



‘MY HEART RAN, SLOWED DOWN AND FROZED’: A CASE OF YOUNG SICK SINUS SYNDROME



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Introduction

Sick sinus syndrome is usually diagnosed among elderly patient. We present such a case in a rather young patient.

Case Report

28-year-old gentleman presented with history of recurrent syncopal attack preceded by palpitation for two days. He had past history of palpitation since 15 years old but defaulted treatment. Upon arrival, patient was conscious. His heart rate was 30 – 120 beat per minute but other vital signs are stable. Patient had intermittent episodes of syncopal attack in the emergency department. Cardiac monitor during the syncopal attacks showed ventricular standstill. Serial electrocardiogram(ECG) showed sinus pause and high grade atrioventricular(AV) block with left ventricular hypertrophy and inverted T at II,III,aVf,V3-V6. There were few episodes of hypotension. Electrolytes were normal. The urine for drugs is negative. Transcutaneous pacing was applied with the output set at 90mA and rate at 70 bpm. The cardiac monitor showed electrical capture with increased heart rate but patient still had brief episodes of syncopal attack. Bedside Focused Cardiac Ultrasound(FOCUS) showed mechanical capture was not achieved. Subsequently, transvenous pacing was applied and patient had resolution of symptom. Diagnosis of sick sinus syndrome attributed to structural heart disease was made.

