



The American Osteopathic College of Occupational and Preventive Medicine 2024 Midyear Educational Conference

Electrocardiograms

In Civil Aviation Medicine

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American Osteopathic College
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ECG Normal Variant List

- Sinus Bradycardia: greater than 44 bpm
- Sinus Tachycardia: less than 110 bpm
- Low Atrial Rhythm
- PVCs: a single one on graph
- PACs: any amount as long as asymptomatic
- First-Degree AV Block: evaluate only if PR interval > than 0.30ms
- Incomplete RtBBB
- An Incomplete RTBBB that subsequent ECGs becomes Complete

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Normal Variants (cont'd)

- Ectopic Atrial Rhythm
- Sinus Arrhythmia
- Left Axis Deviation less than -45deg (45deg or greater could be a LAHB)
- Right Axis Deviation less than +120 (120deg or greater could be a LPHB)
- Indeterminate Axis
- Left atrial enlargement
- Intraventricular conduction delay

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Normal Variant ECG findings (cont'd)

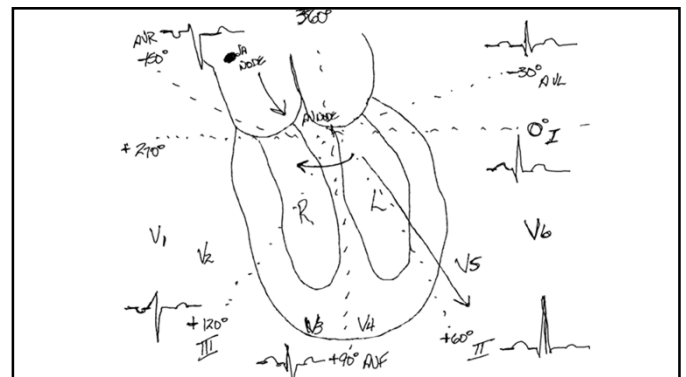
- Short QT interval (with no history of arrhythmia)
- Early repolarization
- Low voltage EMF
- LVH by Voltage Criteria

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Normal – Abnormal ECG Intervals

- PR (or PQ on some graphs): less than 0.21ms
- QRS interval: less than 0.12ms
- Left Axis Deviation: between -30 and -45deg (any axis >-45deg could be a LAHB)
- Right Axis Deviation: less than +120deg (axis greater than +120deg could be a LPHB)

