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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.

REFERENCES

- 1: Birnbaum Y, Sclarovsky S, Mager A, Strasberg B, Rechavia E. ST segment depression in avL: sensitive marker for acute inferior myocardial infarction. *Eur Heart Journal* 1993; 14: 4 – 7.
- 2: Johanna E Bischof, Christine Worrall, Peter Thompson, David Marti and Stephen W smith. ST depression lead avL differentiates inferior ST elevation myocardial infarction from pericarditis. *American Journal of Emergency medicine.* 2016; 34: 149 – 154