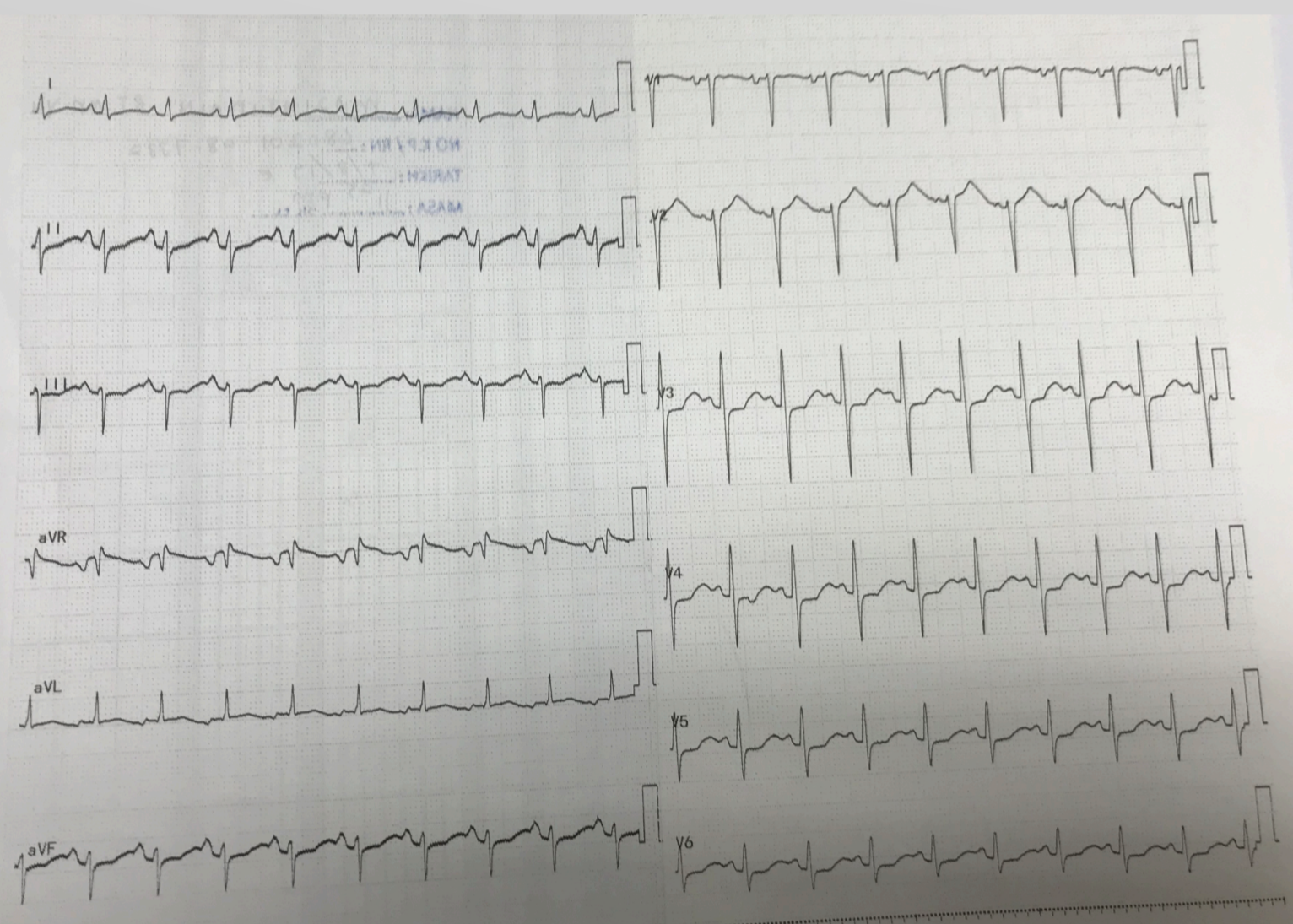


Figure 1. ECG of patient on presentation showing sinus tachycardia.

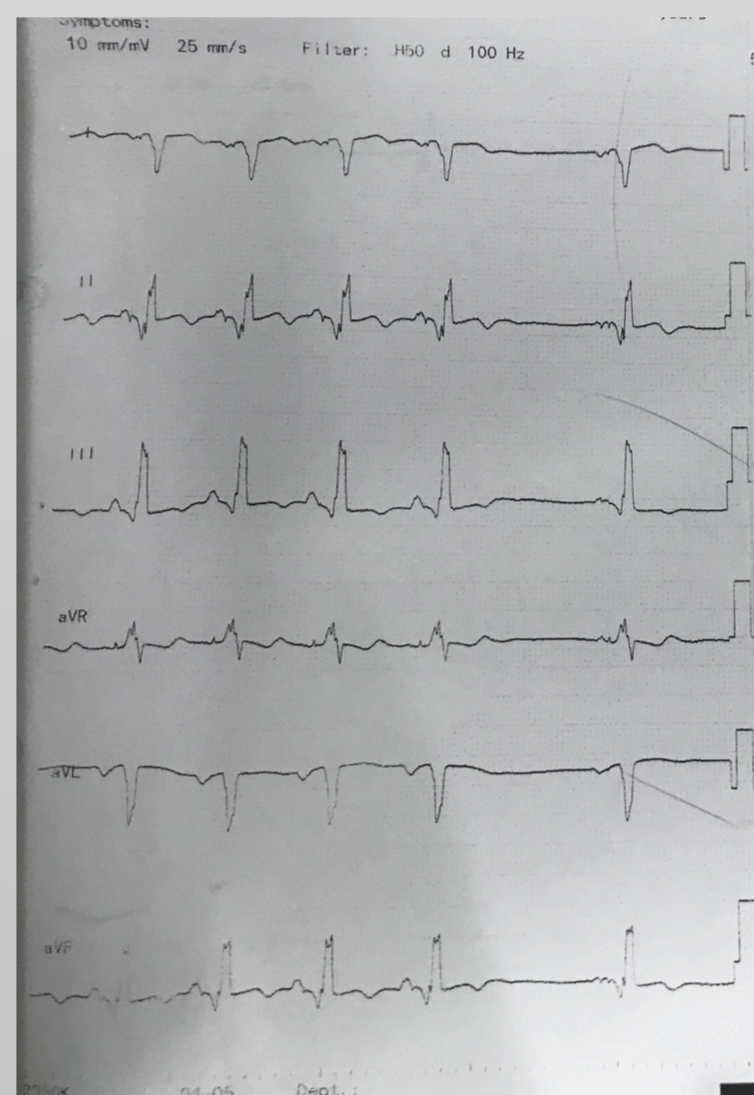


Figure 2. Serial ECG of patient showing sinus pause on limbs lead.

