

# Sick Sinus Syndrome: 21 Years Follow-Up

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## Abstract

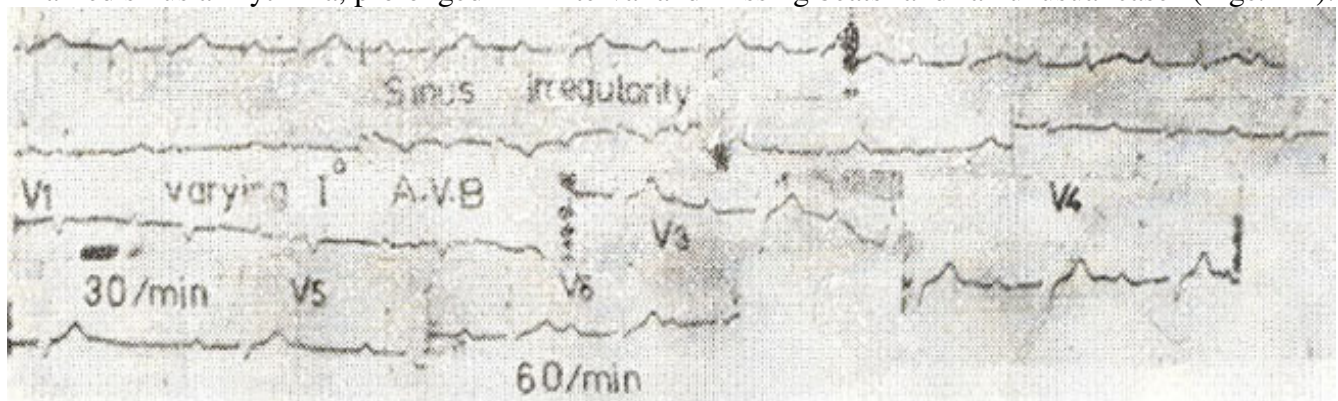
A case of sick sinus syndrome, which was originally diagnosed during 1958, had an extensive follow-up for over 20 years by several clinicians. He showed a wide spectrum of associated rhythm disorders including sinus irregularity, extrasystoles, paroxysmal supraventricular tachycardia and Wenkebach's phenomenon. He remained physically fit and active, and did not require active medications, and died in an air crash.

## Introduction

Sick sinus syndrome (SSS), disorderly sinus inactivity with or without escape activity, was first reported by Ferrer (1968), and several reports have since been published (Narula et al., 1972; Akhtar, 1973; Conde et al., 1974; Ilyas et al., 1974; Marmor and Block, 1980). Ironically, ten years earlier Yousaf (1958) had documented a case of this disorder but missed the opportunity of naming it or publishing it. This communication spotlights a 21 years follow-up of Yousaf's original case of SSS.

## Case Report

M.A., a young doctor of Lahore, who used to be perturbed with palpitation since childhood, consulted his teacher, Prof. Muhammad Yousaf K.E. Medical College Lahore, in 1958. On examination the pulse rate was 40-60/min and irregular, B.P. was 120/75 mm Hg, heart sounds were normal and chest X-ray showed no abnormality. The electrocardiogram, recorded on Dec. 16, 1958, was reported to have "marked sinus arrhythmia, prolonged P-R interval and missing beats" and "an unusual case" (Figs. 1-2).



*Fig. 1: Dec. 1958: ECG showing marked sinus irregularity (30-60/min) and varying first degree A-V block.*

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# Electrocardiographic Observations

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Conclusion: There is marked  
sinus arrhythmia. Atrial rate  
varying between 50-60.  
There are occasional dropped  
beats, due to heart block.  
A.R.S. is at the upper  
limit of normal.  
P.R. interval is much prolonged.  
Presence of Partial Heart Block  
with marked Sinus Arrhythmia.

