Hyperacute T Waves or Hyperkalemic T Waves? Discussion

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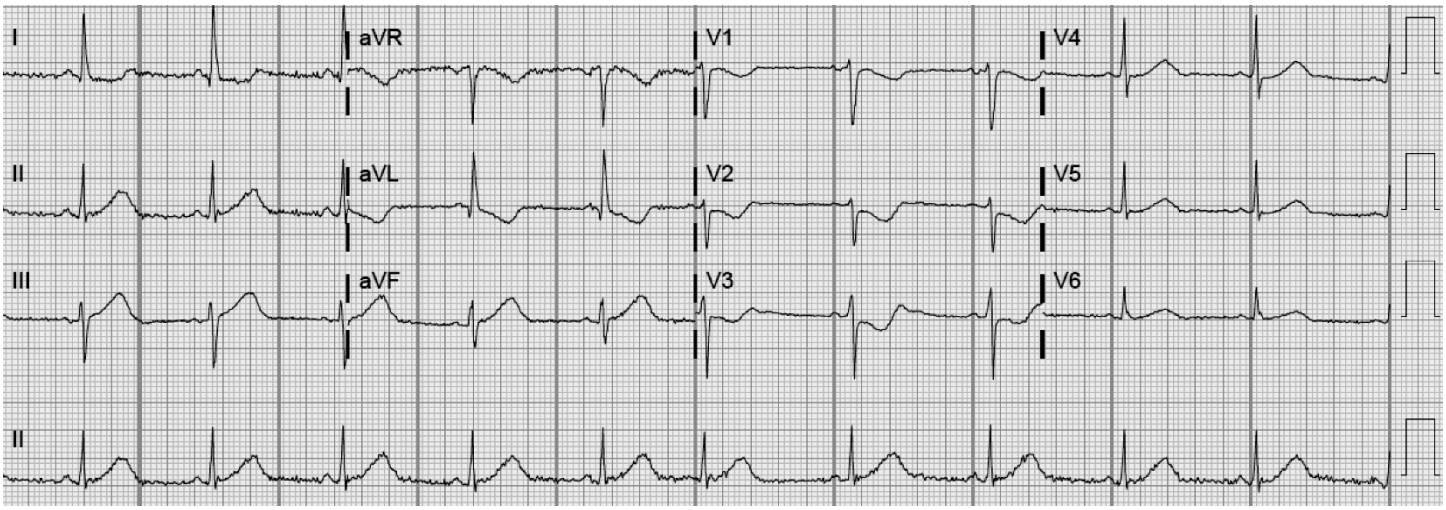

Figure 1

This ECG is from a 58 year old male with a history of hypertension, hypertriglyceridemia, 30 pack/year smoker (stopped smoking 4 years ago) who is mostly sedentary (desk job, no exercise). He is complaining of a tightness sensation in his mid-chest.

If you are looking for tall T waves indicating hyperacuity – you aren't going to find any on this ECG. ***Yet it is filled with hyperacute T waves!*** So many students of electrocardiography are erroneously taught that hyperacute T waves are always TALL and wide. Some are indeed TALL… but many (if not *most*) are just WIDE and not especially TALL!

It is the WIDTH of the T wave at its BASE that is the most reliable indicator of hyperacuity.

This patient is about to manifest an acute transmural ischemia of the left inferior wall and left inferobasal (inferolateral, "posterior") wall. There is NO INFARCTION on this ECG! INFARCTION is DEAD tissue manifested by Q waves and an absolute inability to be revived. So, all this time that you have been diagnosing "acute myocardial infarctions" you have actually been diagnosing **acute transmural ischemia** – *not infarction*. Why on earth would you try to treat an infarction? It's DEAD tissue and there is nothing you can do about it! There is an **occlusion of the distal RCA** here. Want to become much more knowledgeable about acute transmural and non-transmural ischemias? Join us in The

Masterclass in Advanced Electrocardiography. Check my website periodically for class announcements. And by the way, the ECG in Figure 1 depicts an ischemia that is not yet transmural – but it's about to become transmural. Hyperacute T waves are subendocardial phenomenona. ST elevation will appear when the ischemia finally reaches the epicardial surface and becomes transmural.

