A Matter of Camouflage

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A 74 year old woman presents to emergency complaining of severe chest pain which began two hours earlier. The ECG shown is recorded.

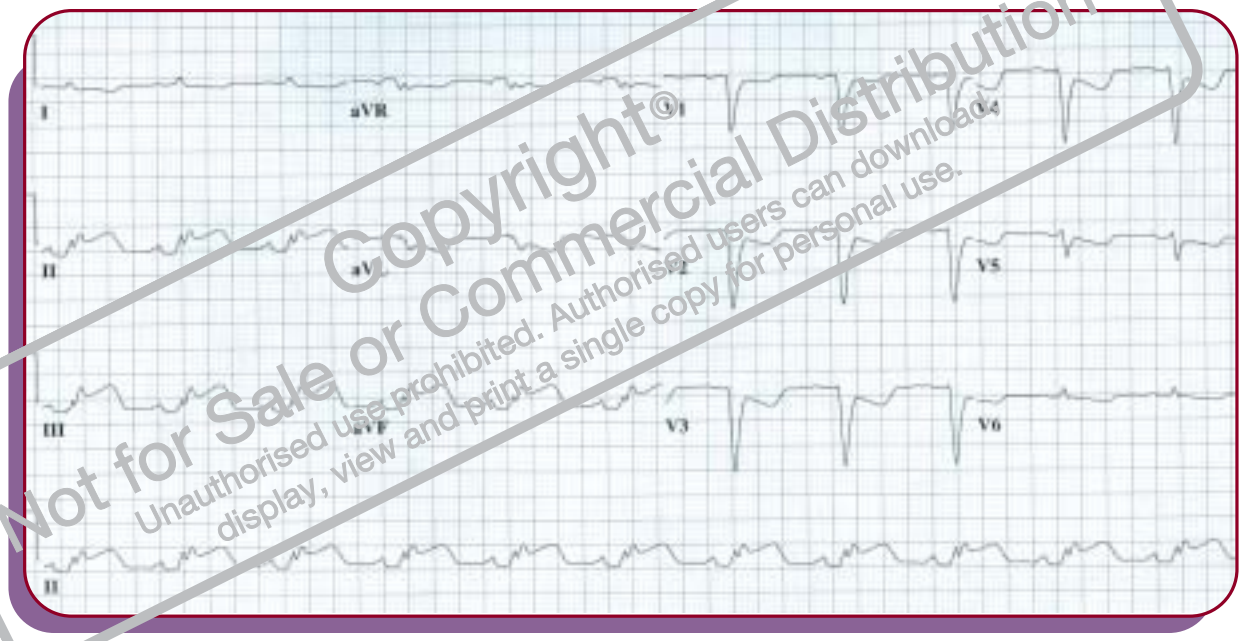

Figure 1. ECG upon presentation.

1. What is the diagnosis?

2. What form of urgent treatment is indicated?

This Month's ECG Diagnosis

1. The initial ECG shows sinus rhythm at 68 beats per minute. The QRS duration is prolonged at approximately 140 milli-seconds (3 small squares at standard recording speed of 25 mm per second). Although the QRS amplitude in V_6 is low, the configuration is that of a left bundle branch block (LBBB) pattern. In addition to the LBBB pattern, the ST segments are very abnormal. There is 3mm to 4 mm of abnormal ST segment elevation in leads II, III and a ventricular fibrillation (VF) with a comparable amount of ST segment depression in leads V_2 to V_5. The presence of LBBB not infrequently evokes the comment that "no further interpretation is possible". Although LBBB may often conceal diagnoses (*e.g.*, old myocardial infarction) and simulate others (*e.g.*, left ventricular hypertrophy), it is important not to overlook changes which may be simply more difficult to detect, or "camouflaged". The ST segment changes of injury and ischemia are a case in point. LBBB causes alterations in the directions of both depolarization and repolarization; as a result, the ST segment and T wave changes of uncomplicated LBBB are usually opposite in direction to the main QRS vector. Any ST segment deviation in the same direction as the QRS vector, particularly when it is as obvious as in this case, usually carries the same significance as if the LBBB were not present. In this patient, we should not permit the presence of LBBB to deflect us from the clear diagnosis of an acute inferior myocardial infarction with associated anterior ischemia or true posterior wall injury (no posterior leads were recorded).

2. The patient requires urgent reperfusion therapy. The choice of thrombolysis or primary angioplasty will be influenced by a number of factors, including the clinical circumstances and local resources, practice and logistics. The decision about the type of reperfusion therapy is less important than the recognition of the need for its delivery in a timely fashion. Even in the absence of diagnostic ST segment changes, which will often be completely concealed in a patient with LBBB, a sufficiently suspicious clinical presentation should usually prompt serious consideration for the administration of reperfusion therapy. PCord

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