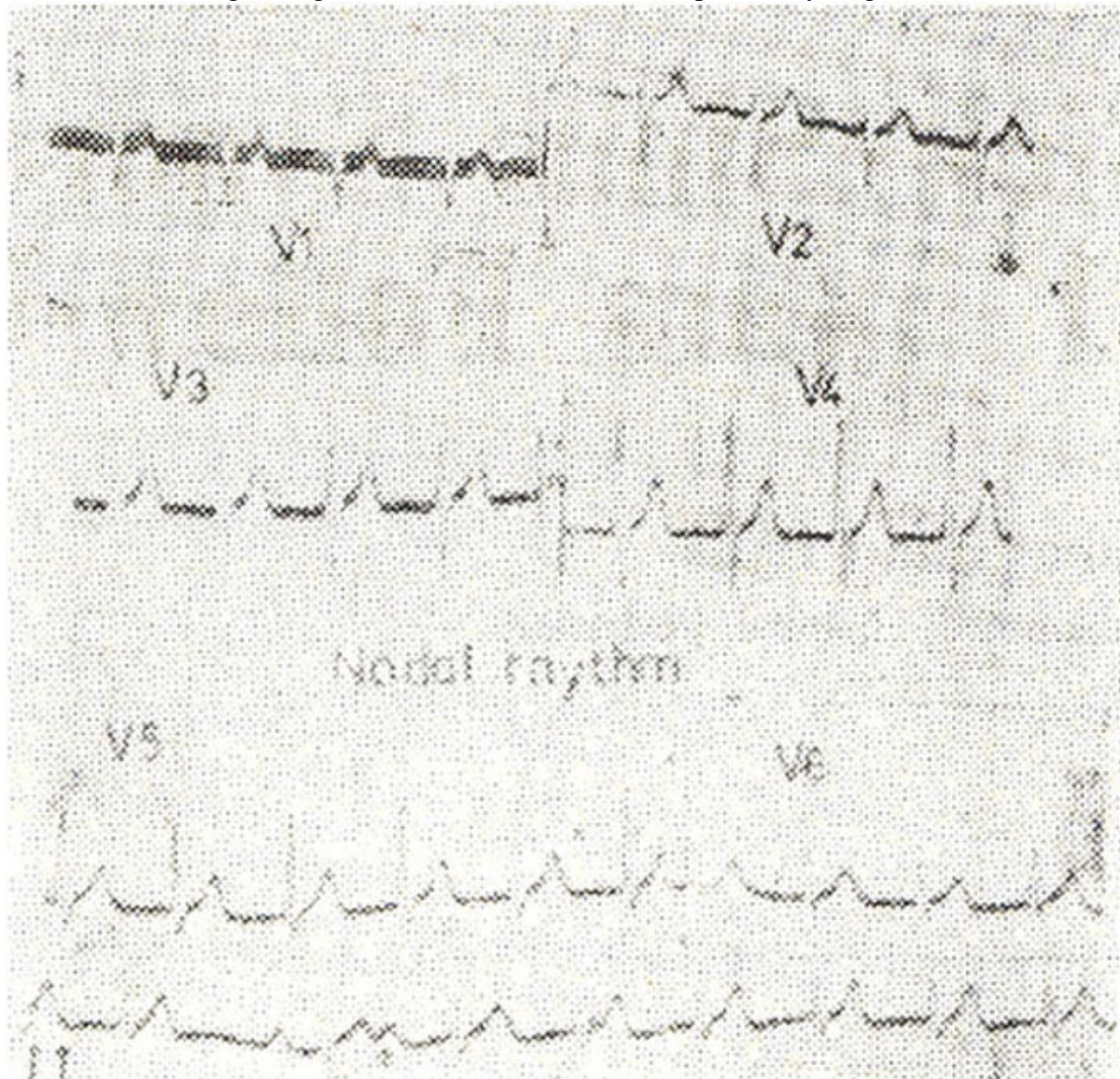
Muhammad Yousaf  
Dec. 16, 1958

**Fig. 2: Dec. 16, 1958: Report by Dr. Muhammad Yousaf "partial heart block with marked sinus arrhythmias".**

The doctor was advised to reduce tea intake and to take phenobarbitone gr. 1/2 two or three times a day, with no obvious benefit. He was a non-Smoker. He remained otherwise well and active except for palpitation and episodes of paroxysmal supraventricular tachycardia. During the following years, as a surgeon, he continued to work 10-12 hours a day. Several electrocardiograms were taken on different