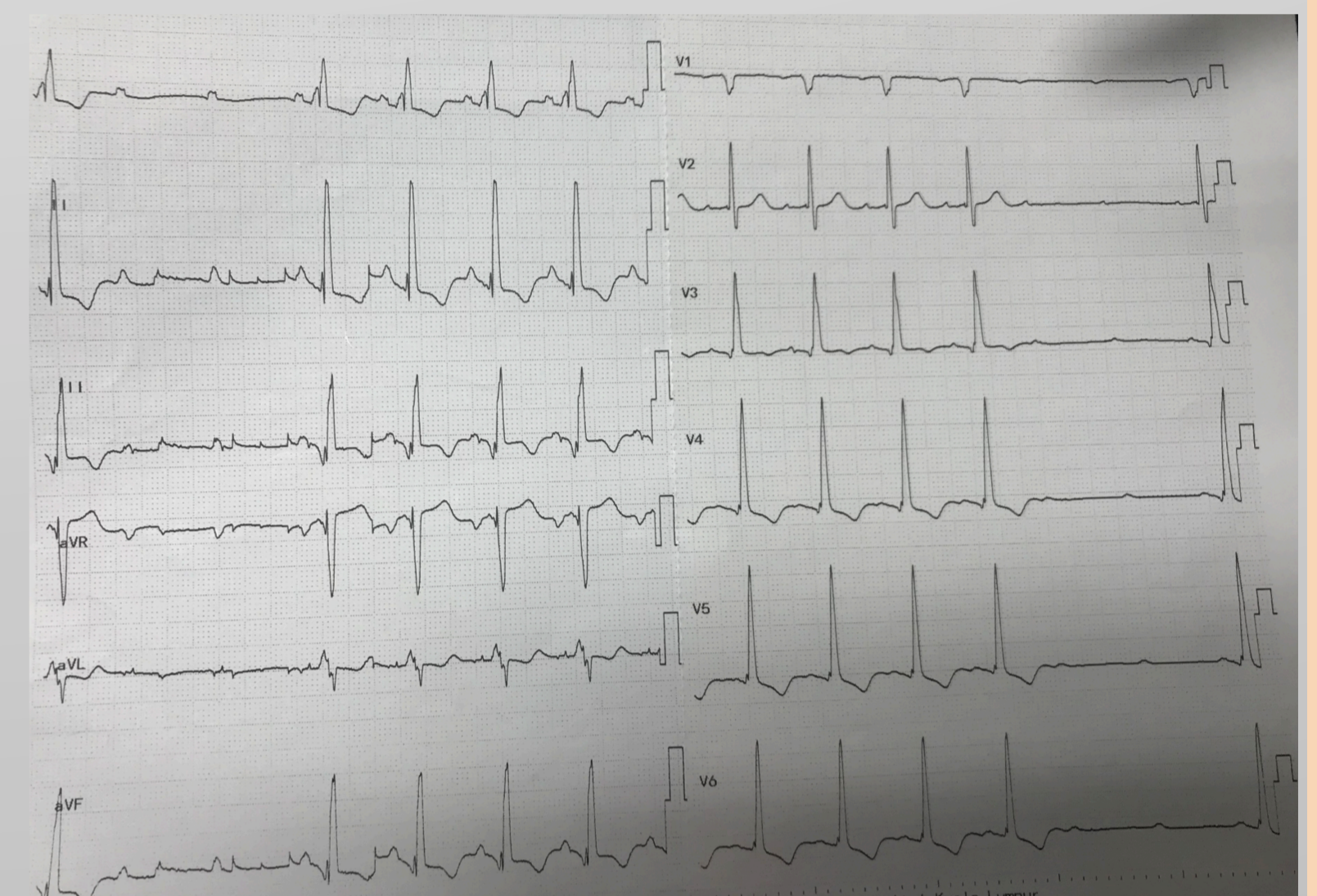


Figure 3. ECG of patient showing failure of transcutaneous pacing with ventricular standstill, left ventricle hypertrophy and inverted T.

