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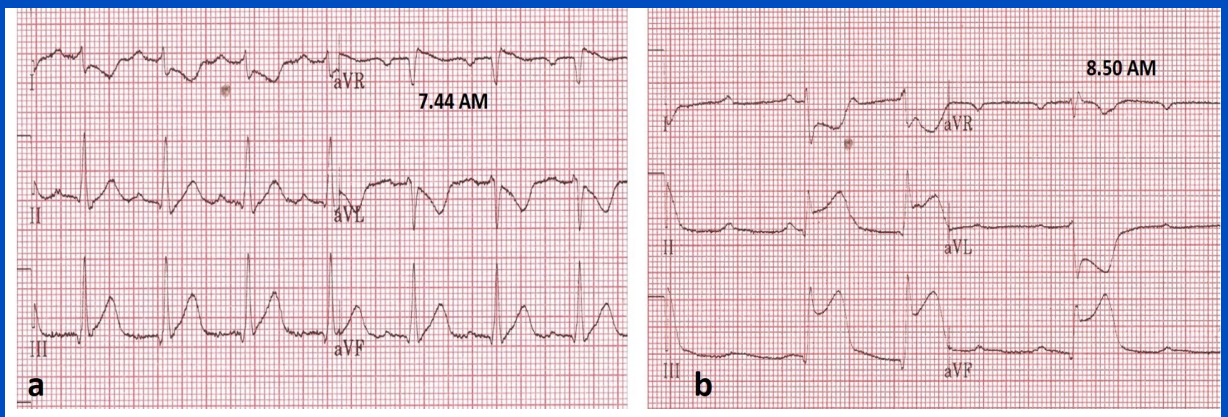

Figure 1

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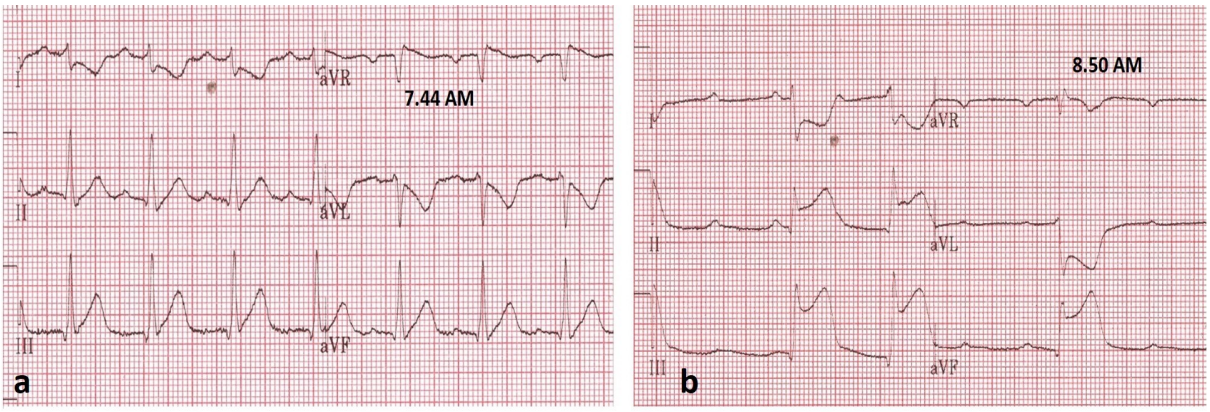

Figure 1

A 53-year-old man with past medical history of hypertension and anterior myocardial infarction 7 years ago, presented to Accident & Emergency Department, Suri Suri Begawan Hospital in Kuala Belait, with chest discomfort after 3 rounds of his daily jog. He has had percutaneous coronary intervention performed for his Left anterior descending artery previously and was on Bisoprolol 5 mg, Aspirin and Atorvostatin 20 mg. On arrival to A&E Department, his chest discomfort has resolved and the first electrocardiograph performed at 7.44 AM is shown in Figure 1a. Blood investigations were also performed and while waiting for the results, he developed another episode of severe chest pain. ECG performed at this time is shown in Figure 1b.

What is the diagnosis? (Pick the right multiple choice)

a. acute anterior ischemia
b. acute evolving anterior Myocardial infarction
c. acute evolving inferior myocardial infarction
d. Pericarditis

***Answer**: refer to page 35*

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DISCLOSURE: There is no conflict of interest.

(***Refer to page 34)***

ANSWER: C. ACUTE EVOLVING INFERIOR MYOCARDIAL INFARCTION

The first ECG (Figure 1a) done at 7.44 am shows that ST is depressed in Lead 1 and avL with T inversion as well and the ST segment in Lead 2,3 and aVF is normal. These ECG changes are **early marker for evolving** inferior ST segment Elevation Myocardial Infarction.

The 2nd ECG was done when he complained of recurrence of pain as he was waiting for the Troponin nearly 60 minutes after the first ECG. (Figure 1b). This ECG shows a classical ST segment elevation of inferior wall myocardial infarction with complete AV block as well. Thus, ST changes in avL preceded the ST elevation in inferior leads by an hour. It is known that avL ECG changes is an early marker for inferior myocardial infarction. Our ECG images are classical of this early sign of inferior myocardial infarction.

ECG diagnosis of STEMI is based on ST elevation in the leads. These ECG changes are seen along with reciprocal ST depression in the lead's opposite of the left ventricular wall. In Inferior wall myocardial infarction, the lead opposite will be avL. In some patients these reciprocal changes precede the ST segment elevation. In our case the ST depression in avL was noted nearly 1 hour before the ST elevation in the inferior leads. In one study, 7.5% of patients it was the only sign of inferior myocardial infarction.[1] This ST depression in avL can also be used as marker to differentiate from Pericarditis with ST changes. The avL ST depression is seen only in inferior myocardial infarction not in Pericarditis.[2]

FIGURE LEGENDS

Figure 1a: ECG shows non progression of R in the anterior leads suggestive of old anterior myocardial infarction. It also shows ST depression in lead 1, avL v6.

Figure 1b: This ECG shows classical ST elevation in inferior leads (lead 2,3, and avF) and complete heart block. ST elevation is also seen in v5, v5 suggestive of lateral wall involvement.

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