Arm Lead Reversal Look-Alike: *Grounding Artifact!*

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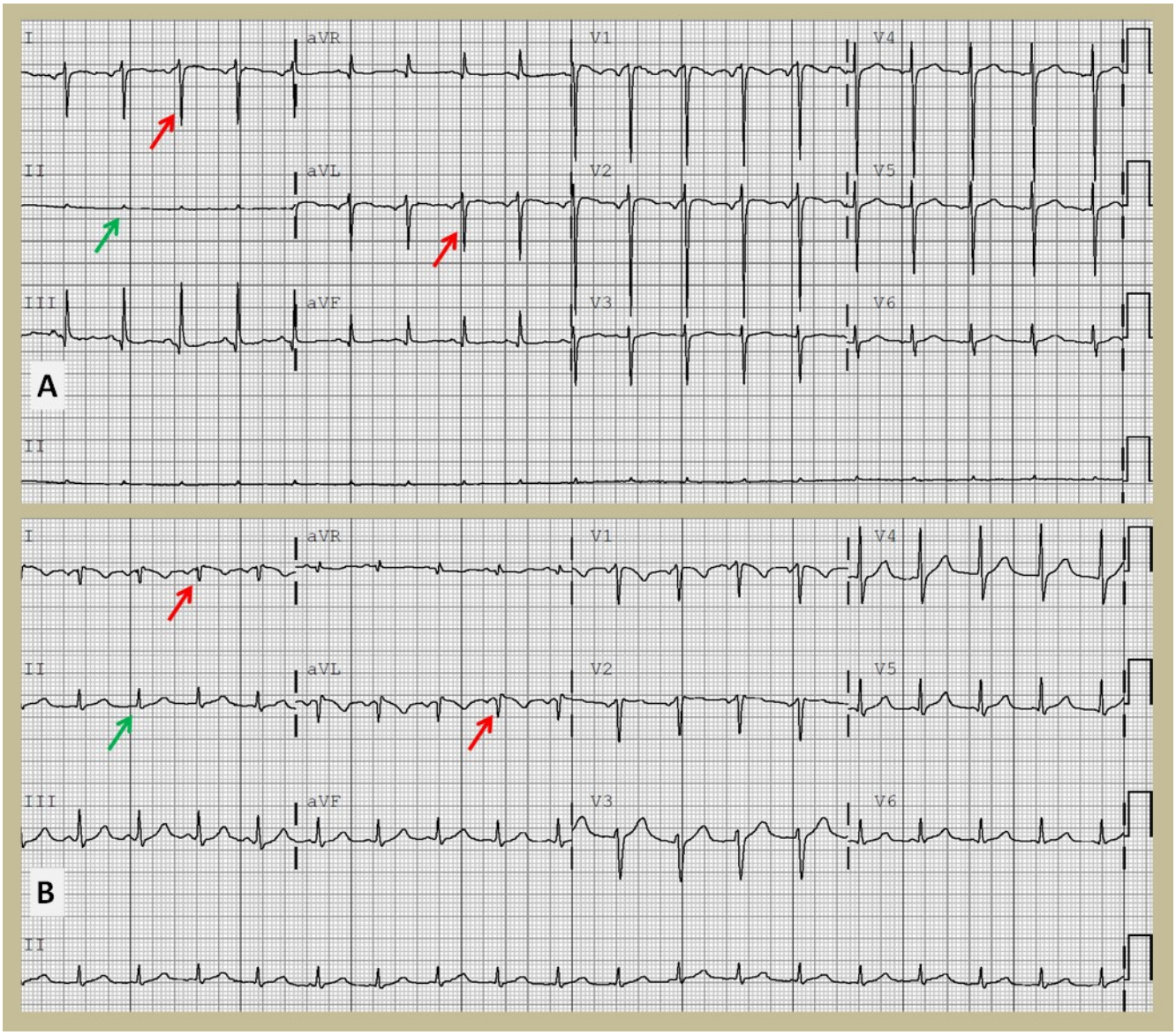

Description

The above two EKGs represent lead reversals, with a negative P-wave and QRS direction in leads I and aVL (red arrows). There is no evidence of dextrocardia, given concordance of aVR and V6 supportive of lead misplacement and proper precordial R wave progression.

At first glance, the likely cause for the lead reversal is arm lead misplacement, which is one of the more common lead placement errors encountered. However, closer scrutiny of the EKGs reveals near flattening of lead II in EKG A (green arrow), which is caused by right arm and right leg (RA – RL) lead reversal, or grounding artifact. EKG B, however, is a true arm lead reversal where leads II (green arrow) and III are intact but reversed.

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Discussion

EKG recording errors are infrequent [1, 2] but can lead to poor quality and patient safety outcomes. Algorithms can be used to infer the type of lead reversal [3], which is crucial in identifying whether the error is due to faulty connection at the patient level [4] or at the machine levels [5], especial when certain errors are perpetual.

EKG-reading systems are helpful in recognizing some lead placement errors; however, they seem to attribute the error in both EKGs presented here to arm lead misplacement. Vigilance is called for when interpreting EKGs, especially in a busy practice, to be able to distinguish between such errors and implement timely remedy.

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KEYWORDS: EKG Recording; Lead Misplacement; Quality Control.

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