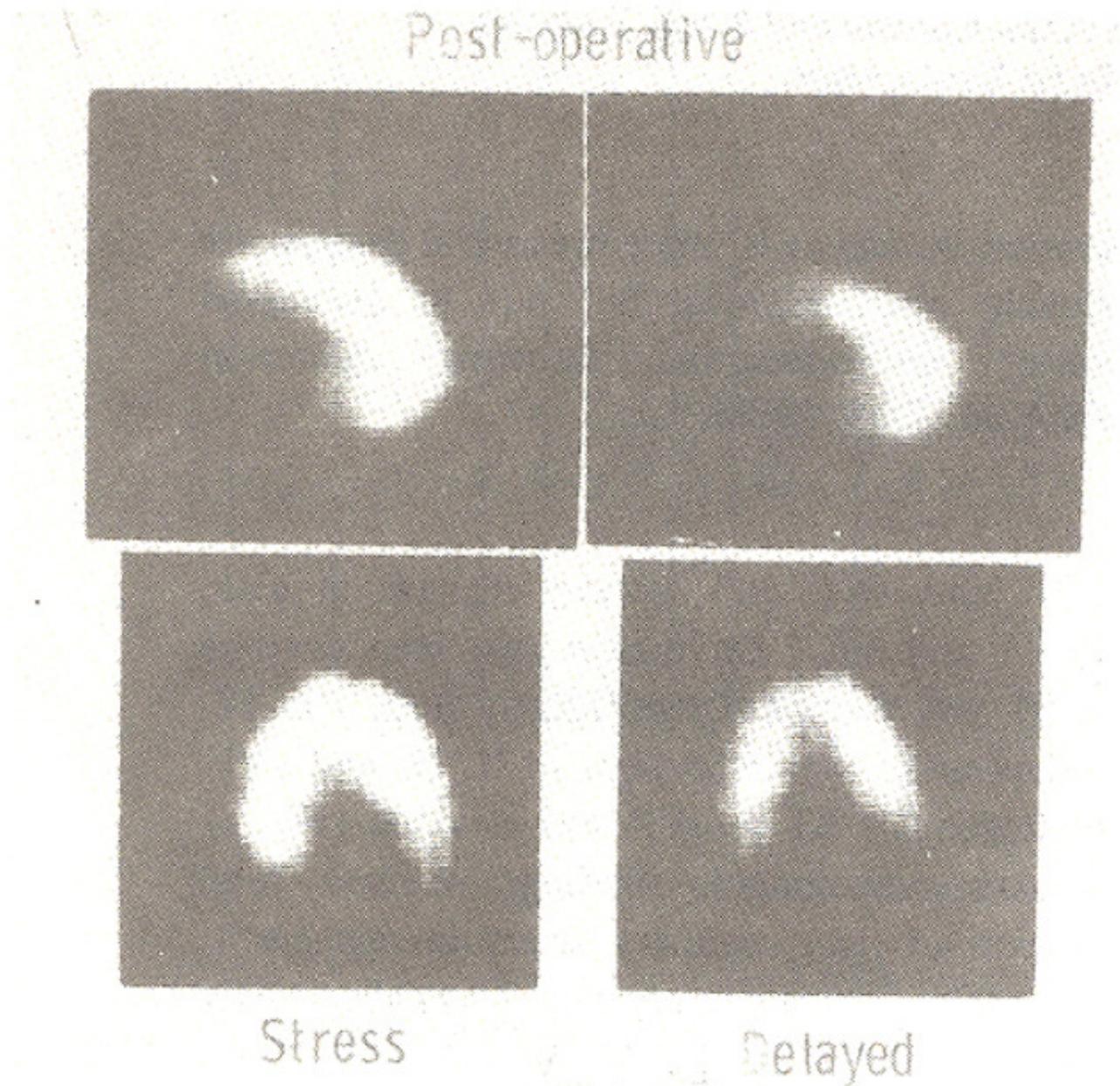


Fig. 3. Stress and delayed ECT images. Fixed perfusion defect is noted in the inferior and posterolateral segments in both the long axis (upper panel) and transaxial (lower panel) images. Reversible ischemia is not seen postoperatively.

During the post operative stress test no apparent ST segment changes were seen. Also, there was no ST-elevation in aVR.

DISCUSSION

Several studies have shown that anterolateral ST segment depression during inferior AMI is associated

with a higher rate of clinical complications. Although the significance of anterolateral ST depression in this clinical setting is established, the mechanism underlying it remains unclear. In a subgroup of these patients the antero-lateral ST depression may be reciprocal. The presence of ST elevation in a YR in a patient with inferior wall myocardial infarction and ST depression in precordial leads suggests that the ST depression is not reciprocal and it is associated with anterior wall ischaemia. The examination of ST segment in aVR in patients with inferior M.I is useful clinically and can help identify patients with inferior AMI with increased risk.

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