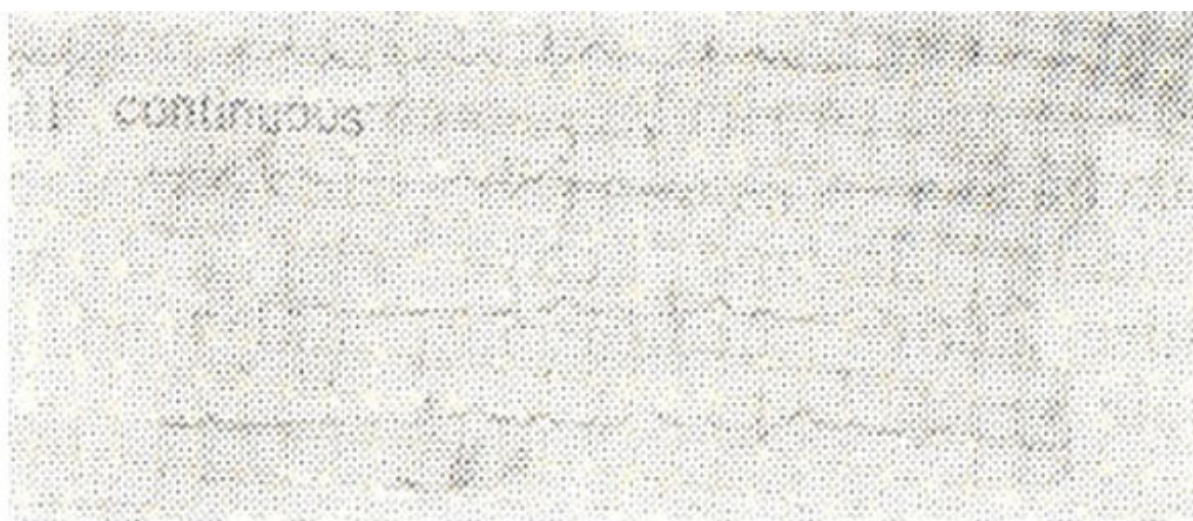


occasions; one recording during 1963 demonstrated nodal escape activity (Fig. 3)



*Fig. 3: Jan. 1963: Accelerated nodal rhythm with sinus interference (lead II).*

and a recording during 1974 showed 2:1 A-V block with Wenkebach's phenomenon (Fig. 4).



*Fig. 4: April 1974: In addition to first degree A-V block, second degree A-V block with Wenkebach's phenomenon.*

An electrocardiogram recorded during 1978 showed sinus irregularity with nodal escape activity. He died, in an air crash during 1979.

## Discussion

SSS has existed undiscovered due to low specificity of the clinical symptoms and low sensitivity of morphological patterns. The term sick sinus was coined by Lown (1967) for failure of sinus rhythm after cardioversion and a complete account on the syndrome was reported by Ferrer (1968). SSS is commoner in older age groups but also occurs in young, and both sexes are equally affected. SSS may manifest as sinus bradycardia or sinus arrest. Chronic atrial fibrillation may replace ceased sinus rhythm and ventricular rate may also be slow. Lone atrial fibrillation, without cardiac abnormality specially in the young, may also be due to sick sinus syndrome.

Sinoatrial node may die slowly or more abruptly in coronary heart disease. Prognosis of SSS is influenced by asystolic episodes, congestive cardiac failure and by the type and response to treatment. Yousaf's case, which was originally diagnosed during 1958, remained well for over 21 years. SSS may be associated with congenital deafness and may be the cause of death in young athletes (James, 1967). In-cresed alertness after exercise may be the only manifestation of SSS (Marmor and Block, 1980). Provocative tests include response to intravenous atropine and isoprenaline, and rapid atrial pacing (Narula et al., 1972). Atropine and isoprenaline are both used as provocative test and for short term treatment. Demand ventri-cu'ar pacemaker is the treatment of choice (Code et al., 1974), and for associated tachyarrhythmias beta-blocking is required

Digoxin does not necessarily influence sinus bradycardia in SSS, but with coexisting A-V block it should be used with implanted pacemaker. Digoxin administered after atropine (vagal bloekade) in patients with sinus node dysfunction increased sinus cycle length, sinoatrial couduction time and maximal corrected sinus recovery time (Reiffel et al., 1975).

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