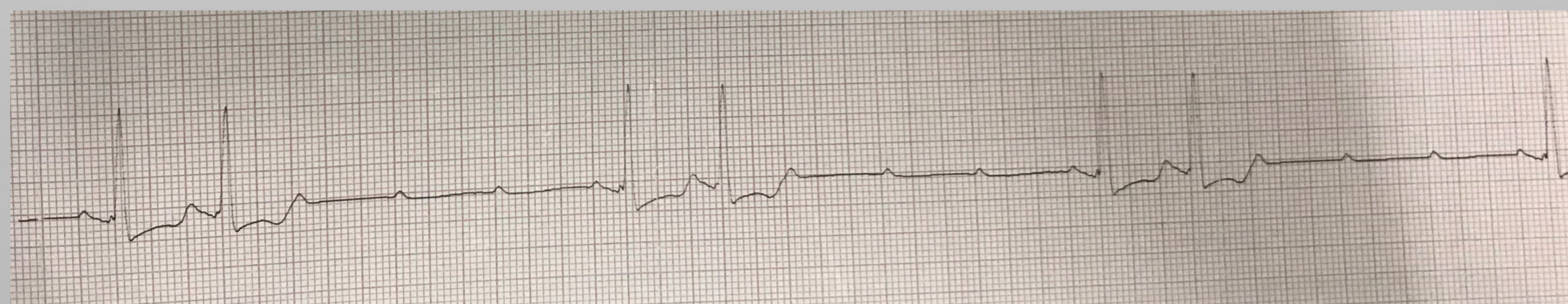


Figure 4. Cardiac monitor strip during syncope episode showing ventricular standstill.

Discussion

Sick sinus syndrome comprises a variety of conditions involving sinus node dysfunction and commonly affect elderly person¹. This is a rare case of sick sinus syndrome occurring in a young man. There are no standardized criteria to establish diagnosis of sick sinus syndrome, hence the key of diagnosis depends on patient's symptoms and underlying rhythm at the time of symptoms². It manifest as sinus arrest, sinoatrial block and arrhythmias like bradyarrhythmias with or without associated tachyarrhythmias³. Second degree sinoatrial block will cause dropped P wave with the pause surrounding the dropped P is an exact multiple of the preceding P-P interval. The symptoms are often subtle early on and become obvious as disease progress and commonly related to end organ hypoperfusion⁴. Syncope due to cerebral hypoperfusion occur in about one-half of patients⁴. It results from intrinsic causes like degenerative fibrosis and ion channel dysfunction or exacerbated by extrinsic causes like pharmacologic and metabolic⁴. The occurrence if sick sinus syndrome in young patient is puzzling, structural heart disease and surgery may predispose⁵.

Temporary cardiac pacing is used to treat sick sinus syndrome but atrial or dual-chamber pacemaker is the mainstay of treatment⁶. Electrical capture does not equate mechanical capture⁷. Clinical improvement and bedside FOCUS could help ascertain this. The electrical capture will result in QRS complex with T wave after each pacer spike, while mechanical capture will cause improvement in patient condition and palpable peripheral pulse in unconscious patient⁸. The most common cause for failure to capture are insufficient milliamperes and poor pad placement⁹.

Conclusion

Sick sinus syndrome in young adult is uncommon, but still represents the most common indication for temporary pacing and permanent pacemaker. Transvenous pacing is the best option to provide temporary pacing as it well tolerated and can be applied on extended period of time.

References

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