How about *these* T waves (Figure 2):

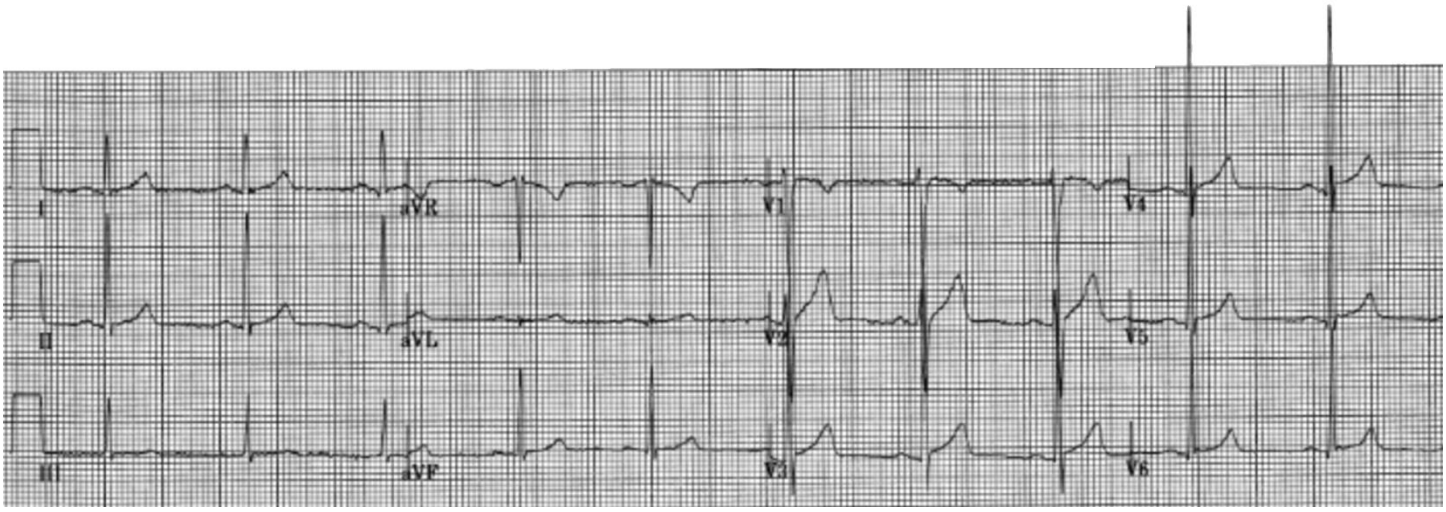

Figure 2

What do you think of the T waves in Leads V2 – V5? Are they normal… or not? A lot *may* or *may not* happen depending on your answer! What are the consequences if you are wrong?

Those T waves are normal. Always expect T waves to be slightly taller or slightly more peaked when the QRS manifests significant amplitude. Also LVH and early repolarization can cause increased T wave height.

How about *these* T waves (Figure 3):

Figure 3

This is hyperkalemia! The full ECG was no more revealing than this lead right here. If you thought that classic hyperkalemic T waves were tall, narrow and sharply pointed,,, you were absolutely correct! They are. But… about 80% of the time they will look like these T waves – or even wider and shorter! You should learn ALL the manifestations of hyperkalemic T waves – not just the classic description because you aren't going to seen more than about 22% of the time. The remaining 78% of the time you will have to diagnose hyperkalemia based on other signs and T wave morphologies.

We spend a full hour on the manifestations of hyperkalemia in ***The Masterclass in Advanced Electrocardiography*** as well as many examples in our in-class readings in which each participant discusses and diagnoses a complex ECG with a little assistance from me when necessary.

The NEXT Masterclass in Advanced Electrocardiography:

September 21 – 24, 2026 in Strasbourg, France
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All classes are conducted in English.

For more information, visit:

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