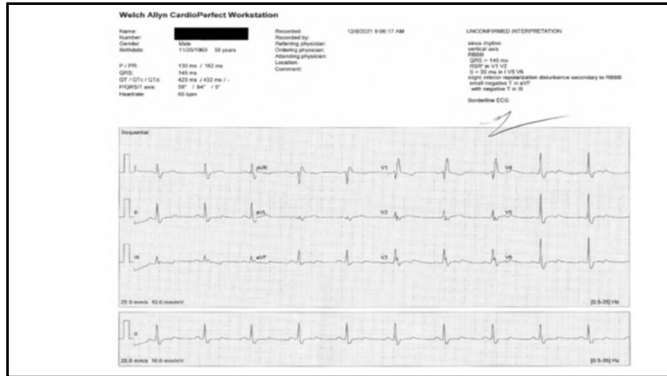
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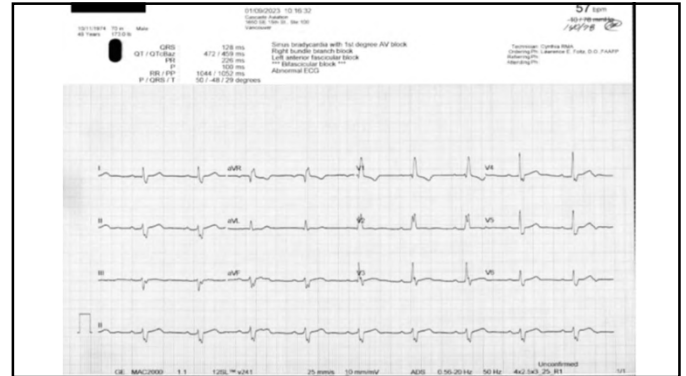
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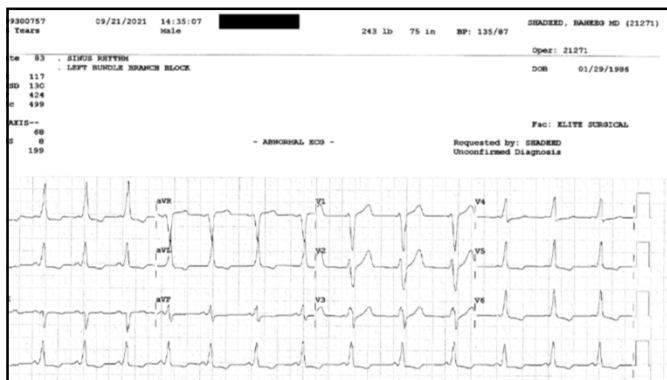
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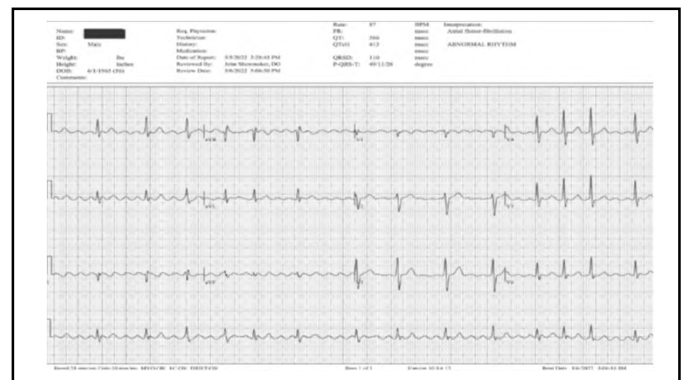
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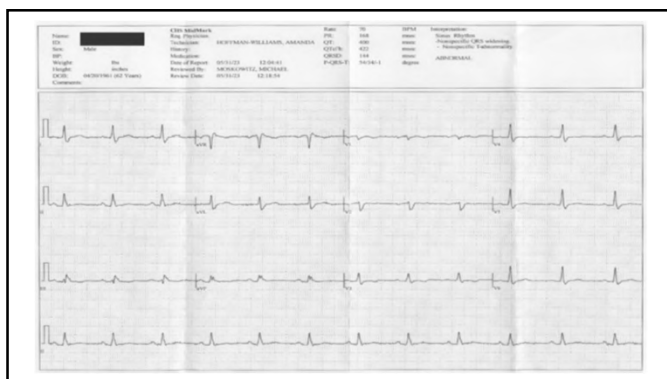
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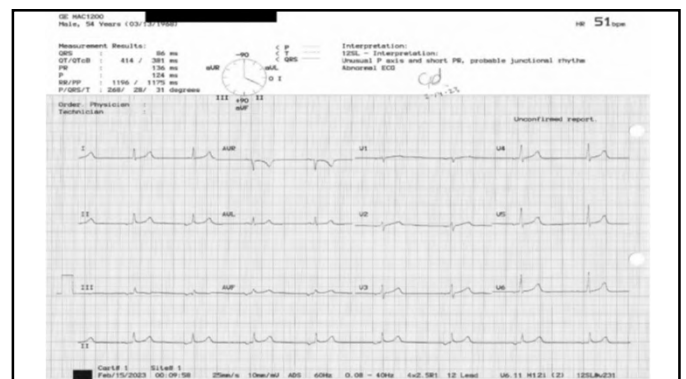
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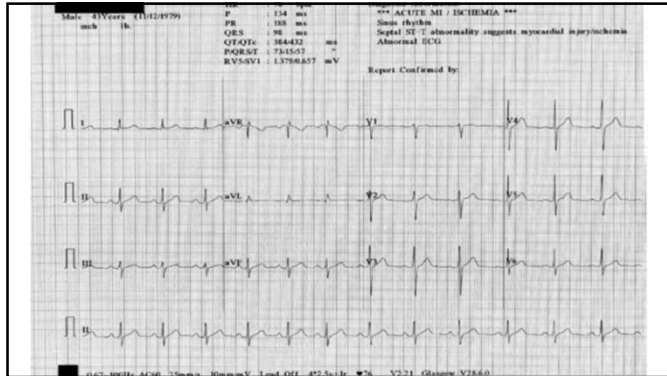
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Standard Evaluations for Common Abnormal ECGs

- Prolonged PR Interval
 - CVE, Maximal Bruce Protocol Nuclear stress test and 24 hr. Holter
- For Sinus Bradycardia 44bpm or slower
 - CVE and Maximal Plain Bruce Protocol Stress test
 - The AME should have exercised the pilot and repeated the graph!

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Standard Evaluations (cont'd)

- For Sinus Tachycardia
 - Did physician note anything as cause, such as nervous when arrived, etc.
 - Check rate in "Pulse" block
 - If still elevated then request CVE, Maximal Bruce Protocol Nuclear stress test, and 24 hr. Holter
- New Onset CompRTBBB
 - If pilot 36y/o and greater
 - CVE and Maximal Bruce Protocol Stress Echocardiogram
- New Onset LtBBB
 - CVE and Pharmacological Nuclear Stress test

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Evaluations for Abnormal ECG (Cont'd)

- New Onset AFIB or FLUTTER
 - CVE, Echocardiogram, Maximal Bruce Protocol Nuclear stress test, 24 hr. Holter monitor, TSH level, Sleep Study
- 2 or more PVCs on a single ECG
 - CVE, 24 Hour Holter, Maximal Bruce Protocol Nuclear stress test, Echocardiogram.

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